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Air Assault Operations

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FOREWORD

Marine Corps Tactical Publication (MCTP) 3-01B, *Air Assault Operations*, describes how infantry and aviation units plan and conduct air assault operations. MCTP 3-01B emphasizes the coordination necessary between ground, air, combat support, and combat service support organizations concerning the planning sequence and tactical employment of ground and aviation elements. It describes the versatility of air assault operations and explains the tactical fundamentals of air assault operations for ground-based operations once ashore.

MCTP 3-01B is intended for commanders, staff officers, and support units responsible for the planning and execution of air assault operations. However, it should be read by any Marine involved in the execution of air assault operations.

This publication does not contain information relative to amphibious operations. Air assault operations in amphibious operations are discussed in MCTP 13-10E, *Ship-to-Shore Movement*, and the Navy Tactics, Techniques, and Procedures 3-22.5 Tactical Pocket Guide series.

This publication supersedes MCTP 3-01B, *Helicopterborne Operations*, dated 16 August 2004.

Reviewed and approved this date.

BY DIRECTION OF THE COMMANDANT OF THE MARINE CORPS

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Air Assault Operations

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To Our Readers

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CHAPTER 1
FUNDAMENTALS

Air assault operations are a subset of airborne operations and a form of vertical envelopment in which assault forces (combat, combat support, and combat service support [CSS]), using the mobility of assault support assets and the total integration of combat power, maneuver under the control of a ground or air maneuver commander to accomplish the designated mission. They are best employed in situations that provide the force a calculated advantage due to surprise, terrain, threat, or mobility. Air assault operations allow the commander to maneuver rapidly to achieve tactical surprise and mass forces, regardless of obstacles, and without dependency on ground lines of communication. These operations embody the combined arms concept through coordination and planning between the air and ground commanders. Infantry and air units can be fully integrated with other members of the combined arms team to form powerful and flexible Marine air assault task forces (MAATFs). These forces can project combat power throughout the entire depth, width, and breadth of the battlespace. The unique versatility and strength of a MAATF is achieved by combining the capabilities of assault support aircraft—speed, agility, and firepower—with those of the infantry and other combat arms to form task-organized MAATFs that can be employed across the range of military operations. Specifically, a MAATF combines aviation assets, assault force units, and supporting units for use in air assault operations.

Air assault operations are not merely the movement of Marines, weapons, and material. They are deliberate, precisely planned, and aggressively executed combat operations that allow friendly forces to strike over terrain barriers in order to attack the enemy when and where the enemy is most vulnerable.

> ***Note:*** Air assault operations are not air movement operations, which are the air transport of units, personnel, supplies, and equipment without engaging enemy forces or seizing and holding key terrain.

The capability to execute air assault operations dramatically expands the ability of the Marine air-ground task force (MAGTF) commander to maneuver beyond the organic capabilities of the ground combat element (GCE). This greater maneuver area provides the commander greater tactical flexibility in conducting all manner of operations within their area of operations.

The speed and mobility of assault support aircraft allows the MAGTF to create greater operational tempo than the enemy. The ability to maneuver rapidly—and deeply—allows friendly forces to seize and maintain the initiative, dictate the tempo of operations, and maneuver to positions of advantage over distances that would otherwise be impossible to traverse as quickly. The assault support aircraft's flexibility and versatility permit the ground commander to reduce time and distance limitations normally encountered in the ground movement of troops; although, air assault training (see app. A) is required to fully maximize these capabilities.

SEQUENCE OF OPERATIONS

An air assault operation generally takes place in the following sequence:

- Planning.
- Briefing.
- Loading.
- Air assault.
- Landing.
- Tactical ground operations.
- Sustainment.
- Ground linkup/air reposition.

TACTICAL CONSIDERATIONS

In addition to utilizing the tactical fundamentals of ground combat, air assault operations also apply the following tactical considerations:

- MAATF is assigned missions that take advantage of its superior mobility.
- MAATF fights as a combined arms team.
- Planning must be centralized and detailed.
- Execution must be aggressive and decentralized.
- Typically, air assault forces are light infantry without tactical mobility. For this reason, it is important that the force be landed on or near the objective. If heavy-lift helicopters are available in sufficient quantity to support the movement of mobility or fire support assets, consideration can be given to landing away from the objective.
- Air assault forces may operate independently or in conjunction with other ground forces.
- The mission commander determines the composition of the assault wave. Ideally, the air assault force should be able to overmatch enemy forces likely to be immediately present and be able to amass combat power faster than those enemy forces are able respond.
- Assault support aircraft are an excellent means of tactical deception. When possible, assault support aircraft can make demonstration landings in several different zones during one flight to deceive the enemy as to the true objective of an operation.
- Air assault attacks are typically launched against undefended or lightly defended objectives. If attacking a well-defended objective, planners must select landing zones (LZs) that are nearby and support a safe landing of the force while adequately suppressing enemy defenses.
- Air assault forces are vulnerable to attack helicopters, fixed-wing aircraft, surface-to-air missiles, and air defense artillery. To counter this vulnerability, fixed-wing and/or rotary-wing aircraft escort the air assault forces and use indirect fires to suppress or neutralize enemy defenses. Suppression may also be conducted by electronic attack.

- During a landing, air assault forces are especially vulnerable and may be disorganized for a short time; therefore, pre-mission rehearsals are critical to mission success.
- Air defense weapons are employed to counter enemy antiair capabilities.
- Air assault forces must be resourced to hold until relieved. In linkup operations, the air assault force is normally the stationary force.

The increased mobility of an air assault force allows the commander to extend the area of influence. But when conducting such operations far from other friendly forces, the following risks must be considered:

- Greater exposure to enemy ground fire and enemy aircraft.
- Possible loss of surprise.
- Increased vulnerability to enemy counterattacks.
- Decreased ability to conduct effective sustainment.
- Increased risk to communications.

To execute successful deep air assault operations, the following must exist:

- Detailed analysis of the objective area and persistent intelligence collection.
- Ability of the air assault force to move securely to the objective area from the LZs.
- Ability to execute the mission without ground lines of communications.
- Ability to provide effective aerial combat support and CSS.
- Ability to withdraw forces if required.
- Coordination is required between ground and air assault units involved in an air assault operation; therefore, rehearsals are critical to mission success. At a minimum, communications and actions in the pickup zones (PZs) and LZs are rehearsed.
- Command and control (C2) is tailored for the assigned mission. Ideally, the air mission commander (AMC) and mission commander are collocated in a C2 platform. This collocation may not always be possible depending on the mission.
- Due to the range of air assault operations, the use of airborne relay and C2 platforms must be considered, and the communications plan must be simple, redundant, and fully integrate all elements of the force. See Marine Corps Reference Publication (MCRP) 3-30B.2, *MAGTF Communications System*, for a description of MAGTF radio nets that can be used to provide the needed C2 links for the air assault force.
- Small-unit tactical integrity should be maintained throughout an air assault operation.
- Fire support planning must provide for suppressive fires along flight routes and in the vicinity of LZs. The suppression of enemy air defenses (SEAD) must be a priority for fires. Fire support assets of all types must be positioned and postured accordingly.
- Air assault forces are most effectively employed in environments where limited lines of communications are available to the enemy, terrain limits the use of heavy ground forces, and where the enemy lacks air superiority and effective air defense systems.

When infantry units conduct air assault operations, the assault force commander (AFC) must determine the disposition of unit vehicles, attached vehicles, and support vehicles. Vehicles may be—

- Flown in with the air assault force.
- Flown in subsequent to the arrival of the air assault force.
- Driven in by ground mobile elements of the air assault force subsequent to the initial assault.
- Attached to another ground unit (e.g., a linkup force) for movement to the objective area.
- Left in the assembly area until the air assault force returns.
- Staged in position to provide support for the air assault force or adjacent units.

> ***Note:*** See appendix B for the small-unit leader's guide to tactical PZ/LZ operations.

COMMAND AND CONTROL

Air assault operations require close coordination between the commander of the ground unit to be lifted and the AMC. The AMC is an experienced naval aviator, typically operating from an aircraft, who directs airborne coordination and control of air assault operations. When no AMC has been designated, the assault flight leader (AFL) performs this function. The following coordination measures enhance command and control of air assault operations:

- Coordination begins at the earliest opportunity in the planning phase of the operation.
- When possible, the mission commander and AMC are collocated, normally via a C2 aircraft, during the air movement and initial stages of the landing.
- The AMC's primary responsibility is to coordinate the air movement of personnel and equipment into designated LZs. The AMC supports the ground commander's concept of operations (CONOPS).
- While the air movement phase is primarily the responsibility of the AMC, the ground commander must be prepared to recommend primary and alternate approach and retirement lanes. The ground commander must confirm the proper LZ.
- It may become necessary to shift from primary to alternate LZs or to alter the course of flights; therefore, the authority to change to an alternate LZ must be established as soon as LZs are selected. The shifting of an LZ or approach and retirement lanes usually impacts both the current operation and other operations. When the use of either LZ will not affect the scheme of maneuver or plan of supporting fire of adjacent units, the AFC, in coordination with the AMC or AFL, may be delegated the authority to use the alternate LZ to exploit a tactical advantage or to improve the ground situation. If the use of a selected LZ will affect adjacent or higher units, this authority cannot be delegated below the highest unit affected.

AIR ASSAULT FORCES ORGANIZATION

The organization of forces may include some or all of the elements of the MAGTF.

> ***Note:*** Throughout the remainder of this publication, the term MAATF will include GCE, aviation combat element (ACE), logistics combat element (LCE), and command element forces used to conduct air assault.

Since task organization is essential in the conduct of air assault operations, the air assault force, as a part of the MAGTF, is an integrated force tailored to a specific mission under the command of a single commander. Typically, the MAGTF commander directs the formation of an MAATF and designates a mission commander. The AMC, escort flight leader (EFL), AFL, and AFC are subordinate to the mission commander. To exploit opportunities offered by an MAATF, commanders and leaders must understand the principles upon which the MAATF was organized and its intent of employment.

TASK ORGANIZATION CONSIDERATIONS

Planners must consider the following during task organization of the air assault force:

- Availability and allocation of aviation assets.
- Task organization should be determined and announced early in the planning process; it should be included in the warning order.
- The air assault force provides sufficient combat power to seize initial objectives and protect LZs. The MAATF is normally comprised of a command element, an assault element, a support element, a security element, and a reserve element.
- The air assault force requires a mission-specific balance of mobility, combat power, and sustaining power.
- The ability of the air assault force to arrive intact at the LZ (providing en route security throughout the entire flight route and during actions on the objective) and to facilitate follow-on operations.
- Combat support elements are normally placed in direct support to the air assault force to ensure close coordination and continuous, dedicated support throughout an operation.

CAPABILITIES

An air assault force provides commanders with unique capabilities. No other ground force on the battlefield can respond to a tactical situation and move considerable distances as quickly as an air

assault force. It can extend the battlespace, move with great agility, and rapidly concentrate combat power. Specifically, air assault forces can—

- Attack enemy positions from any direction.
- Overfly or bypass barriers/obstacles and strike objectives on otherwise inaccessible areas.
- Conduct offensive operations beyond the forward line of own troops (FLOT) or line of contact.
- Conduct defensive, reconnaissance, and security operations to the front and flanks and within the defensive sectors of supported ground forces.
- Rapidly concentrate, disperse, or redeploy to extend the area of influence.
- Serve as the reserve to conduct the decisive action or to exploit opportunities. Rapidly place forces at tactically decisive points in the battle area.
- React to rear area threats.
- Rapidly secure and defend key terrain such as crossing sites, road junctions, or bridges.
- Bypass enemy positions.
- Achieve surprise.
- Conduct operations under adverse weather conditions and at night to facilitate tactical deception and surprise.
- Increase the operational tempo of friendly operations.
- Conduct economy of force operations over a wide area.
- Rapidly reinforce/sustain committed units.

LIMITATIONS

An air assault force is light and mobile, and it relies on assault support throughout the operation. As such, it may be limited by—

- The success or failure of shaping operations.
- Severe weather and winds.
- Extreme temperatures or altitudes.
- Reliance on air lines of communications.
- Enemy aircraft, air defense, and electronic warfare (EW) action.
- Vulnerability to heavy enemy units and/or the enemy's ability to rapidly mass combat power.
- Reduced ground mobility once inserted.
- Availability of suitable LZs and PZs.
- Available chemical, biological, radiological, and nuclear (CBRN) protection and decontamination capability.
- Reduced vehicle-mounted antitank weapon systems.
- Battlefield obscuration.

- High fuel and ammunition consumption rates.
- Limited accessibility to supporting arms, especially indirect fires.

In addition, the range of an aircraft is limited by a number of factors to include the amount of fuel onboard an aircraft, the speed at which an aircraft flies, and ambient conditions (e.g., wind, temperature, altitude) in the absence of refueling. During air assault planning, planners should account for the lift requirements of the air assault, how many waves will be required to accomplish the lift, the distance between the PZ and LZ, any other tasks that the air assault aircraft must accomplish in the sortie, and then factor in a reserve amount of fuel. A lift, in this context, is all the assault support aircraft assigned to a particular mission to move troops, supplies, and equipment.

VULNERABILITIES

Air assault forces use the assault support aircraft to move and close with the enemy. Initial air assault elements must be light and mobile; therefore, they are often separated from heavy weapon systems, supporting arms, equipment, and materiel that provide protection and survivability on the battlefield. An air assault force is particularly vulnerable to—

- Attack by enemy air defense weapon systems during the movement phase.
- Attack by CBRN systems, because of limited CBRN protection and decontamination.
- Attacks (ground, air, or artillery) during the loading and unloading phases and at other times when infantry is not dug in.

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CHAPTER 2
COMMAND AND CONTROL

Command and control is "the exercise of authority and direction by a properly designated commander over assigned and attached forces in the accomplishment of the mission," according to the *DOD Dictionary of Military and Associated Terms (*hereafter referred to as the *DOD Dictionary)*. Since the battlespace over which the air assault forces operate may extend beyond the typical battlespace of a company through a regimental-sized force, operational command and control must be given special considerations.

The decision to employ air assault forces provides the MAGTF commander a unique capability to project forces quickly over greater distances to shape and extend the battlefield. Due to the distances in which air assault forces can operate, the MAGTF commander and the MAGTF commander's staff, in conjunction with the ACE planning staff, give special consideration to all aspects of command and control. During problem framing, the staffs work to develop command relationships that are critical to meeting the MAGTF commander's intent for the air assault. A critical outcome of this shared planning responsibility is the design, integration, and interoperability of C2 systems that will facilitate the MAGTF commander's ability to command the assault effectively. The MAGTF commander may provide this guidance to the staffs during problem framing or later in course of action (COA) guidance, which is a critical element in the staff's ability to develop suitable COAs.

PLANNING

Command and control of air assault operations must be planned in great detail, well-briefed, and rehearsed before execution so that each subordinate leader knows exactly what is expected, understands the commander's intent, and understands the end state of the mission. Contingency plans are built into all aspects of execution to provide for the continuation of the mission during decentralized execution and in a changing operational environment.

Typically, detailed planning for air assault operations is based upon the use of time driven and/or event driven actions. Time driven actions occur at specific times. Event driven actions occur relative to each other.

For example, a time driven action is the firing of an LZ artillery preparation fires being delivered from L-hour minus 5 minutes to L-hour minus 1 minute. Artillery preparation fire is delivered before an attack with the intent to disorganize an enemy's defense and disrupt the enemy's communications. If previously planned, this can be executed despite degraded communications.

An example of an event driven action is the insertion of one company into the alternate LZ if the lead company makes enemy contact on the primary LZ. If previously planned, this event occurs as expected and without the need for lengthy radio communications.

The MAGTF commander addresses C2 requirements and establishes an effective C2 system early in the planning phase. An effective airborne C2 system allows the MAGTF commander to direct diverse, widely dispersed air and ground elements between the initial PZ and the final objective. Since air assault operations are subject to degraded communications due to the extended distance from which they operate, the MAGTF commander must develop a C2 plan and system that allows execution of the mission despite degraded radio communications. The key to successful air assault command and control lies in effective task organization, precise planning, decentralized execution, and the use of airborne radio nets. See chapter 3 for detailed planning information.

An airborne C2 system must communicate orders, coordinate support, and provide direction to the air assault force in spite of great distances, enemy interference, and the potential loss of key facilities and individuals. Above all, this system must function quickly and effectively, thus allowing the air assault force to receive and process information and to make decisions faster than the enemy. An effective airborne C2 system includes the procedures, facilities, equipment, and personnel required to gather information, make plans, communicate changes, and control all ground and air elements in pursuit of the objective.

TASK ORGANIZATION OF THE MARINE AIR ASSAULT TASK FORCE

All assets must be tailored into discrete, task-organized elements, each with two-way radio communications, unity of command, clearly defined missions and objectives, and provisions for maintaining unit integrity throughout the operation. An effective task organization, with each element having clearly defined mission-type orders, allows the MAATF the flexibility to decentralize execution and ensures mission success despite degraded communications, the fog of battle, or unexpected enemy reaction.

Task-organized MAATFs conduct air assault operations. This task organization involves organizing both ground and aviation assets and requires coordination, planning, and execution between both the ground commanders and the aviation commanders to execute the ground tactical plan.

> ***Note:*** Normally there is only one ground element in an air assault operation, although units may be landed in different locations.

The force is normally structured around an infantry unit and can vary in size from a reinforced infantry rifle, weapons, or provisional company to a regimental landing team. The MAATF is normally part of a MAGTF and is designed to accomplish a specific mission.

The MAGTF commander normally directs the formation of an MAATF and allocates dedicated air resources. The MAGTF commander designates and assigns the mission commander. The mission commander allocates assets and defines authority and responsibility by designating command and

support relationships. The mission commander ensures that ground operations are conducted according to the MAGTF commander's intent and assists the MAGTF commander in integrating the air assault operation into the overall operational plan. Combat support and CSS are task-organized to provide the full range of support necessary to accomplish the air assault mission. Commanders supporting the air assault operation ensure that support operations are conducted according to the needs of the total air assault force, to include both ground and supporting aviation units.

Aviation support is task-organized to fully support all facets of the air assault operation. Aviation support includes all or a portion of the six functions of Marine aviation in varying degrees, based on the tactical situation and the air assault force's mission. The designated AMC ensures that all supporting operations are executed in a manner that best supports the ground tactical plan. An MAATF exists until completion of a specific mission. The MAGTF commander, or designated mission commander, establishes the criteria that constitute mission completion under which the aviation elements can return to their parent unit.

See table 2-1 for the specific organization, roles, and missions for task organization.

Table 2-1. Organization, Roles, and Missions for Task Organization.

Asset	Organization	Role	Mission
Infantry	Units typically form nucleus of MAATF Units range from reinforced infantry company through regimental landing team Units must prepare to assume air assault missions	Operate under the control of the AFC in direct support role to the MAATF	As directed by the MAATF mission commander
Assault support aircraft	One or more squadrons support the MAATF	Operate under the control of the AMC in a direct support role to the MAATF	Combat assault transport providing tactical mobility for troops, equipment, and weapon systems by internal and external load Aerial resupply by internal and external load Recovery and evacuation of equipment Casualty evacuation or other air evacuation Dedicated or immediate TRAP

Table 2-1. Organization, Roles, and Missions for Task Organization. (Continued)

Asset	Organization	Role	Mission
Attack aircraft	Task-organized	Operate under the control of the AMC in a direct support role to the MAATF	Fire support against point targets and/or anti-armor operations (e.g., air interdiction, close air support) Armed escort for assault support operations SEAD artillery and other weapons during and en route to insertions and/or extractions Observation of the LZ and objective areas to neutralize enemy resistance and to block enemy attempts to reinforce the objective area Escort for TRAP forces and/or security for downed aircraft Armed and visual reconnaissance Fire support and coordination and terminal control for supporting arms FAC(A)
Utility aircraft	Task-organized	Operate under the control of the AMC in a direct support role to the MAATF	Enhance C2 and communications capabilities for the MAATF Fire support against point targets (close air support) Armed escort for assault support operations Observation of the LZ and objective areas to neutralize enemy resistance and to block enemy attempts to reinforce the objective area Escort for TRAP and security for downed aircraft Armed and visual reconnaissance Fire support coordination and terminal control for supporting arms FAC(A)
Unmanned aircraft systems	Task-organized	Operate under the control of the AMC in a direct support role to the MAATF	Reconnaissance of PZs, flight routes, LZs, and objectives Forward observation (or all around) of ground forces to provide limited early warning
Artillery fire support	Units range from artillery batteries to artillery battalions	Operate under the control of the mission commander in a direct support or attached role to the MAATF Provide rapid response capability to prepared LZs and objectives Provide suppression of enemy artillery and air defense fires	Disruption of threat artillery/indirect fires SEAD along flight routes and in the vicinity of LZs LZ preparation Screening fires Deception fires Artillery raids/aerial repositioning FASCAM delivery Objective preparation and/or suppression

Table 2-1. Organization, Roles, and Missions for Task Organization. (Continued)

Asset	Organization	Role	Mission
Air defense	Task-organized low altitude air defense assets	Operate under the control of the mission commander in coordination with the AMC in a direct support or attached role to the MAATF Equipped with light, air-transportable, short-range, man-portable air defense systems in order to fly with the lead assault elements and provide protection in the objective area	Air defense of high value locations including PZs, LZs, objective areas, FARPs, and holding sites Direct fires for ground defense
Engineers	Units range from platoon through company	Operate in a direct support role to the MAATF (typically, engineers are attached to infantry units during unit movement, but revert to general support once communications with parent headquarters are reestablished) Organize to move with the infantry and provide mobility, countermobility, and survivability construction equipment Provide light engineering support if heavy-lift helicopters are available	Construction and improvement of PZs and LZs Construction of expedient countermobility obstacles using natural materials and demolitions Construction of firing positions Clearance of obstacles/minefields Conduct of assault and covert breaches Combat
Electronic warfare	Task-organized	Provide EW planning and operations support to the MAATF	Electronic attack Disruption of enemy C2 and communications Degradation of enemy fire support and air defense radio nets EW support
Reserve elements	Task-organized	Provide reinforcement or assumption of another unit's mission	As required
LCE	Task-organized	Provide mission-specific support to the MAATF throughout the operation	As directed by the MAATF mission commander

Legend

FAC(A)	forward air controller (airborne)
FARP	forward arming and refueling point
FASCAM	family of scatterable mines
TRAP	tactical recovery of aircraft and personnel

DECENTRALIZED EXECUTION

Although it is centrally planned, the execution of an air assault operation is decentralized. Subordinate commanders are given the maximum possible freedom of action that is consistent with safety and mission accomplishment considerations to ensure the accomplishment of the mission.

AIRBORNE RADIO NETS

Radio nets that facilitate ground-to-ground, air-to-air, and ground-to-air communications are established to provide for the timely flow of information and redundancy in capability. This helps reduce, if not eliminate, the loss or degradation of communications.

AIRBORNE COMMAND AND CONTROL

The ability to place command and control in the air allows the mission commander to personally influence the operation, communicate with subordinates, and arrive at a timely decision. The mission commander and the mission commander's staff are positioned where they can best support the mission and, sometimes, this may be airborne in a C2 platform with the AMC, or in an assault support aircraft with the AFL. In a large air assault operation with multiple LZs, subordinate commanders may also require C2 aircraft to control and coordinate their units. Airborne C2 also allows the mission commander and staff to update plans, conduct collaboration, and receive the latest intelligence while en route to the mission area.

Typically, the mission commander commands from an airborne C2 platform during the air movement phase and the initial stages of the landing. When a major portion of the assault elements have landed, the mission commander displaces to a forward command post on the ground. The mission commander should avoid routinely controlling ground operations from the air. This can lead to over-supervision of subordinate units and can sometimes give an inaccurate picture of the true tactical situation. Appendix C summarizes the essential items included in the planning phase of air assault operations.

Characteristics of an effective airborne C2 platform include—

- Robust and redundant communications suite.
- Tactical chat capability.
- Extended time on station (TOS).
- Collocation of the mission commander and AMC.
- Placement allowing the ability to control fires employment, command and control, and commit the reserve forces effectively.

- Ability to collaborate and exchange C2 data beyond line-of-sight, uninterrupted, with higher headquarters while en route to the mission area.
- Digital connectivity and ability to exchange data between the mission commander and leaders aboard various airborne platforms.

The KC-130, MV-22, and UH-1Y are ideally suited to provide the characteristics listed above. The CH-53 may also provide some C2 capability. With these increased capabilities, the commander has the ability to maximize communications, increase situational awareness, and to insert directly into the battle, if desired.

MISSION COMMANDER

The MAGTF commander allocates assets, defines both authority and responsibility by designating command and support relationships, and designates the time that the MAATF is established. The MAGTF commander may designate a mission commander or may be the mission commander, depending on the scope of the air assault operation. The MAGTF commander usually designates a mission commander for the MAATF.

The mission commander exercises command via the established command and support relationships, is responsible for the planning and execution of all aspects of the assigned mission, and determines when the MAATF is disbanded.

For a MAATF regiment, the mission commander may designate the commanding officer of the main effort as the AFC or may designate each of the battalion commanders as subordinate mission commanders. This provides a standard, yet flexible, C2 architecture that is scalable and meets the requirements for any mission or contingency for which an MAATF might be employed. The role of the mission commander is to ensure a unity of command throughout the operation.

AIR MISSION COMMANDER

The AMC is the Marine aviator designated by the commander of the aviation unit tasked to support an air assault operation. Depending on the size and scope of the MAGTF, the AMC may also be the ACE commander. In some cases, the mission commander exercises tactical control of assigned aviation assets; that is, the mission commander may direct and control the movements or maneuvers necessary to accomplish missions or assigned tasks. During the planning phase, the AMC is coequal to the AFC. During execution, specific authority is delegated from the mission commander to the AMC. The AMC typically works in direct support of the mission commander and answers directly to the mission commander's requests for assistance and support. The supported-supporting relationships and the means by which they are executed are critical to mission success; therefore, the AMC must have a detailed understanding of the command and support relationships with key subordinates (e.g., AFL, EFL). The AMC is responsible for the planning and execution of all aviation functions relative to the assigned air assault mission;

therefore, the AMC must be an experienced aviator. It is the AMC's responsibility to establish liaison with the mission commander and AFC (the commander responsible for the ground tactical plan) in order to conduct concurrent and parallel planning. The AMC shall assume the duties of the assault support coordinator (airborne) (ASC[A]) of a mission if no ASC(A) is assigned.

ASSAULT FORCE COMMANDER

The AFC is a ground officer who has been designated by the mission commander as the commander of the air assault force:

- For a MAATF regiment, the AFC is either the main effort battalion commander or any battalion commander as otherwise stipulated.
- For a MAATF battalion, the AFC is either the commanding officer of the main effort company or any company commander as otherwise stipulated.
- For a MAATF company, the company commander is the AFC.

As such, the AFC is charged with planning and executing the ground tactical plan and with coordinating aviation and any other support required to plan and execute the air assault mission. The AFC's unit composes the air assault force. Normally, there is only one AFC commanding a single air assault unit, although there may be multiple lifts and landings. As in any operation, the AFC must move in order to see the battlefield and to control the operation. Depending on the situation, the AFC can be airborne during the movement and insertion phases. At other times, the AFC fights the battle from a tactical command post deployed well forward. The AFC is subordinate to the mission commander and coequal to the AMC during the planning phase. During execution, specific authority is delegated from the mission commander to the AFC.

ASSAULT FLIGHT LEADER

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 air assault mission that directly involve assault support aircraft. The AFL is subordinate to the AMC and is coequal to the EFL during the planning phase. During execution, specific authority is delegated from the AMC to the AFL. See appendix D for a checklist to assist with planning for each billet.

ESCORT FLIGHT LEADER

The EFL is an experienced aviator in command of the escort flight. The EFL reports to the AMC and assists in the planning of LZ preparation, fire support planning, threat mitigation, and all other facets of the air assault mission that directly involve attack aircraft. The EFL is subordinate to the

AMC and is coequal to the AFL during the planning phase. During execution, specific authority is delegated from the AMC to the EFL. The EFL duties include LZ preparation, establishment of LZ landing criteria, initial terminal guidance (ITG), and procedural control of aircraft and fires in the objective area.

ASSAULT SUPPORT COORDINATOR (AIRBORNE)

The ASC(A), an experienced aviator operating from an aircraft, is delegated the authority to perform specific coordination and control functions of air assault operations and to provide situational awareness to the air assault force during a specific evolution. Typically, the ASC(A) provides information concerning—

- Weather along the approach and retirement routes and in the LZs.
- Observed enemy operations that may affect the MAATF mission.
- Changes to aircraft routes.
- Changes in the friendly situation.
- Employment of supporting arms, to include tactical air coordinator (airborne) (TAC[A]) activities.

The ASC(A) may directly support a mission commander or be employed as an extension of the direct air support center (DASC) or amphibious air traffic control center (referred to as AATCC) to coordinate assault support activities that do not warrant the assignment of a mission commander. If employed as an extension of the DASC/amphibious air traffic control center, these agencies assign specific functions to the ASC(A) (e.g., initial assaults, subsequent assaults).

The ASC(A) is also responsible for coordinating the activities of all aircraft in his/her assigned area. If employed in conjunction with the TAC(A) or forward air controller (airborne) (FAC[A]), and no mission commander is assigned, the relationship with the ASC(A) is established by the tactical air commander or a designated representative. When an ASC(A) has not been designated, the AMC discharges the duties of the ASC(A) within the limits of his/her authority. To facilitate timely and coordinated decisions affecting air assaults, the ASC(A) and a representative of the AFC should be assigned to the same aircraft, if feasible.

TACTICAL AIR COORDINATOR (AIRBORNE)

The TAC(A) is an extension of the tactical air command center (referred to as Marine TACC) or DASC and coordinates with the ground commander's tactical air control party (TACP); subordinate FAC(A); and the mortars, artillery, and naval gunfire shore fire control parties. Normally, the TAC(A) is the senior coordinator having the authority over all aircraft operation within the assigned area, depending on overall mission delegation of authority.

FORWARD AIR CONTROLLER (AIRBORNE)

The FAC(A) is an extension of the TACP, and the FAC(A)'s primary function is the detection and destruction of enemy targets through close air support (CAS) and deep air support (DAS). The FAC(A) is assigned as either direct support of a ground unit or as a subordinate to the TAC(A) or ASC(A) that provides air control as required. The FAC(A) must be prepared to perform the following tasks within the assigned area of responsibility:

- Detect enemy targets for suppression, neutralization, and destruction.
- Terminal attack control for CAS missions.
- Radio relay.
- Perform strike coordination and armed reconnaissance SEAD coordination when directed.
- Control LZ preparations.
- Mark/designate targets, generate coordinates, and mark LZs for ITG.
- Control mortar, artillery, and naval gunfire missions when required.
- Battle damage assessment.
- Conduct visual reconnaissance.
- Report intelligence information to the appropriate ground or air control agency.

INITIAL TERMINAL GUIDANCE TEAMS

Initial terminal guidance teams from the force reconnaissance company or reconnaissance battalion, Marine division, have the inherent capability to provide terminal guidance for the initial air assault waves in the LZs. However, all ground units must be trained, equipped, and capable of performing ITG for small air assault landings. The ITG teams are comprised of personnel who are inserted into LZs in advance of the LZ control team and they may be the first elements to make contact with the enemy. The ITG teams must be trained on assault support aircraft capabilities and have an in-depth knowledge of LZ requirements needed by each assault support aircraft by type/model/series (referred to as T/M/S). Additionally, ITG teams must be able to communicate with fixed-wing aircraft in order to utilize sensors and pods on various aircraft to provide effective ITG in the absence of ground marking ability due to enemy threat or risk of compromise.

Therefore, ITG teams must promptly report any enemy activity that may influence the landing. Initial terminal guidance teams execute pre-landing reconnaissance tasks and establish and operate signal devices that guide the initial air assault waves from the initial point (IP) to the LZ. The use of ITG teams may increase the difficulty or even prevent the use of LZ preparation fires due to the presence of friendly troops in or around the LZ. Duties of the team may include—

- Determining obstructions in the LZs, including radiological hazards.
- Giving advance notice of enemy positions.
- Selecting PZs/LZs.
- Marking LZs for day and night.

- Recommending use of alternate LZs.
- Controlling supporting arms.
- Recommending actions to be taken by follow-on waves.
- Organizing an area around the LZ to stage troops, equipment, or supplies to be picked up or moved upon landing.
- Selecting an IP near the LZ.
- Establishing communications with the approaching flight.
- Giving an LZ brief (see app. E) to the flight leader.

HELICOPTER SUPPORT TEAM

The helicopter support team (HST) is task-organized and equipped for employment in PZs and LZs. These teams facilitate the pickup, movement, and landing of air assault troops, equipment, and supplies and the evacuation of selected casualties and prisoners of war (POWs). The team usually includes a headquarters element, a helicopter control element, and an LZ platoon. The LZ platoon provides logistic and engineer support functions. The helicopter control element consists of a LZ control team provided by the ACE commander when necessary, and may include personnel to provide refueling and emergency maintenance. The LZ control team may be task-organized from the Marine air traffic control detachment when the size or scope of the operation warrants and the MAGTF commander determines it is necessary. The Marine air traffic control detachment tasks may include—

- Installing and operating air traffic control (ATC) and navigational systems required for the control of aircraft at expeditionary airfields and remote landing sites (LSs).
- Providing ATC services that facilitate the safe, orderly, and expeditious flow of aircraft within designated terminal/landing areas.
- Maintaining the capability to deploy independent ATC teams/units.

PICKUP ZONE CONTROL OFFICER

Typically, the mission commander or AFC designates a PZ control officer (typically the unit executive officer [XO], forward air controller [FAC], or an air officer) from the supported unit of each PZ. The PZ control officer organizes, controls, and coordinates operations in the PZ, to include marshalling and loading of aircraft, vehicle movement, ammunition issue, food and water distribution, and pushing elements out of the PZ. The PZ control officer operates on a designated tactical net and is prepared to assist in executing needed changes. The PZ control officer is the key individual during night operations or when multiple subordinate elements are being lifted from the same PZ. The PZ control officer must be commensurate in rank based on the size of the air assault operation being conducted. This ensures that all subordinate and supporting agencies take guidance and direction from one single point of contact within the PZ, thus ensuring unity of command at the PZ.

MARSHALLING AREA CONTROL OFFICER

The marshalling area control officer (MACO) is subordinate to the PZ control officer during PZ operations and is responsible for accountability of troops. Typically, the AFC or PZ control officer will designate a unit first sergeant to act as the MACO. During planning, the MACO will be involved with building the manifests and serials to produce the assault support serial assignment table (ASSAT), an example of which can be found in appendix F. At the PZ, a MACO gate will be established between the staging area and the aircraft loading area to ensure accurate accountability and smooth execution of the loading plan. The MACO will assist aircrews with making sure the correct serials go to the correct aircraft. If needed, the MACO will be integral in executing the bump plan. The bump plan describes in detail which individuals and equipment in each designated load or serial has priority. This plan is used when the means of transportation cannot carry all of a particular load.

SUBORDINATE UNIT COMMANDERS

Subordinate unit commanders are attached to the AFC and normally function as they would in any other combat arms task force. Each subordinate unit commander must be prepared to receive other elements for movement.

COMMAND POST

The command post provides command and control for the execution of air assault operations. It must be mobile and well forward, or have the capability to move rapidly on notice. It is normally airlifted into the objective area soon after the initial waves. A C2 aircraft may serve as a command post if enemy air defense systems have been suppressed and allow for an airborne C2 element to be active.

COMBAT OPERATIONS CENTER

The combat operations center is normally established in the command post. It provides planning for future operations and ongoing operations as directed by the commanding officer. Functions of the combat operations center include—

- Monitoring current operations and maintaining current enemy and friendly situations.
- Collecting, processing, evaluating, and disseminating intelligence.
- Keeping higher and adjacent organizations informed of the friendly situation.
- Submitting recurring reports.

- Providing liaison to higher and adjacent organizations.
- Establishing a fire support coordination center (FSCC).
- Coordinating combat support, aviation, engineer, and air defense.
- Advising the commander on the use of combat support for current and future operations.
- Monitoring airspace and coordinating supporting fires.
- Continuing planning for future operations and overseeing the preparation of all contingency plans.
- Issuing combat/warning orders as necessary.

MARINE AIR TRAFFIC CONTROL MOBILE TEAM

A Marine air traffic control mobile team (MMT) is trained and equipped to provide initial rapid response ATC, C2, and communications to support MAGTF and joint missions. The MMT can be task-organized to provide ATC services for airfield seizures, noncombatant evacuation operations, domestic or foreign humanitarian assistance operations, civil assistance operations, and other short duration MAGTF/joint operations. The MMT is specifically trained and task-organized to—

- Provide ATC services at designated alternate LZs including formulating ATC procedures and issuing ATC clearances, instructions, and advisories to effect safe, orderly, and expeditious movement of air traffic in their assigned airspace.
- Recommend/assist in alternate LZ site selection. Determine each site's operational suitability for the number and type of aircraft.
- Conduct assault zone surveys to determine the suitability of the landing surface for operations, annotate hazards to aviation (to include obstructions/obstacles), and provide operational data.
- Mark and light alternate LZs for tiltrotor, fixed- and rotary-wing aircraft.
- Provide and operate terminal navigational aids.
- Perform as a C2 and communications node by establishing communications and integrating with higher and adjacent C2 agencies.

REAR AREA OPERATIONS

The rear area provides uninterrupted support to the force as a whole. Both operational level and tactical level logistic operations occur within the rear area. Typically, the MAATF is not assigned a rear area responsibility. Rather, it stages and launches from the rear area of its higher headquarters. A portion of the LCE may be assigned to the MAATF and will likely collocate with the logistic trains of this headquarters to facilitate the coordination of support to the MAATF.

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CHAPTER 3
PLANNING

The Marine Corps doctrinal philosophy of maneuver warfare describes planning as "an essential and significant part of the broader field of command and control." (Marine Corps Doctrinal Publication [MCDP] 5, *Planning*.) The aim of command and control is to enhance the MAGTF commander's ability to make sound and timely decisions, which is critical in conducting air assault operations. Effective decision making requires both the situational understanding to recognize the essence of a given problem and the creative ability to devise a practical solution. Hence, an essential function of planning is to promote understanding of the problem—the difference between existing and desired conditions—and to devise ways to solve it. Planning involves elements of both art and science, combining analysis and calculation with intuition, inspiration, and creativity. The Marine Corps planning process (MCPP) is most appropriate for the planning of air assault operations. It is also a six-step process, consisting of—

- Problem framing.
- COA development.
- COA war game.
- COA comparison and decision.
- Orders development.
- Transition.

If time does not allow use of the full, six-step MCPP, the MAGTF commander and the planners may use the rapid response planning process, which is a time-constrained version of the MCPP. The rapid response planning process enables the MAATF to plan and begin execution of certain tasks within 6 hours and is highly dependent on the use of standard operating procedures (SOPs). Because planning must support the MAGTF commander's decision making—especially in a time competitive and evolving situation—the MCPP codifies the central role of a commander in planning. The process is applicable across the range of military operations and at any echelon of command. It can be as detailed or abbreviated as time, staff resources, experience, and the situation permits or requires. Planning begins when the AFC and AMC receive a mission from the mission commander. If possible, the AFC and AMC should receive the mission together in order to begin initial coordination and to facilitate concurrent/parallel, detailed planning. Additionally, their collocation may also facilitate the issuance of warning orders to allow their staff and subordinates to begin general planning.

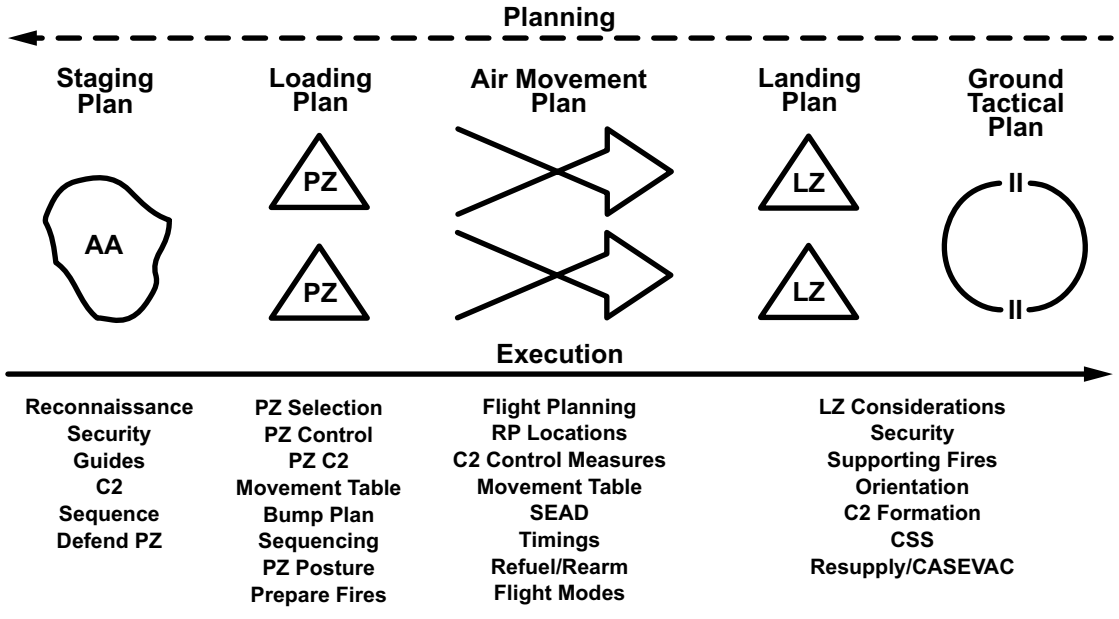
It is the mission commander's responsibility to make initial liaison with the AFC and AMC. During the initial liaison, the mission commander gives the AFC and the AFC's staff planning data relative to the numbers and types of assault to be conducted. During planning, it is essential that coordination among the mission commander, AFC, and AMC begin as soon as possible. While the AFC and AMC must plan the operation together, the mission commander's and AFC's

ground CONOPS drives all planning for the air assault operation. The company landing team is generally the lowest level that has sufficient personnel to plan, coordinate, and control an air assault operation. Unless task-organized to do so, the bulk of the planning and air-ground asset coordination for company-sized operations will normally take place at the battalion headquarters.

The planning of air assault operations is a unique process that requires the development of five basic plans with a reverse planning sequence: ground tactical plan, landing plan, air movement plan, loading plan, and staging plan. These plans are not developed independently; they are coordinated, developed, and refined concurrently by both the MAATF staff and aviation unit staff to make best use of available time. The AFC directs the formulation of the ground tactical plan, the loading plan, and the staging plan. The AFC and AFL work together to develop a landing plan that supports the ground tactical plan. The AFL is principally responsible for formulating the air movement plan. During planning of an air assault operation, one primary consideration for the AFC and AMC is the enemy air defense situation. Other planning considerations include, but are not limited to, sortie rates and aircraft types, availability, and capabilities.

To achieve the necessary, rapid buildup of combat power, an air assault operation requires the massing of assault support aircraft. As a planning figure, a minimum of one third of the ground unit should be landed in the zone in the first wave, but the actual combat power necessary for the air assault force to maintain reasonable security should always be based on a detailed assessment of the threat within the objective area.

The basis for planning the timing of the operation is L-hour: the time at which the first aircraft of the first air assault wave touches down in the LZ. The air assault operations planning versus execution sequence is displayed in figure 3-1.



LEGEND

AA	assembly area
CASEVAC	casualty evacuation
RP	release point

Figure 3-1. Air Assault Operations Planning vs. Execution Sequence.

MARINE AIR ASSAULT TASK FORCE PROBLEM FRAMING

Problem framing enhances understanding of the environment and the nature of the problem. It identifies what the command must accomplish, when and where it must be done, and, most importantly, why—the purpose of the operation. The purpose is articulated in the mission statement (task and purpose). The purpose of the operation, which is enduring, is restated and amplified as desired in the mission commander's intent. Since no amount of subsequent planning can solve a problem insufficiently understood, problem framing is the most important step in planning. This understanding allows the mission commander to visualize and describe how the operation may unfold, which is articulated in the mission commander's CONOPS—the overall picture of the operation. As planning continues, the commander's CONOPS becomes more detailed, providing additional clarity and operational context. Design does not end with problem framing, because the situation constantly evolves and requires the commander to continually review and possibly modify the design.

The following subparagraphs discuss parts of the problem framing process for the MAATF. Some of these actions are required to initiate key actions and to keep the problem framing process in a continual, progressive state based on the evolution of the operation, and some actions are options for the commander to implement based on the tactical situation. Following receipt of the higher headquarters' mission, the MAGTF staff prepares and issues a commander's orientation brief based upon their initial estimates and immediate knowledge of the situation, operational environment, civil considerations, and enemy. During problem framing, the MAATF planning staff identifies and develops the—

- Mission statement.
- Commander's intent.
- Commander's planning guidance.
- Updated intelligence preparation of the battlespace (IPB) products.
- Specified tasks.
- Implied tasks.
- Essential tasks.
- Constraints (limitations).
- Restraints (must not do).
- Assumptions.
- Resource/subject matter expert shortfalls.
- Center of gravity analysis.
- Approved commander's critical information requirements.
- Warning orders (see app. G).
- Planning schedule.
- Requests for information.
- Initial staff estimates.

The standardization of operations between units planning the air assault significantly enhances the ability of the unit to effectively accomplish the mission. This is commonplace within a Marine expeditionary unit, but becomes more challenging with other units who do not share mutual planning and operational space. See appendix C for a sample battalion SOP.

Information flow is critical to successful problem framing for an air assault operation as intelligence gaps that require additional collection of resources are identified and updated. Information is received from multiple headquarters, and all echelons provide information intended to reduce the planning burden of subordinate units and increase their available time for adequate planning.

Air assault mission planning is unique and must consider specific threats to the success of the air assault operation. The primary key to successful planning is the use of MCPP when suitable time is available. At lower echelons, mission, enemy, terrain and weather, troops and support available—time available (METT-T) analysis may be suitable for the particular mission when larger staffs are not available to smaller scale units, such as company landing team missions. The analysis of METT-T is a useful part of the problem framing process because it formulates the design of the commander's CONOPS and contributes significantly to the estimate of the tactical situation for air assault operations. See appendix H for a mission planning checklist, and appendix I for a guide to reverse planning.

Mission

Problem framing is conducted early in the planning process. The mission includes the critical tasks that must be accomplished. The tasks are either specified tasks stated by the order or implied tasks determined by the commander. Problem framing determines not only what must be accomplished, but also the intent of the commander ordering the mission. It also states the restraints and constraints placed on the mission by the higher headquarters. This analysis provides the basis for task organization and must be conducted to determine if it is more advantageous to strike with an air assault force or attack with a ground force. To analyze the mission, the following questions must be asked:

- Does the mission require the rapid massing or shifting of combat power over an extended distance?
- Does the mission require surprise?
- Does the mission require the flexibility, mobility, and speed afforded by vertical lift?
- Since air assault operations are inherently a high-risk operations that can yield a high payoff, does the payoff warrant the risk?
- What is the level of training?

Enemy

The IPB process consists of four steps, which are performed, or at least considered, throughout the operation to identify enemy threats to the MAATF. Each step in the process is performed or assessed and refined continuously to ensure that the products of IPB remain complete and relevant, and that the commander receives the required intelligence support during current and future operations. The

four steps of IPB, which are discussed in greater detail in MCRP 2-10B.1, *Intelligence Preparation of the Battlefield/Battlespace*, are as follows:

- Define the operational environment.
- Describe the effects on operations.
- Evaluate the adversary.
- Determine enemy/adversary COAs.

Threat capabilities vary based on the enemy and the situation. However, there are basic threats to air assault operations that will not change, and they are—

- Air defense fires, including small arms fires, must be identified and addressed by effective suppressive measures, and increased emphasis placed on accurate and timely intelligence.
- Tiltrotor, fixed-wing, and rotary-wing aircraft capabilities and limitations within the area of operations must be understood and measures taken to minimize the risk of encounter.
- EW capabilities, to include jamming, direction finding, and monitoring of communications/ radars, must be considered and appropriate countermeasures employed.
- Threat actions to counter PZ/LZ operations. (Analyze threat capabilities that could interdict friendly PZs/LZs with ground forces, indirect fires, and aerial attack.)

Planners and commanders must constantly evaluate the threat in terms of the forms of contact available to the threat force. Forms of contact include observation, indirect fire, direct fire (to include air defense fires), obstacles, CBRN, air, reserve forces, and EW. Countering the threat requires knowledge of enemy doctrine, tactics, and equipment, and the capability to find and exploit enemy weak points with air assault forces. Intelligence preparation of the battlespace provides commanders and planners with an analytical methodology that reduces uncertainty concerning the enemy, the environment, and the terrain in order to determine and exploit enemy weaknesses.

The evaluation of the enemy defines the enemy's capabilities and most probable COAs. The following factors about the enemy must be considered:

- Identification: Who is the enemy?
- Location: Where is the enemy? Where is the enemy going?
- Disposition: How is the enemy organized? What are the enemy's formations?
- Strength: What are the enemy's strengths versus friendly forces' strengths?
- Morale: What is the enemy's experience and state of training? Is the enemy regular or reserve forces?
- Capabilities: What forms of contact are available to the enemy? (e.g., obstacles, indirect fires, direct fires, observation, CBRN, air, reserve forces, EW)
- Composition: What is the enemy's armor, infantry (motorized or light), artillery, and combat support?
- Probable COA: What is the enemy's likely mission or objective? How will the enemy probably achieve it? (Think about the most likely COA and most dangerous COA.)

When planning an air assault operation, the following factors about the enemy must be considered:

- Enemy air defense weapons and capabilities.
- Enemy mobility, particularly the ability to influence potential flight routes and LZs.
- Enemy CBRN capability, particularly the ability to react to the insertion.
- Capability to interdict or interrupt friendly aircraft movements with enemy tiltrotor, rotary-wing, or fixed-wing aircraft.
- Enemy EW capability.

Terrain and Weather

In all military operations, terrain analysis is conducted by the criteria described in the memory aid KOCOA (key terrain, observation and fields of fire, cover and concealment, obstacles, and avenues of approach) and weather. In air assault operations, these factors must be analyzed in relation to their effects on the force during movement to the PZ, loading, air movement, LZ insertion, movement to the objective, and subsequent actions.

Weather can greatly impact an operation. Changes in the weather may result in an interruption of assault support and require changes in planned operations. Considerations include—

- Fog, low clouds, heavy rain, and other factors that limit visibility for pilots.
- Illumination and moon angle during night vision device (NVD) operations.
- Ice, sleet, and freezing rain may cause ice accumulation on airframes, which can become catastrophic.
- High temperatures and/or density altitudes that degrade aircraft engine performance and lift capability.
- Darkness, which is normally an advantage to well-trained pilots and ground forces.
- High winds (large gust spreads).
- Weather conditions that create hazards on PZs and LZs, such as blowing dust, sand, or snow.

Key Terrain. The possession of key terrain provides a decided advantage to a force and, in many instances, is mission-dependent. However, in air assault operations, key terrain is not limited to that which influences the ground tactical plan. It must also be analyzed in terms of—

- PZs and LZs.
- Flight routes.
- Attack helicopter battle positions.
- Occupation of enemy positions, especially enemy air defense assets.
- Potential forward arming and refueling points (FARPs).

Observation and Fields of Fire. The following considerations relate to both enemy and friendly forces:

- Visual observation and/or electronic surveillance of PZs, flight routes, and LZs.
- Enhanced observation provided by aerial and ground reconnaissance assets.

- Ease of navigation along flight routes particularly for night or adverse weather operations.
- Ability to influence the PZs, LZs, and flight routes with indirect and direct fire.

Cover and Concealment. The following considerations relate to the cover and concealment of friendly forces:

- Terrain masking for low-level flight routes and insertions.
- Covered battle positions for attack helicopters.
- PZs and LZs that offer ground forces cover and concealment.

Obstacles. While assault support aircraft can bypass most obstacles, PZs and LZs must be free of natural and/or manmade obstacles that could preclude an assault landing or affect the ground tactical plan.

Avenues of Approach. Air and ground avenues of approach are considered in both offensive and defensive operations, from both friendly and enemy viewpoints. A good avenue of approach for an air assault force offers—

- A reasonable degree of mobility and few, if any, natural or manmade obstacles to the aircraft.
- Little or no canalization.
- Terrain masking that decreases effectiveness of enemy air defense weapons.
- Cover.
- Concealment.
- Good lines of communications and logistics. Ease of link up with other forces when appropriate.

Troops and Support Available

Troops and support available encompasses not only troops to be lifted into the objective LZ, but also all combat power, to include combat support and CSS available to the air assault force. The air assault force should have enough combat power relative to the threat to seize initial objectives and protect the LZs until assault follow-on echelons arrive in the objective area. Aircraft lift capability is the single most important variable in determining how combat power can be introduced into the objective area.

Time Available

The time available to prepare for an air assault operation is extremely important. It is often the scarcest resource and is vital to planning. The mission commander must adjust the planning process to make optimum use of this perishable resource. When time is critical, the mission commander's intuition, judgment, and experience are invaluable in guiding the staff and subordinate commanders. This planning must be coordinated between the GCE and the ACE. The mission timeline should allocate one-third of available time to commanders in order to issue guidance and reserve the remaining two-thirds of time available for subordinates to plan and rehearse the mission. While the ACE is preparing its aircrews, servicing its aircraft, and planning its flights, the GCE is also preparing for its mission. Once the GCE's and ACE's

concurrent planning is completed, these elements must be brought together for rehearsals, especially if an unusual mission is being planned. The following must be considered:

- Allocating the time required to prepare, plan, and rehearse. Air assault planning must be centralized and precise. It normally requires more time than other operations.
- Additional planning time may be required for night operations and those involving multiple PZs and/or multiple LZs.
- The AFC must allow adequate time to ensure that all subordinates and support elements are thoroughly briefed. Briefing time can be significantly reduced with SOPs and previous training.

DETAILED PLANNING

During detailed planning, the five basic plans are not developed independently (see app. I). Each element involved in planning an air assault has specific considerations and requirements to complete the mission. All are equally important and must be thoroughly understood.

Mission Commander's Concerns in Planning the Air Assault

From the ground commander's point of view, the plan of attack for an air assault operation includes the mission commander's CONOPS, fire support plan, landing plan, air movement plan, loading plan, and the staging plan that are developed concurrently along with CSS plans—all of which are closely integrated.

Assault Force Commander's Concept of Operations

The AFC's CONOPS is the tactical plan executed by a force in order to accomplish its assigned mission once it has landed in the LZ. It includes objectives, LZs, forms of maneuver to be employed, distribution of forces, and necessary control measures. The AFC must take into account the time required for the air assault force to consolidate at the LZ and move to its objective. The ability to secure the LZ and move to the objective must be compared to the enemy's ability to reinforce the threatened area.

Fire Support Plan

The fire support plan is the mission commander's employment of all supporting arms to assist in the accomplishment of the mission, including ground and aerially delivered fires. The plan supports the CONOPS and includes plans for SEAD during the assault support aircraft ingress and egress, preparation of the LZ, fires in support of the consolidation of the LZ, and fires in support of the ground operation. The plan for supporting fires should also include the ACE's plans for employment of air defense weapons that may be required to support the mission. See chapter 5 for more information on fire support planning.

Landing Plan

The landing plan is an airborne, air assault, or air movement plan prescribing the sequence, place of arrival, and method of entry into the objective area. The purpose of the plan is to get the correct units to the correct place in the correct order to properly execute the ground tactical plan, in accordance with the AFC's guidance.

Air Movement Plan

The air movement plan, prepared jointly by the ground and airlift units, covers an airborne, air assault, or air movement operations from the time the units load the aircraft until arrival in the objective area. The air movement plan provides for the control and protection of the air assault force during the air movement. The air movement plan is primarily the responsibility of the AMC, although the ground commander also contributes to its development. The air movement plan includes the selection of approach and retirement lanes, control points, and en route SEAD and the provisions for escort by attack helicopter or other aviation assets.

Loading Plan

The loading plan is designed to establish, organize, and control activities in the PZ, plan for the movement of troops and equipment to the PZ, and establish the priority of loading units. For battalions or larger, a written plan may be required. However, the requirement for written loading instructions can be minimized by advanced planning and detailed unit SOPs. Regardless of its simplicity, the loading plan must receive command attention during planning. The ultimate success of the operation is directly related to a properly developed loading plan and subsequent control of unit loading.

Staging Plan

The staging plan is based on the loading plan and prescribes the arrival time of ground units at the PZ, their proper order for movement, and the organization at the PZ to facilitate aircraft loading.

Within the five basic plans, there are key planning products that are critical to mission success during an air assault operation. Each planning product requires detailed attention by mission planners. The responsibility for the production and dissemination of these products is as follows:

- The aircraft availability table (AAT) is primarily prepared by the ACE and then provided to the GCE.
- The ASSAT is primarily prepared by the GCE and provided to the ACE.
- The assault support landing table (ASLT) is prepared predominantly by the ACE with some GCE inputs.

Aircraft Availability Table. The AAT denotes aircraft that are available for air assault operations and includes unit, aircraft type, availability by type, aircraft origin, deck launch capacity, troops and cargo capacity, and any remarks relating to the air assault operation.

The AAT will greatly assist the mission planners in regards to asset management. Due to the size and complexity of a battalion/regimental air assault operation, it is highly probable that assault support assets will be sourced from several different ships or airfields.

The AAT should serve as the basis for constructing the ASLT and ASSAT. The AMC or AFL provides the AAT to the AFC who, together with the AMC and AFL, establishes the number and type of aircraft in each wave. See table 3-1, on page 3-10, for an example of the AAT. The AAT is also available in a larger format in appendix J.

Assault Support Serial Assignment Table. The ASSAT assigns serials to personnel and equipment, with weights, and includes the bump plan. In utilizing the ASSAT—

- Each line represents one serial.
- Each column contains information about the specific serial.
- The wave assignment will be determined in planning, but can initially be filled in by the AFC as a representation of desired combat power build up.
- Weight information is critical for assault support fuel calculations. With weight information, assault support pilots determine the power required versus the power available. This weight and power planning is essential in ensuring that the ACE maximizes lift to support the GCE.
- All equipment, radios, crew-served weapons, and water jugs should be included. The assault support crew will make the utmost effort to calculate an accurate weight of all Marines and equipment.
- Serial size should be determined early in planning, with the maximum number of serials possible maintaining that size. Manageable sized serials are important if the bump plan is executed so all serials can be reassigned to any type aircraft. Often the best size is six Marines, to allow for placement of full serials or multiple full serials on UH-1Y, MV-22 and CH-53 aircraft.
- Unit leaders and crew-served weapons need to be tactically spread loaded.
- Each serial is assigned a number in accordance with unit SOP.
- The bump plan is developed by the AFC to set the priorities of serials. The bump plan typically lists serials starting with lowest priority. This allows easy identification of the bump serials during execution. Serials only have to be listed on the bump plan to the point that *GO* criteria is still met.

Table 3-1. Example of an Aircraft Availability Table.

AIRCRAFT AVAILABILITY TABLE							
Unit and Designation	**Aircraft T/M/S**	**Aircraft Available**	**Aircraft Origin**	**Deck Launch Capacity**	**Troops**	**Cargo**	**Remarks**
Notes:							

Legend
T/M/S type/model/series

See tables 3-2 and 3-3 for examples of the ASSAT and the ASSAT bump plan, respectively.

Table 3-2. Example of an Assault Support Serial Assignment Table.

ASSAULT SUPPORT SERIAL ASSIGNMENT TABLE (ASSAT)							
Wave	Serial	Troop/Unit	No.	Supplies & Equipment	Weight		
					Personnel	Equipment	Total

Table 3-3. Example of an ASSAT Bump Plan.

ASSAULT SUPPORT SERIAL ASSIGNMENT TABLE (ASSAT) BUMP PLAN			
Wave	Bump Plan in Order of Priority	Description	Notes

Assault Support Landing Table. The ASLT includes detailed plans for the movement of air assault forces, troops, equipment, and supplies. It assigns serials to waves to LZs on a landing timetable, which is used by the appropriate air control agency to control the assault support movement. See appendix K for an example of the ASLT in large format. The ACE and GCE planners recommend insert and extract LZs for the mission commander's and AMC's approval. The ACE and GCE planners divide the ground force and create waves of aircraft sized to carry tactical units to specific LZs. The mission commander and AMC approve the following recommendations:

- Each line on the ASLT should represent an aircraft's trip during one single wave, with multiple lines grouped together for each wave. Multiple serials may be assigned to an aircraft during a single wave.
- Weights, troop/unit and equipment information from the ASSAT will be included on the ASLT for reference during air assault execution.
- On call waves may be denoted with an "O/C" in the wave column and "TBD" [to be determined] may be used for other unknown information.
- Priorities from the ASSAT can be denoted on the ASLT for use in execution of air assault operations. Techniques for denoting priority serials include—
  - –Listing the priority aircraft/serials top down per wave.
  - –Putting an asterisk (*) next to the *GO* serials.
  - –Adding a priority column for each LS and wave.

See table 3-4 for an example of an ASLT.

Table 3-4. Example of an Assault Support Landing Table.

ASSAULT SUPPORT LANDING TABLE (ASLT)										
			From		Time			Destination LZ		Troops/Units/ Equipment/ Total Weight
Wave	Serial	Type Aircraft	Aircraft Origin	PZ/Ship/ Airfield	Load	Launch	Land	Primary	Alternate	

Ground Tactical Plan

The foundation for a successful air assault operation is the AFC's ground tactical plan. Normally, the ground tactical plan is developed first and is the basis from which the other plans are derived. The ground tactical plan specifies actions in the objective area that ultimately accomplishes the mission. The plan also includes subsequent operations that can include linkup operations, repositioning of the force, and sustainment. The ground tactical plan for air assault operations contains essentially the same considerations as any other form of maneuver, except that it must capitalize on surprise, speed, and mobility in order to achieve mission success. Although the ground tactical plan is normally the basis from which all other plans are formulated, in certain operating environments terrain limitations and restrictions will dictate where assault support aircraft can land; therefore, the landing plan may have to become the focus of concern.

Mission

The most obvious portion of the air assault mission is the requirement to conduct a vertical movement. The following concerns should be examined:

- Missions of all task force elements and methods of employment.
- Purpose of the air assault movement.
- Reason for using assault support aircraft.
- Task organization of ground, air, and combat support units.
- Number of Marines to be lifted.
- Total weight to be lifted.
- Internal and external loading.
- Approximate distance of the air movement.

Ground Concept of Operations

The ground CONOPS is formulated in five parts; the first two will normally be part of the staging and loading plan, whereas only the last three are part of the ground tactical plan. The five parts of the ground CONOPS are—

- Ground movement to the PZ.
- Securing and organizing the PZ. Include the task organization of the force and embarkation plan for force aboard mission aircraft.

- Actions at and securing of the LZ.
- Ground movement from the LZ to the objective or actions on the objective, if the force is landed directly on the objective.
- Operations subsequent to securing the objective.

GO/NO GO Criteria

During planning, mission *GO* and *NO GO* criteria must be set. *GO* criteria refer to the prerequisites that need to be met, either equipment, personnel, or conditions prior to mission commencement based on friendly disposition. Conversely, *NO GO* criteria are the prerequisites that need to be met—equipment, personnel, or conditions—prior to mission commencement based on enemy disposition and weather. All elements of the MAATF must make sure they have input to the overall mission *GO/NO GO* criteria.

Example items that may be included in the *GO* criteria for an air assault operation may be the minimum passengers for a mission from the GCE and, from the ACE, the confirmed establishment of a FARP.

Examples of items that may be included in the *NO GO* criteria for an air assault operation may be the presence of enemy armor on the objective from the GCE and the presence of effective enemy radar weapons systems in the objective area from the ACE. The ACE will also be required to set the weather conditions that preclude mission commencement from an aviation standpoint.

Insertion and Extraction Tactics

The proximity of the LZ to the air assault objective, as desired by the AFC and that the ground tactical plan calls for, will determine the type of insert tactics. Insert tactics types are referred to as X, Y, and offset.

An X insert is within 300 meters of the objective and, generally, in effective small arms range. An X insert capitalizes on surprise through speed, but is the highest difficulty/risk. Mission profiles requiring an X insert would include time-sensitive missions, such as targeting a high-value individual, tactical recovery of aircraft and personnel (TRAP), or hostage rescue, where significant ground movement would compromise the mission. Both rotary-wing and fixed-wing CAS, as well as persistent intelligence, surveillance, and reconnaissance (ISR), is recommended for an X insert.

A Y insert is 300–1,000 meters from the objective and, generally, only within effective range of medium/heavy weapons. A Y insert balances speed and threat mitigation because there is less exposure to the enemy on insert to objective, but the enemy may have more time to react. A Y insert may be used when closer LZs are not available, the threat cannot be mitigated for X inserts, or to isolate/contain an objective. Rotary-wing CAS, fixed-wing CAS, and persistent ISR/multisensor imagery reconnaissance (MIR) are recommended for a Y insert.

An offset insert is outside 1,000 meters from the objective and is, generally, outside effective weapons range from medium/heavy weapons. An offset insert is the lowest level of difficulty/risk

and capitalizes on surprise through stealth if the LZ is outside of visual and audible compromise. Offset inserts may be used for missions that are not time sensitive, when there are no tenable LZs closer to the objective, or when the threat cannot be mitigated for a closer insert. Persistent ISR/MIR and either rotary- or fixed-wing CAS are recommended for an offset insert.

Extract tactics are referred to with the same terminology, but do not have to match the insert tactics in a given mission. A combination of X, Y, and offset may be used by different elements of the MAATF, and each element's extract may differ from its insert.

Both the GCE and ACE must conduct IPB in the vicinity of the LZ. An offset LZ may still have a high threat level to aviation and ground assets even though it is displaced from the air assault objective.

Landing Plan

The landing plan must support the ground tactical plan and heavily impacts the air movement plan. The goal of the plan is to rapidly build up troops and equipment in the objective area with units arriving at the right times and locations prepared to execute the ground tactical plan. Appendix I provides more information. Considerations in developing the landing plan include—

- Overriding factors such as availability, location, size, and enemy proximity to potential LZs.
- The air assault force is most vulnerable during landing. The ACE planners must consider the threat on ingress around the LZ and egress, even if the LZ is displaced from the objective.
- Troops and equipment must land with tactical integrity.
- Desired timing between landings of different assault elements. Normally, landing within 30 seconds constitutes a simultaneous landing, while all others will be sequential.
- To avoid disorientation, troops must be informed if changes occur in the landing directions that were given during their initial brief.
- Initially, there may be no other friendly units in the area; therefore, the air assault force must land prepared to fight in any direction.
- Initial forces in the LZ should plan to provide ITG to follow-on waves.
- The landing plan should offer flexibility so that a variety of options are available in developing a scheme of maneuver.
- Supporting fires (i.e., artillery, naval surface fire support, CAS) must be planned in and around each objective area LZ.
- Assault support aircraft defensive fires should be integrated with the overall fires plan for landing.
- Weapons status (free, tight, or hold) should be determined during planning, based on the enemy situation. Sectors of fire are established based on friendly positions and should maximize weapons employment. To the maximum extent possible, sectors of fire should be tied to prominent, recognizable terrain features.
- Although the objective may be beyond the range of supporting artillery fire, artillery or mortars may be brought into the LZ early to provide fire support for subsequent lifts on the objective.

- The plan includes provisions for TRAP, asset attrition, immediate re-embarkation, emergency extract, resupply, and casualty evacuation (CASEVAC) by air.
- Additional detail can be planned by subdividing LZs into LSs and landing points. Landing zones are named by a code word using bird names (e.g., LZ Bluebird) and can be subdivided for different aircraft elements into LSs. Landing sites are names with colors (e.g., LZ Bluebird/ LS Black). Inside of an LS, individual aircraft's desired landing locations can be denoted by landing points, which are numbered for identification (e.g., LZ Bluebird/LS Black/Landing Point 1).

Selection of Landing Zones

Landing zones are selected during planning between the AFC and the AFL in coordination with the S-2. The selected LZs are approved by the MAGTF commander or mission commander. Regardless of whether the site is a LZ or PZ—

- The ground chosen must support the safe landing of assault support aircraft.
- The selected site should be identifiable from the air.
- The enemy situation must be such that the site can be secured without undue interference from enemy fires.

Each assault support aircraft requires a different size LZ/PZ, and each area needs to be on level ground. Lighting conditions and visibility conditions also affect the size of the LZ for each aircraft. Table 3-5 provides the recommended LZ diameters used for different types of aircraft. Planned LZ sizes may vary based on more information and the size of aircraft flights. More detailed information may be found in the most current aircraft Navy tactics, techniques, and procedures (NTTP) publications.

Table 3-5. Recommended Landing Zone Specifications.

Type	LZ Size in Feet (Length x Width)		Other Considerations
	Single Aircraft	Section (2 Aircraft)	
CH-53	200 x 300	300 x 400	Large rotor wash
MV-22	160 x 180	310 x 330	Large rotor wash
UH-1Y	75 x 75	150 x 150	Variety of missions and ordnance
AH-1	75 x 75	150 x 150	Narrow skids require flat, smooth surface
UH-60	100 x 100	200 x 200	Medical evacuation (unarmed)

Ideally, each LZ/PZ is as level as possible and free of major obstacles that might obstruct landings or takeoffs (e.g., tall trees, telephone/power lines). Plans must be made to mark or identify obstacles that cannot be removed in order to aid the aircrew's ability to land the aircraft safely. The ground itself must be firm enough to prevent bogging down; otherwise, aircraft may have to hover during loading or unloading operations.

The site must be free of heavy dust, loose snow, logs, rocks, or dry grass.

Although level ground is preferable, some areas that can support an aircraft will not be level. As a planning rule, LZs with slopes greater than seven degrees require additional consideration by the AFL and AMC.

The LZ/PZ ingress and egress routes are chosen to ensure that takeoffs or landings can occur over the lowest obstacles and that the direction is into the wind, with minimum crosswinds of 10 knots and tailwinds of no more than 5 knots. Wind direction must also be considered in terms of its effect on the dust created by the aircraft's landing and takeoff.

The assault support aircraft must be able to ascend or descend vertically into the LZ/PZ when fully loaded.

LZs are selected using the following criteria:

- The ground commander's CONOPS.
- The LZs can be located on, near, or away from the objective, depending on the factors of METT-T.
- 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.
- An alternate LZ should be planned for each primary LZ selected to ensure flexibility.
- Enemy troop concentration and air defenses and their capability to react to a nearby air assault landing are considered when selecting LZs.
- The LZs deny enemy observation and acquisition of friendly ground and air elements while they are en route to, in, and departing from the LZ.
- If possible, the air assault force should land on the enemy side of obstacles when attacking and use obstacles to protect LZs from the enemy at other times.
- The LZs must be free of obstacles.
- The LZs should be readily identifiable from the air. When possible, reconnaissance units should be used to reconnoiter and mark the LZ.
- Requirements for logistic support.
- Requirements for fire support.
- Available lanes to and from LZs and any restrictive effects on the employment of supporting arms.
- Reduced visibility or strong winds may preclude or limit the use of marginal LZs.
- Single versus multiple LZs.

In addition to deciding where to land in relation to the objective, planners must address whether to use single or multiple LZs. The advantages of a single LZ are as follows:

- Allows concentration of combat power in one location (if the LZ is large enough).
- Facilitates control of the operation.
- Concentrates supporting arms in and around the LZ. Firepower is diffused if more than one LZ preparation is required.

- Provides better security during subsequent lifts.
- Requires fewer attack helicopters for security.
- Reduces the number of flight routes in the objective area, making it more difficult for enemy intelligence sources to detect air assault operations.
- Centralizes any required resupply operations.
- Concentrates efforts of limited LZ control personnel and engineers on one LZ.
- Requires less planning and rehearsal time.

The advantages of multiple LZs are as follows:

- Avoids grouping assets in one location and thus avoids creating a lucrative target for enemy mortars, artillery, and CAS.
- Allows rapid dispersal of ground elements to accomplish tasks in separate areas.
- Reduces the enemy's ability to detect and react to the initial lift.
- Forces the enemy to fight in more than one direction.
- Reduces the possibility of troop congestion in one LZ.
- Eliminates aircraft congestion in one LZ.
- Makes it difficult for the enemy to determine the size of the air assault force and the exact location of supporting weapons.

Landing Formations

Aircraft formations on the LZ should facilitate operational offloading and deployment. The number and type of aircraft and the configuration and size of the LZ may dictate the landing formation during the planning process. Because contact is expected in the LZ, troops are landed ready to employ fire and movement. In order to reduce troop exposure, an LZ formation will not maintain standard distances between aircraft and must land rapidly in a safe area as close to concealment as possible.

Supporting Fires

The initial assault may be made without preparatory fires in order to achieve tactical surprise. However, preparatory fires are planned for each LZ so they can be fired if needed. Preparatory fires should be timed for maximum coordination with the L-hour to cover aircraft and debarking troops during landing operations. Planned fires for air assault operations should be intense and short, but with a high volume of fire to maximize surprise and shock. Supporting fires end just before the first assault element's landing. Fire support plans developed to support the landing plan must address the following:

- False preparations fired into areas other than the objective or LZ.
- Loss of surprise due to lengthy preparations.
- Time, location, speed, and size of committed forces that affect the ability to achieve surprise.
- Based on the allocation of fire support and the commander's guidance, the fire support coordinator (FSC) conducts fire support planning to support the landing. Higher echelons allocate supporting arms to lower echelons. Commanders at lower echelons may then further allocate fire support (e.g., priority of fires).

- Significant targets and either the known or suspected enemy, regardless of size, warrants target planning.
- Obstacles to landing and maneuver; for example, some ordnance used to prepare the site can cause craters, tree blowdown, fires, and LZ obscuration and, therefore, may not be desirable.
- Fires are scheduled to be lifted or shifted to coincide with the arrival times of aircraft formations.
- Positive control measures must be established for lifting or shifting fires. Airspace coordination areas may be necessary to protect approach and retirement lanes.
- Use of escorts as CAS for the GCE in the LZ must be coordinated prior to mission launch. The AFC should not assume that escort aircraft will be available if their use has not been coordinated with the AMC.
- If a FAC(A) is available, consideration should be given to the FAC(A) controlling fires during insertion of the initial waves until the GCE can assume control of fires.

Ground or aviation fires in the objective area should be used to establish the proper LZ criteria. Landing zone criteria that meets conditions for assault support LZ operations, in relation to the threat, is referred to with the procedure word, "Winter." A Winter LZ meets the criteria needed for assault support aircraft to continue landings in the LZ. Prior to establishment of the LZ criteria and passing of the procedure word Winter, the LZ is considered "Devil." During planning, the GCE and ACE planners will have input to the establishment of the Winter criteria, which is a key part of air assault planning. Some joint units may use the procedure words "Ice" and "Cherry" for LZ criteria.

Landing Zone Diagrams

Landing zone diagrams are developed to graphically depict an LZ used by assault aircraft to embark or disembark Marines and equipment. The LZ diagram may contain one or more LSs within the LZ, and one or more landing points within each LS. Landing zone diagrams should be developed for use during briefing and execution of PZ operations, insert LZ operations, and extract LZ operations, as applicable. Refer to the NTTP 3-22.5-ASTACSOP, *Tactical Pocket Guide USMC Assault Support Tactical SOP*, for detailed information for inclusion on LZ diagrams. The LZ diagrams must be depicted to scale and should include, but are not limited to—

- Information about location (grid), size, elevation, surface composition, prevailing winds, and obstacles.
- Aircraft ingress and egress direction, landing location accurately depicting the desired landing formation, and waveoff direction.
- Sectors of fire, fire support coordination measures (FSCMs), target reference points (TRPs), airspace coordinating measures (ACMs), ITG, etc.
- Friendly positions and immediate GCE scheme of maneuver in vicinity of the LZ for insert or extract operations.

Air Movement Plan

The air movement plan is based on the ground tactical plan and the landing plan. The air movement plan specifies the air movement schedule and provides instructions for the air movement of troops, equipment, and supplies from PZs to LZs. It also provides coordinating instructions pertaining to ingress and egress routes, air control points, aircraft speeds, altitudes,

and formations. The planned use of attack aircraft, to include security and linkup locations, should be included in the plan. During MAGTF operations, the MAGTF commander approves the air movement plan based on the recommendations of the AMC, AFC, and the LCE unit commander. The information essential to the ground combat commander is obtained and disseminated by the ground unit air officer or FAC.

WARNING

In order to prevent fratricide, it is imperative that the fire support plan for the entire air assault operation be thoroughly coordinated with the mission commander, AFC, and AMC. The AMC has primary responsibility for planning/coordinating fires in support of the air movement plan. The AFC has primary responsibility for planning/ coordinating fires for the remainder of the air assault operation. Fires in support of the landing plan must be particularly well coordinated between the AFC and AMC. If an EFL is assigned, the EFL will be the lead ACE fire support planner during the development of the fire support plan for the entire air assault operation.

Selection of Aircraft Ingress and Egress Routes

Aircraft ingress and egress routes are air corridors in which aircraft fly to and from their destination during air assault operations. During MAGTF operations, the MAGTF commander, based on the recommendations of the AMC and the AFC, approves aircraft ingress and egress routes. Examination of METT-T with strong emphasis on threat analysis determines ingress and egress route selection. Route and altitude are interdependent in the selection and are considered concurrently to determine the optimum movement. Avoidance of enemy detection and fires is the primary consideration. In addition to METT-T factors, route selection planning considers the following general principles:

- Has the terrain been used to the best tactical advantage?
- Have the primary and alternate ingress and egress routes been identified?
- Have routes been selected that are easy to identify and navigate?
- Will communications capabilities be impaired?
- Can the routes be used under adverse weather conditions?
- Do unique support requirements exist for the routes selected?
- Have supporting arms capabilities and limitations been considered?

Ground Considerations During Assault Support Movement

Ground commanders must know the dimensions of aircraft ingress and egress routes for fire support planning, and they must be familiar with where routes begin and end. Because aircraft may be forced to land along the route, commanders should be able to identify prominent terrain features and checkpoints during flight in order to facilitate mission accomplishment. Therefore, ground commanders should conduct visual reconnaissance to the maximum extent possible during flight and, as assault support aircraft pass over checkpoints, inform Marines so they can prepare to disembark.

Supporting Fires Along the Ingress and Egress Route

The following must be considered during planning of supporting fires for aircraft ingress and egress routes:

- Fires along the flight route are planned to suppress known or suspected enemy positions. These fires should be of short duration. Multiple target engagement techniques are used (e.g., groups, series).
- Fire plans cover the PZs, flight routes, and LZs. Fire support plans include SEAD systems and smoke to protect formations from enemy detection. This requires aggressive fire planning by the FSC and direct coordination with supporting units.
- All available fire support is used to suppress and/or destroy enemy weapons.
- Support may consist of smoke or other electronic attack for suppressing or confusing enemy air defense systems. However, smoke can become an obscurant that can interfere with the flight phase of the operation.
- On-call fires are planned along the flight route to ensure the rapid adjustment of targets of opportunity.
- During night operations, the use of illumination fire requires detailed planning because illumination can interfere with NVDs and cause unsafe conditions.

During air assault planning, an objective area diagram is developed to integrate fires and maneuver in the objective area. The objective area diagram is a graphical depiction of the aviation plan to support the GCE and engage enemy targets, typically developed on a 1:50,000 map chip. Refer to the NTTP 3-22.5-ASTACSOP for additional planning information on objective area diagrams, but at a minimum the objective area diagram should include—

- Map datum information, north seeking arrow, key terrain features, and meteorological information.
- The FSCM and ACM, including, but not limited to, holding areas, battle positions, firing positions, IPs, mission control areas, airspace control areas, no fire areas, battlefield coordination lines, fire support coordination lines, aircraft altitude deconfliction (V-diagram), and TRP. Refer to NTTP 3-22.5-ASTACSOP for naming conventions.
- Ingress and egress aircraft routing to include time, distance, and headings.
- LZ location with sectors of fire.
- Communications information to include call signs, frequencies, and colors.
- Friendly positions, including indirect fire target lines, objectives, sectors of fire.
- Enemy positions and preplanned targets.

Loading Plan

Mobility is accomplished only to the extent that the ground unit retains its ability to accomplish its primary mission while moving. If the air assault unit must reorganize or adjust upon landing, the mobility, momentum, tempo, and initiative are lost or diminished. The only way to maintain the required degree of mobility during an air assault operation is to load and land assault support aircraft in the manner and sequence that allows immediate assumption of the mission upon

landing. Therefore, an effective and efficient loading plan is critical to the success of an air assault operation. Appendix L provides aircraft characteristics that will assist in load planning.

The loading plan is based on the air movement plan. It ensures that Marines, equipment, and supplies are loaded on the correct aircraft. Assault support aircraft loads are also prioritized to establish a bump plan. A bump plan ensures that essential Marines and equipment are loaded ahead of less critical loads in case of aircraft breakdown or other problems. In any case, planning must cover the organization and operation of the PZ, including load positions, day and night markings, and communications. The loading plan is more critical when mixing internal and external loads and/or when mixing aircraft types.

Primary and Alternate Pickup Zones

Identification of primary and alternate PZs is the first step in developing the loading plan. The establishment of adequate unit SOPs covering PZ operations and loading plans reduces the requirement for detailed, written plans. Pickups zones must accommodate assault support aircraft landing and lift, be securable with ground forces, and facilitate staging of aircraft loads. Although enemy contact or influence is not desired during pickup, pickup under pressure must be considered and addressed during planning. Ideal PZs also facilitate delivery of suppressive fires, security for ground troops, and security for landed and lifting aircraft.

Pickup Zone Criteria

Pickup zone criteria for selection and organization are similar to those required for an LZ. However, additional PZ criteria are as follows:

- Number: multiple PZs avoid concentrating forces in one area.
- Size: each PZ accommodates all supporting aircraft at once, if possible.
- Proximity to troops: if possible, PZs should not require ground movement to the PZ by troops.
- Accessibility: if possible, PZs should be accessible by vehicles to move support assets and infantry.
- Vulnerability to attack: selected PZs should be masked by terrain from enemy observation to the maximum extent possible.
- Preparation: if possible, PZs are usable as-is rather than requiring clearing.

Once PZs are identified, the ground commander selects and assigns PZs to be used by subordinate units.

Pickup Zone Control

The PZs are organized to meet specific mission requirements. Depending on the size and magnitude of the operation, a PZ may be as small as one point in one site or it may include numerous sites.

A multiple site PZ may require select sites to conduct strictly internal or external loading functions. Specializing sites for specific functions (e.g., heavy lift, external operations, combat assault transport) may facilitate operations when employing a PZ that contains numerous sites within its confines. For example, a battalion-sized air assault could require a four-site zone; one site may conduct cargo external lift functions, another site external vehicle lifts, another internal

cargo loading, and another tactical loading of troops. This enables equipment and personnel to be concentrated where most needed.

Pickup Zone Control Officer. The PZ control officer performs similar functions as the HST and is manned by the MAATF's higher headquarters. The PZ control officer's efforts and actions conducted in the PZ may also be augmented from the ACE and LCE for materiel handling or other cargo related functions. The PZ control officer is designated by and responsible to the commanding officer of the MAATF. In battalion-level operations, the PZ control officer could be the battalion XO. In most situations, the air officer will not function as the PZ control officer. The air officer will usually be in the combat operations center assisting the FSC in the allocation of air power. Marines from the service platoon, headquarters and service company, form the PZ control group and are trained by the battalion air officer. All personnel allocated to PZ control must be trained in HST functions or augmented with HST Marines from the logistics support element. The PZ control officer accomplishes the following:

- Forms a control group to conduct operations and to provide assistance. The control group may include—
  - Terminal control.
  - Guides to lead elements from unit positions around the PZ to the staging area.
  - Marines to conduct hookup operations for external lifts.
  - Marines to clear PZs and to provide local security.
  - Other Marines as needed to perform required tasks within the PZ.
- Establishes communications on two primary radio frequencies: one to control movement and loading of units and one to control aviation elements. Alternate frequencies are provided as necessary.
- Plans and initiates fire support near PZs to provide all-round protection (from available support) without endangering arrival and departure of troops or aircraft. The fire support plan must be closely coordinated with the AFC and AMC.
- Plans and initiates adequate security to protect the main body as it assembles, moves to the PZ, and is lifted out. If the PZ is within the friendly area, other forces, if available, provide the security elements. Security comes from the air assault force's resources if the force is to be extracted from the objective area.
- Clears the PZ of obstacles.
- Marks the PZ.

> ***Note:*** For battalion air assault operations, each company commander may need to appoint a PZ control officer to operate a company PZ for the battalion.

Pickup Zone Identification and Marking. Identification and marking occurs as follows:

- The PZ control officer directs the markings of PZs, sites, and points.
- The PZs are designated by a code name, by location, or by the LZ naming convention using birds (e.g., PZ Aux 2, PZ Albatross).
- A PZ with more than one site is usually identifiable in the air by prominent terrain features.

- A PZ can be marked by several methods (e.g., colored smoke, air panels). Red is never used to mark an aircraft landing position. Red is used to mark landing obstacles (e.g., trees, stumps) in the landing area. If smoke is planned for marking landing zones/sites/points, red smoke should not be used (reserved for CASEVAC signal). Aircrew should plan to announce via radio contact the smoke and the color, while the ground forces will confirm the smoke color.
- LSs are designated by a color.
- Landing points are designated by numbers.
- Regardless of the type of markers, the PZ is marked to indicate where aircraft are to land and to coincide with the selected PZ aircraft formation.
- An effective method is to have several individuals in each unit paint (and carry) an extra camouflage cover or a modified (cut to size) air panel. The colored cover, when displayed, indicates where the lead aircraft lands.

Movement to the PZ. Ground and air unit movement to the PZ is scheduled so that only the troops and the aircraft to be loaded arrive at the PZ at the same time. This prevents congestion, preserves security, and reduces vulnerability to enemy actions on the PZ. To coordinate the movement of units to the PZ, the PZ control officer —

- Selects troop assembly areas, staging areas, and routes of movement. A staging area is located close to the PZ. It is used only when the assembly is some distance away and does not allow timely movement to the PZ.
- Determines the movement time of ground units to PZs.
- Specifies arrival times and sees that movement of units remains on schedule.

Assault Support Serial Assignment Table. At company and lower levels, the ASSAT assigns each Marine and major items of equipment or supplies to a serial, with weights. The ASSAT is a simple accountability tool that provides a loading manifest for each serial. Serials or multiple serials will be later assigned to aircraft during detailed planning between the AFC and AFL. If time is limited, the ASSAT can be a simple list of each Marine (by billet/unit) and the equipment assigned to a serial to be loaded on aircraft and given to a specified representative. Either method of accountability ensures that if an aircraft is lost, a list of on-board personnel and/or equipment is available. Each serial will have a corresponding manifest with Marines' names and blood types. The manifest will be held by the serial leader, who usually maintains four copies, so one may be given to the PZ control officer/MACO, one given to aircrew, and two kept on the serial leader.

> ***Note:*** If recurring, small-unit air assault operations are anticipated, small-unit leaders may require their Marines to carry individual, preprinted 3- by 5-inch cards for quick collection upon loading.

One of the critical datum calculated during ASSAT preparation is the gross weight (personnel and equipment) assigned to a serial. The pilot in command of each aircraft must be provided with the gross weight of each load to ensure that aircraft weight limitations are not exceeded and that the aircraft can safely accomplish its assigned mission with the proposed load (given the ambient environmental conditions).

Consider serial sizes that can move between different types of assault aircraft. For example, serials of six can work well, since multiples of six can be loaded on UH-1Y, MV-22, and CH-53 aircraft.

If one type of aircraft becomes unavailable, then aircraft loads can be redistributed while maintaining serial integrity.

Load Planning. During preparation of the loading tables, all unit leaders attempt to maintain the following:

- Fire teams and squads are loaded intact on the same aircraft and platoons in the same wave in order to maintain the tactical integrity of each unit.
- The composite first wave is an exception to maintaining tactical integrity of units. The composite first wave facilitates the seizure of the objective LZ and the landing of subsequent waves into the LZ area. Establishing a composite first wave enables the commander to task-organize the initial landing with varying elements from subordinate units of the tactical force. This option may facilitate securing the objective LZ by eliminating the need to move troops on the ground as subsequent waves land.
- Each unit load should be functionally self-sufficient whenever possible.
- Every towed item is accompanied by its prime mover.
- Crews are loaded with their vehicles or weapons.
- Component parts are loaded with major items of equipment.
- Ammunition is carried with the weapon.
- Sufficient personnel are on board to unload cargo.
- Communications between flights is established.
- Tactical spread loading is applied to all loads so that all leaders, or all crew-served weapons, 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 sergeant, and all squad leaders on the same aircraft or loading more than one machine gun team on the same aircraft are violations of cross-loading principles.

Another consideration is to determine whether internal or external loading is the best delivery method for equipment and supplies. Assault support aircraft loaded internally can fly faster and are more maneuverable. Externally-loaded (sling) aircraft fly slower and are less maneuverable; however, they can be loaded and unloaded more rapidly than internally-loaded aircraft. Externally-loaded supplies can also present problems if supplies are destined for more than one location or unit. The loading method used depends largely on availability of sling and rigging equipment.

Bump Plan. Air mission commanders must inform the PZ control officer about any changes to the number, type, and carrying capability of the aircraft en route to the PZ. The PZ control officer must have time to reorganize and institute the bump plan before the arrival of the assault support aircraft. Each aircraft load has a bump sequence designated on its ASLT. Bump priority ensures that the most essential personnel and equipment arrive at the objective area first.

> ***Note:*** A serial is the smallest group of personnel and/or equipment that will be moved by a single aircraft and it will not be broken into smaller units. More than one serial may be moved by a single aircraft (i.e., 2 serials of 12 may embark one CH-53, 4 serials of 6 may embark one CH-53, 3 serials of 6 may embark one MV-22, 1 serial of 6 may embark one UH-1Y).

The bump plan specifies personnel and equipment that may be bumped and delivered later. If all personnel within the load cannot be lifted, individuals must know who is to offload and in what sequence. This ensures that key personnel are not bumped arbitrarily. When an aircraft within a flight cannot lift off and priority serials are on board, they offload and then load another aircraft.

Company or larger units specify a PZ bump-and-straggler collection points. Personnel not moved as planned report to this location, are accounted for, regrouped, and rescheduled by the PZ control officer for later delivery to appropriate LZs.

The mission to be accomplished by each subordinate unit upon landing determines the sequence of departure from each PZ. Unit priorities are based on the sequence of arrival at their LZs. For example, if company A is to land first (at L-hour), and company B second (at L+15), and company B is 15 minutes farther (in flight time) from the objective LZ it may depart the PZ before company A.

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 and their 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.

Contingency Planning

Due to the dynamic nature of air assault operations, contingency plans should be made for the possibility of execution during all phases of an operation. Each contingency may have impacts on one or all of the five subplans, but those impacts may differ during separate phases. At a minimum, the following contingencies should be made during air assault planning:

- Asset attrition.
- TRAP.
- CASEVAC.
- Emergency extract.
- Immediate re-embark.

Other contingencies that should be considered, but are not necessarily inherent to all air assault operations include, but are not limited to, mass casualty, airborne reaction force, quick reaction force (QRF), resupply, reinforcement, no communications plans, and a detainee plan.

Asset Attrition. There is a high likelihood that there will be attrition of aviation assets during air assault operations. Loss of planned assault support aircraft for lift may trigger execution of the bump plan and have implications for follow-on waves. Additionally, other aviation and ground assets should be considered. For example, the loss of an unmanned aircraft system (UAS), airborne C2 aircraft, specific DAS assets, or indirect fire assets that plays a role in the overall fire support plan.

Tactical Recovery of Aircraft and Personnel. The TRAP mission set is not exclusive to air assault operations, but should be planned for during air assault planning. The TRAP planning should include plans for immediate TRAP using MAATF assets, deliberate TRAP using MAATF assets

dedicated to this mission set, and the use of theater/higher headquarters dedicated TRAP or combat search and rescue assets, as applicable.

Casualty Evacuation. Casualty evacuation planning is also not exclusive to air assault planning. The CASEVAC plans should take into account the use of MAATF assets in either a dedicated or immediate role, as well as use of theater/higher headquarters CASEVAC or medical evacuation assets. Special planning for CASEVAC should include addressing the need and availability of specially trained medical personnel, medical facility locations and levels of care, casualty collection points in relation to LZs, and aircraft response times. The CASEVAC plans for air assault operations should have assets ready for this mission set as soon as MAATF ground personnel are inserted into the objective area.

Emergency Extract. Friendly forces should plan for emergency extract in case they come in contact with or contact is imminent with an overwhelming enemy force. The supported unit must address what the air assault force expects the ACE to provide. Support may involve a surge of CAS, the maneuver of another reinforcing unit into a nearby LZ, or it may be emergency extraction. Units must understand, however, that an emergency extract may not always be possible. If the unit has suffered casualties or the enemy force possesses greater mobility, an attempt to execute an emergency extract may be disastrous.

The mission commander may delegate authority to the AFC to call for an emergency extract if an enemy force threatens to destroy the unit. Therefore, the AFC must clearly understand how the air assault mission fits into the overall MAGTF mission. The repercussions of executing an emergency extract on the MAGTF mission must weigh heavily on the decision to execute.

Once the decision has been made to execute an emergency extract, escort and/or combat air patrol aircraft move into position to provide suppressive fires. The air assault unit breaks contact and moves to a secure PZ. On call, the assault support aircraft extracts the unit. Consideration should be given to landing all aircraft in one wave—zone, threat, and aircraft availability permitting—in order to expedite the extract.

Since confusion is inherent during an emergency extract, all participants must thoroughly understand weapons conditions in order to reduce/eliminate the risk of fratricide. A visual means to distinguish between friend and foe must be established and briefed to the assault support gunners.

Immediate Re-embark. Immediate re-embarkation should be planned for situations where an expeditious embarkation of troops is required. Immediate re-embarkations are conducted in permissive environments and not in response to enemy pressure. Reasons for execution may include, but are not limited to, an insert/abort or to move the force to another location.

MISSION BRIEFING AND DEBRIEFING

The responsibility for operational briefings is a function of command and rests with the commander tasked with executing the air assault operation. Generally, each subordinate level of command conducts a briefing that focuses on that unit's participation in the operation. For example, a command representative of the landing force/MAGTF briefs the overall operation, representatives from the air assault units brief their unit's participation, the AMC briefs the airborne portion of the air assault, each individual flight leader briefs the flight, and each individual aircraft commander briefs the aircrew.

Mission Brief

The mission brief is the final phase of the planning effort and should be attended by all key personnel. This brief sets forth the CONOPS, scheme of maneuver, and specific details concerning mission coordination and execution. Information is provided that enables each participant to understand the overall operation and the individual's specific role and responsibilities regarding mission execution. Joint briefings with representatives from each participating unit should be used as much as possible. Depending on the mission requirements, the minimum attendees should include the AMC, the AFC, the FSC or a representative; the TAC(A) or FAC(A); the FAC; the fixed-wing attack aircraft flight leader; the attack helicopter flight leader/flight coordinator; the AFL; and the aircraft commanders. The information developed during the planning effort becomes the subject matter for the mission brief.

Air Assault Mission Briefing Guide

Proper briefing of flight crews is essential to mission success. The air assault mission briefing should be conducted in the most logical, brief, and organized manner possible. The information from appendix M and NTTP series of publications, including NTTP 3-22.5-ASTACSOP, provides detailed mission briefing guides. In addition to the orientation and situation, mission, execution, administration and logistics, command and signal (referred to as SMEAC) format, the following information is presented at the air assault mission briefing—

- Aircraft assignment.
- Call signs.
- Flight leader/alternate flight leader.
- Execution timeline.
- Controlling agencies.
- Frequencies.
- Radio procedures.
- Identification, friend or foe procedures/codes.
- Navigation data.
- ASLT and ASSAT.

- Execution checklist.
- LZ/PZ diagrams (include imagery if available).

It must be emphasized that the mission briefing guide is only that, a guide, and is not intended to be used in total or in the depicted sequence for every type of mission. Only those items directly applicable to a specific mission should be incorporated into the mission brief. Since all members of the mission will not be involved in the planning, it is imperative that the flight brief be well-delivered, organized, and easily understood. The use of the mission briefing guide, adequate rehearsals, and the use of tactical SOPs significantly reduce the time required to conduct the brief.

Mission Debrief

Mission debriefs should be conducted for all air assault operations. The mission debrief should be a systematic review of the operation by phase and stage, looking for planning gaps and shortfalls that need to be resolved for future operations. Debriefers should look for key events that will have impacts on future operations. Designated personnel should record the results of the debrief so individuals and key staff can utilize the lessons learned for future planning.

CHAPTER 4
COMBAT OPERATIONS

Air assault operations are deliberate, precisely planned, and vigorously executed combat operations. Air assault operations are designed to allow friendly forces to maneuver over extended distances and terrain barriers in order to impose the commander's will on the enemy. It is the MAGTF commander's choice to employ an air assault operation in support of the scheme of maneuver. The decision to conduct an air assault operation depends on many factors relative to METT-T. The commander uses the MAATF when the situation permits and when the possible payoff outweighs the risk. An air assault capability promotes speed, surprise, and flexibility so that the commander can react rapidly to a changing situation.

An air assault operation can be conducted alone or in conjunction with other forms and types of operations. An air assault operation is based on the ground tactical plan, and it capitalizes on speed and flexibility in order to gain maximum surprise. The ultimate goal of an air assault operation is to place the air assault force on or near the objective and to be capable of immediate action. Typically, air assault operations are conducted to—

- Seize key terrain.
- Overcome obstacles.
- Conduct raids.
- Insert or extract patrols.
- Conduct security operations.
- Support deception operations.
- Reposition forces.
- Rapidly reinforce a successful attack.
- Support defensive operations by—
  - Blocking enemy penetrations or withdrawals.
  - Reinforcing encircled forces.
  - Inserting or extracting patrols.
  - Conducting security operations.
  - Conducting counterattacks.
  - Repositioning forces.

Section I. Air Assault Operations in the Offense

Offensive operations are conducted to take the initiative from the enemy, gain freedom of action and generate effects to achieve objectives. Like all operations, air assault operations conducted in offense can be planned and conducted in either a hasty or deliberate fashion. A hasty operation is an operation in which the tactical situation requires the use of immediately available forces and fragmentary orders to perform actions with minimal preparation, trading planning and preparation time for speed of execution. A deliberate operation is an operation in which the tactical situation allows the development and coordination of detailed plans, mission specific rehearsals and task organization of the force, thorough preparation, and synchronized shaping and sustaining actions (such as a raid). Air assault operations provide the MAGTF commander an ability to generate offensive initiative by quickly projecting combat power faster and over greater distances. Effective air assault operations in the offense capitalize on accurate and timely intelligence allowing the commander to shape the battlespace, maneuver to gain a position of advantage, and generate a greater operational tempo than the enemy can match. When a decision to conduct an air assault is made to seize, retain, or exploit the initiative, the MAGTF commander is conducting offensive operations. Even when conducting defensive or stability operations, wresting the initiative from the adversary or enemy requires the spirit of the offense. The focus of offensive operations is the enemy, not simply the seizure of terrain. Successful offensive operations—

- Avoid the enemy's strength and attack their weakness by focusing combat power against the enemy's critical vulnerabilities.
- Isolate the enemy from their sources of support, including the population.
- Strike the enemy from unexpected directions, disrupting their plans.
- Exploit every advantage.
- Overwhelm the ability of enemy decision makers to observe, orient, decide, and act.

TYPES OF OFFENSIVE OPERATIONS

All offensive operations seek to capitalize on surprise, concentration, tempo, and audacity, which are characteristics of the offense. Air assault operations are ideally suited for the offense due to the nature, speed, velocity, and associated risk versus effect potentially gained.

Movement to Contact

Movement to contact is a type of offensive operation that develops the situation and establishes or regains contact with the enemy. Commanders conduct movements to contact when the enemy situation is vague, whether trying to locate the enemy, regain contact with the enemy, or preserve tactical flexibility or when the enemy situation is as a means of force protection in their approach or when conducting exploitations and pursuits. Forces executing this operation seek to make contact with the smallest friendly force feasible, not only to avoid decisive engagement, but also to enable decisive action by a main effort. When employed within a movement to contact, air assault operations may be selected by the MAGTF commander for several reasons, such as to reposition security elements to protect exposed flanks from enemy attack, block avenues of

approach, hold key terrain, fix an enemy force in place, or be employed to engage an enemy once uncovered. Air assault operations may also be utilized to force enemy reactions, movement (turning movement), or to deceive the enemy as part of a deception plan during a feint with dummy inserts. Air assault operations use the approach march and the search and attack as movement to contact operations.

Movement to Contact Approach March. An approach march is a type of movement to contact or advance when direct contact with the enemy is imminent or intended. It emphasizes speed over tactical deployment. Air assault forces are not typically utilized within the approach march itself. However, air assaults could be preplanned as follow and support missions or assigned missions following contact with the enemy in support of their movement or shaping actions. Close air support, air interdiction, and counter air operations are essential to the success of large scale movements to contact. Local air superiority or, at a minimum, air parity is vital to the operation's success.

Movement to Contact Search and Attack. Search and attack is a method of movement to contact used to develop the situation and deny the enemy the ability to operate in a given area when the enemy is operating in small, dispersed elements. Air assault operations are well suited for search and attack operations where the enemy typically operates in smaller, dispersed forces as a fixing, finishing, or reconnaissance element of the search and attack.

Attack

An attack is an offensive operation characterized by coordinated movement, supported by fire, conducted to defeat, destroy, or capture the enemy or seize and/or secure key terrain. Attacks may be decisive or shaping actions within hasty or deliberate operations (other than raids). Air assault provides rapid execution of attacks, allowing the commander to achieve tactical surprise and mass forces, regardless of obstacles. The following types of attack are not isolated actions and the MAGTF commander may combine several types of attack to seek greater effects:

- Hasty and deliberate attacks.
- Spoiling.
- Counterattack.
- Feint.
- Demonstration.
- Reconnaissance in force.
- Raid.

An attack differs from a movement to contact because, even in a hastily conducted attack, the commander knows part of the enemy's disposition. This knowledge enables the commander to better synchronize the attack and employ combat power more effectively than in a movement to contact. If an attack is successful, the adversary is no longer willing or able to offer meaningful resistance.

Hasty and Deliberate Attacks. Attacks can be hasty or deliberate based on the degree of coordination, planning, and preparation involved prior to execution. In a hasty attack, the commander trades preparation time for speed to exploit an opportunity, while a deliberate attack employs preplanned firepower and maneuver, and usually includes the coordinated use of all

available resources. Where a deliberate attack involves a deliberate planning process, a hasty attack could exploit a fleeting opportunity. A hasty air assault would potentially incur higher risk without a fully formed situational picture or due to reduced planning time. See MCDP 1-0, *Marine Corps Operations*, for more detailed information.

Spoiling Attack. A spoiling attack is a type of attack employed to seriously impair an enemy hostile attack while the enemy is in the process of forming or assembling for such an attack. The objective of a spoiling attack is to disrupt the enemy's offensive capabilities and timelines while destroying targeted enemy personnel and equipment, not to seize terrain and other physical objectives. A spoiling attack usually employs heavy, attack helicopter, or fire support elements to attack enemy assembly positions in front of the friendly commander's main line of resistance or battle positions.

Counterattack. A counterattack is a type of attack in which all or part of a defending force attacks an enemy attacking force to regain ground lost, to cut off or destroy enemy advance units, or to deny the enemy its purpose of attack. A unit conducts a counterattack to seize the initiative from the enemy through offensive action. Once launched, the counterattack normally becomes the commander's decisive action. The MAGTF commander plans and conducts a counterattack to attack the enemy when and where the enemy is most vulnerable, which is when the enemy is attempting to overcome friendly defensive positions. The MAGTF commander normally assigns attack by fire positions when counterattacking using primarily direct and indirect fires. An air assault may be selected to counterattack an advancing enemy force or to degrade the momentum of the attack and identify the enemy's main effort, thus causing the enemy to deploy early and fight the air assault force. The MAGTF commander may also use an air assault as a reserve element, which allows greater flexibility in the time and place to employ a counterattack, such as a vertical envelopment. Lastly, the MAGTF commander may utilize aerial movement of forces to position for deception operations or turning movements as part of the counterattack, to force the enemy to commit forces for security, or to fight in several directions simultaneously.

Feint. A feint is a type of attack involving contact with the enemy to deceive the enemy about the location or time of the actual main offensive action. Feints are used in conjunction with other shaping operations to cause the enemy to react in three predictable ways: to employ reserves improperly, to shift supporting fires, or to reveal defensive fires. Forces conducting a feint make direct fire contact with the enemy but avoid decisive engagement. Dependent upon the size of the enemy force and the relative deployment distance of the feint from the main body, air assault operations place the MAATF at great risk of being decisively engaged and possibly destroyed. Additionally, the MAATF could be out of range of surface-to-surface fire support and exposed to enemy air defenses. The MAGTF commander and the MAGTF staff must possess accurate, timely intelligence in order to adequately weigh risk versus gain in the decision to use air assault in a feint.

Demonstration. A demonstration is a type of attack or show of force on a front where a decision is not sought. Its aim is to deceive the enemy. Similar to a feint, a demonstration is also used in conjunction with other shaping operations. One difference between a feint and a demonstration is that forces conducting a demonstration do not seek contact with the enemy. Air assault operations used within a demonstration can deceive the enemy as to the MAGTF commander's intentions for positioning of forces and greatly reduce risk to the MAATF because the enemy is presented with a

larger element of assault support aviation appearing to position or mass elsewhere on the battlefield, which lends greater credibility to the deception plan.

Reconnaissance in Force. A reconnaissance in force is a type of attack made to obtain information and to locate and test enemy dispositions, strengths, and reactions in order to determine enemy weakness. It is used when knowledge of the enemy is vague and there is insufficient time or resources to develop the situation. When the MAATF is employed within a reconnaissance in force operation, it is expected that it will uncover and fight enemy forces. The reconnaissance objective is focused on the enemy and as such, the MAATF is expected to be able to "fight for information" it encounters by determining the assigned objectives and tasks delegated to the mission commander. The MAATF will rapidly and accurately report the enemy disposition, strength, will to fight, and ability to make a decision to the MAGTF commander so that he/she may determine how to quickly and decisively maneuver against the enemy.

Raid. A raid is a type of limited objective attack, usually small scale, involving a penetration of hostile territory for a specific purpose other than seizing and holding terrain. It ends with a well-planned withdrawal upon completion of the assigned mission. Raids are ideally suited for air assault operations and are normally conducted by battalion size or smaller forces. Raids are normally conducted in five phases—

- Infiltration or insertion into the objective area.
- Cordon of the objective area.
- Assault.
- Seizure of the objective.
- Withdrawal.

Detailed planning, accurate intelligence, and combined rehearsals allow the MAATF to quickly insert, perform the assigned mission, and then extract from the objective area rapidly before an enemy reaction can be effected.

See figure 4-1, on page 4-6, for a diagram of the five phases of a raid.

Exploitation

Exploitation is an offensive operation following a successful attack that is designed to disorganize the enemy in depth. Due to their speed, air assault operations conducted during exploitation can further extend the initial success of an attack by preventing the enemy from disengaging, withdrawing, and re-establishing an effective defense. Exploitations seek to disintegrate enemy forces to the point where they have no alternative but surrender or take flight. Exploitations place great, but necessary, demands on the endurance of Marines and equipment. Exploitations are conducted with two overriding requirements: speed and violence. The attacking force bypasses pockets of resistance to concentrate on the destruction of the more vulnerable enemy headquarters, combat support, and CSS units. They disrupt, degrade, or destroy the enemy's command and control, logistics, air defenses, and fire support elements. Enemy air defenses are either avoided or specifically targeted for suppression to allow the air assault force to land and deploy.

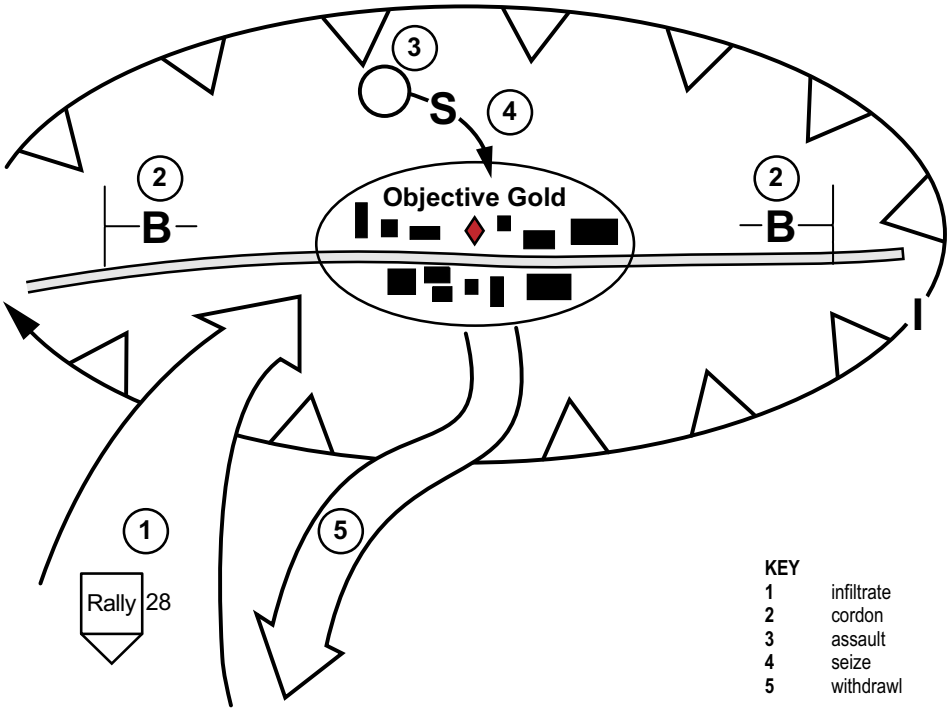


Figure 4-1. Five Phases of a Raid.

Pursuit

A pursuit is an offensive operation designed to catch or cut off a hostile force with the aim of destroying it while it attempts escape. A pursuit normally follows a successful exploitation. However, any offensive operation can transition into a pursuit if enemy resistance has broken down and the enemy is fleeing the battlefield. Therefore, commanders and staffs must be flexible enough to recognize and exploit "catastrophic success." Pursuits entail rapid movement and decentralized control and, similar to an exploitation, place great demands on the endurance of Marines and equipment to take advantage of the opportunity to decisively defeat the enemy. Air assault forces, operating as part of the pursuit force, can expect to be ordered to bypass resistance and move to objectives that serve as chokepoints for the retreating enemy.

FORMS OF MANEUVER

Air assault operations add speed, depth, and flexibility to maneuver, thus enhancing the MAGTF commander's capability to influence the enemy. Within every form of maneuver, combined arms organizations accomplish their assigned mission by synchronizing the contributions of all warfighting functions to execute these forms of maneuver. Air assault operations are not ideally suited to perform all forms of maneuver, such as a frontal attack, but can be selected to assist other units conducting that type of offensive operation. Air assault operations use the following forms of maneuver:

- Envelopment.
- Turning movement.

- Frontal attack.
- Penetration.
- Infiltration.
- Flanking attack.

Envelopment

An envelopment is an offensive maneuver in which the main attacking force passes around or over the enemy's principal defensive positions to secure objectives to the enemy's rear. The four types of envelopment are the single envelopment, double envelopment, encirclement, and vertical envelopment (specific to air assault). Vertical envelopment is a tactical maneuver in which troops, either air-dropped or air-landed, attack the rear and flanks of an enemy force, in effect cutting off or encircling the enemy force. Tactical commanders conduct vertical envelopments—airborne or air assault operations—to gain a positional advantage or to envelop or turn the enemy. While the MAGTF commander should attempt to achieve an unopposed landing when conducting vertical envelopments, the assault force must prepare for the presence of opposition. The capability to conduct vertical envelopments—airborne and air assault operations—allows a tactical commander to—

- Threaten enemy rear areas, causing the enemy to divert combat elements to protect vital installations and hold key terrain.
- Overcome distances quickly, overfly barriers, and bypass enemy defenses.
- Extend the area over which the commander can exert influence.
- Disperse reserve forces widely for survivability reasons while maintaining their capability for effective and rapid response.
- Exploit combat power by increasing tactical mobility. Air assault operations are best suited for vertical assaults whereby the MAGTF commander can quickly and decisively close forces in an enemy's rear area.

Turning Movement

A turning movement is a form of offensive maneuver in which the attacking force passes around or over the enemy's principal defensive positions to secure objectives deep in the rear area of the enemy, which forces the enemy to abandon position or divert major forces to meet the threat. The MAGTF commander can use air assault forces to employ a vertical envelopment and effect a turning movement. A commander uses this form of offensive maneuver to seize vital areas in the enemy's rear area before the main enemy force can withdraw or receive support or reinforcements. Turning movements can frequently transition from an attack into an exploitation or pursuit.

Frontal Attack

A frontal attack is a form of maneuver in which the main action is directed against the front of the enemy forces. It may be conducted when no assailable flank has been located or used to overrun a weaker enemy force. The MAGTF commander commonly uses a frontal attack as a shaping action

in conjunction with other forms of maneuver. Due to its close proximity to the enemy front, air assaults are not normally selected for frontal attacks.

Penetration

A penetration is a form of maneuver in which an attacking force seeks to rupture enemy defenses on a narrow front to disrupt the defensive system (penetration is also a tactical task). Destroying the continuity of that defense allows the enemy's subsequent isolation and defeat in detail by exploiting friendly forces. The penetration extends from the enemy's security area through main defensive positions into the enemy's rear area. The MAGTF commander employs a penetration when there is no assailable flank, enemy defenses are overextended, weak spots are detected in the enemy's positions, or time/pressure do not permit envelopment. The close proximity of enemy forces precludes air assault forces from conducting an actual penetration. More likely, air assault operations will be a follow-on effort during subsequent attacks, exploitation, or pursuit.

Infiltration

An infiltration is a form of maneuver in which friendly forces move through or into an area or territory occupied by either friendly or enemy troops or organizations. The movement is made, either by small groups or by individuals, at extended or irregular intervals. Due to the smaller force size and the covert nature of an infiltration (typically contact is to be avoided), this normally precludes the conduct of an air assault operation. It is more likely that the MAGTF commander would conduct an aerial movement of forces to position them to conduct infiltrations across the enemy's front.

Flanking Attack

A flanking attack is a form of offensive maneuver that pits our strength against the enemy's weakness in order to gain a position of advantage while avoiding the enemy's combat power. Directed at the flank of an enemy force, a vulnerable aspect of an enemy formation. A flanking attack is similar to an envelopment, but generally not as deep. The purpose of a flanking attack is to avoid the enemy's combat power in the process of defeating the enemy. The MAGTF commander would employ a flanking attack as a rapid way to maneuver to the enemy's flank and to attack the flanks of a withdrawing enemy column, slowing them and aiding in their destruction.

CONTROL MEASURES

A control measure is a directive given graphically or orally by a commander to subordinate commands to assign responsibilities, coordinate fires and maneuver, and control combat operations. Each control measure can be portrayed graphically. In general, all control measures should be easily identifiable on the ground. Some examples of basic control measures used in air assault operations are—

- ACM.
- Area of operations and boundaries.
- Assembly area.
- Checkpoint.

- Contact point.
- Coordination point.
- Critical friendly zone.
- Direct fire control measure.
- Engagement area.
- FSCM.
- Fire support targets.
- FARP.
- FLOT.
- Line of contact.
- LZs (primary, secondary, tertiary).
- Named area of interest.
- No fire area.
- Objective.
- Phase line.
- Position area for artillery/mortars.
- PZs (primary, secondary, tertiary).
- Routes and corridors.
- Target area of interest.

During COA development, the MAGTF planning staff develops well-conceived control measures in order to help delineate and define responsibilities and coordinates fires and maneuvers among various units conducting the air assault operation. Control measures are both permissive (allows something to happen) and restrictive (limits how something is done). The MAGTF planning staff strives to develop them in a manner that provides the greatest possible freedom of action to subordinates, establishing only those necessary to provide essential coordination and deconfliction between units. Commanders should seek to remove restrictive control measures as soon as possible in order to maintain freedom of maneuver and maintain the tempo of operations against a fluid enemy. Control measures may be graphical, such as boundaries, or procedural, such as target engagement priorities.

Section II. Air Assault Operations in the Defense

While the offensive form of combat operations is more decisive, the defense is the stronger form of combat. The inherent strengths of the defense include the defender's ability to choose the ground to fight on, to occupy positions before the attack, and to use the available time to prepare the defenses. A defensive operation is an operation conducted to defeat an enemy attack, gain time, economize forces, and develop conditions favorable for transition to offensive or stability operations. As with the offense, air assault operations in the defense provide the MAGTF commander an ability to maneuver, mass, and close forces quickly over increased distances. Air assault operations, when

conducted from the defense, allow the MAGTF to maintain the "offensive spirit" and react to unexpected enemy actions. Flexibility and maneuver within the defense are critical in presenting the enemy attacker with a series of dilemmas, causing the attacker to continually adjust, as well as setting the conditions for the MAGTF's transition to the offense. Defensive operations alone normally cannot achieve a decision. Their purpose is to create conditions for counteroffensive actions that allow the MAGTF to regain the initiative. Other reasons for conducting defensive operations include—

- To retain terrain decisive to mission accomplishment or deny a vital area to the enemy.
- To attrit or fix the enemy as a prelude to offensive operations.
- To mitigate unexpected actions by the enemy.
- To increase the enemy's vulnerability by forcing the enemy commander to concentrate subordinate forces.

Successful defensive operations share the following characteristics:

- Maneuver.
- Preparation.
- Mass and concentration.
- Flexibility.
- Use of terrain.
- Mutual support.
- Defense in depth.
- Surprise.
- Knowledge of the enemy.
- Local security.

TYPES OF DEFENSIVE OPERATIONS

The three types of defensive operations include area defense, mobile defense, and retrograde defense.

Area Defense

Air assault operations support the area defense by serving as a reserve element to reinforce critical areas that become in danger of being lost and as a counterattack force to disrupt the enemy's advance. The reserve element is used to add depth, to block or restore the battle position by counterattack. The focus of the area defense is on retaining terrain where the bulk of the defending force positions itself in mutually supporting and prepared positions. See MCDP 1-0 for more detailed information.

Mobile Defense

The mobile defense destroys the attacking enemy through a series of maneuver and offensive actions, in conjunction with defensive fires, arrayed on the terrain to seize the initiative from an attacking enemy. The mobile defense focuses on defeating or destroying the enemy by allowing them to advance to a point where they are exposed to a decisive counterattack by the reserve. Air assault operations in support of a mobile defense will usually consist of utilizing the MAATF as a mobile reserve or counterattack force. The counterattack force is a dedicated force within a mobile defense and, once committed, is allocated the majority of available combat power in support of its maneuver to increase its capability of achieving a decisive effect. A mobile defense requires an area of operations of considerable depth in which to employ the MAATF. The MAGTF commander requires this depth to shape the battlefield for a mobile defense, causing an enemy force to overextend its lines of communication, expose its flanks, and dissipate enemy combat power as it projects itself toward the MAGTF's defenses. Likewise, the MAGTF commander must be able to move the MAATF around and behind the enemy force targeted to be cut off and destroyed. Divisions and larger formations normally execute mobile defenses. However, regimental landing teams and maneuver battalions employed as air assault forces can be employed to participate as part of the fixing force or the reserve in a counterattack force to conduct a vertical envelopment.

Retrograde

A retrograde is a transitional type of defensive operation that consists of any movement or maneuver of a command to the rear or away from the enemy. A retrograde may be caused by an enemy action or by a decision by the MAGTF commander. The most distinguishable point of the retrograde is that it is a transitional operation and is not conducted in isolation. It is part of a larger concept designed to regain the initiative and defeat the enemy. There are three types of retrogrades—

- Delay.
- Withdrawal.
- Retirement.

Delay. A delaying operation is an operation in which a force under pressure trades space for time by slowing down the enemy's momentum and inflicting maximum damage on the enemy without becoming decisively engaged. See MCDP 1-0 for more detailed information. Air assault operations add depth to the MAGTF commander's concept of the defense. The MAATF supports the delay by being inserted into a series of forward positions in the security area and then delaying from subsequent positions in depth. The risk to the MAATF becoming decisively engaged must be thoroughly considered by the MAGTF planning staff. The defensive methods from which the MAATF delays from must be planned in a manner that provides for the safe recovery and repositioning of the force in depth and beyond the reach of the enemy's long-range weapons and air defenses.

Withdrawal. A withdrawal is a method of retrograde in which a force in contact disengages from an enemy force and moves in a direction away from the enemy. Within a withdrawal operation, air assaults may be planned by the MAGTF commander in order to ensure the withdrawal is conducted successfully and unencumbered by enemy forces interdiction. See MCDP 1-0 for more detailed information on withdrawal.

Retirement. A retirement is an operation in which a force out of contact moves away from the enemy. A retiring unit organizes for combat, but it does not anticipate interference from enemy ground forces. Typically, another unit's security force or a relieving force covers the movement of the unit as it conducts its retirement. However, mobile enemy forces, unconventional forces, air strikes, air assault operations, or long-range fires may attempt to interdict the retiring unit. The mission commander must plan for enemy actions and organize the unit to fight in self-defense; therefore, air assaults may be planned by the MAGTF commander during a retirement in order to ensure the retirement is conducted successfully and is unencumbered by enemy forces interdiction.

Section III. Air Assault in Support of Stability Operations

Air assault operations can support stability operations by responding to offensive, defensive, and security problems as they arise anywhere within the area of operations. The speed, velocity, and time in which the air assault forces can respond provides the MAGTF a long-reaching, viable, and capable force to deter instability, restore or enforce peace and/or provide security for initial humanitarian support activities. In stability operations, air assault should not be confused with air movement, as air movement supports other activities.

Nearing the end of offensive-oriented operations may not always be a decisive act. The conduct of stability-focused operations may be the result of decisive actions in the operation or campaign or at the direction of the joint force commander or even the President of the United States. The transition to stability-focused operations cannot be an afterthought. Setting the conditions for incorporating air assault operations in support of stability may have significant impact on the planning and execution of offensive-oriented actions anticipated in future operations. See Marine Corps Warfighting Publication (MCWP) 3-03, *Stability Operations*, for more information.

INITIAL RESPONSE ACTIVITIES

Generally, initial response activities are tasks executed to stabilize the operational environment in an area in crisis; for example, during or immediately following conflict or a natural disaster. Initial response activities by the MAATF aim to provide a safe, secure environment and attend to the immediate humanitarian needs of a population. They support efforts to reduce the level of violence or human suffering while creating conditions that enable other organizations to participate safely in ongoing efforts. For example, air assault operations throughout the initial phases of Operation Restore Hope across Somalia were proven to be a critical element of the operation in December 1992. Independent warlords were continually attacking and stealing resources from nongovernmental and other world relief agencies, causing further suffering and increased security concerns. Aggressive intelligence activities allowed the Marines, as part of the unified task force, to project forces to locations hundreds of miles away to areas such as Kismayo, Baidoa, and Bardera, Somalia, to thwart security encroachments and allow relief agencies to perform their tasks.

STABILITY ACTIVITIES

Stability activities that foster sustainability encompass long-term efforts that capitalize on capacity-building and reconstruction activities to establish conditions that enable sustainable development. The MAGTF commander relies on the flexibility, responsiveness, and capabilities that air assaults can provide throughout the conduct of all stability operations in a campaign or operation. See MCWP 3-03 for more detailed information.

Section IV. Air Assault in Support of Reconnaissance and Security Operations

Air assault operations in support of reconnaissance and security operations are essential to providing the MAGTF commander an agile, flexible means of projecting lethal and responsive combat power throughout the range of military operations. This capability in closing forces rapidly allows the MAGTF to generate or maintain tempo of operations and retain the initiative during any combat operation or campaign.

RECONNAISSANCE

Reconnaissance is "a mission undertaken to obtain, by visual observation or other detection methods, information about the activities and resources of an enemy or adversary, or to secure data concerning the meteorological, hydrographical, or geographical characteristics of a particular area." (*DOD Dictionary*)

Capitalizing on the mobility provided by assault support aircraft, the MAATF is capable of being employed in offensive reconnaissance roles, such as during a reconnaissance in force, finding, fixing, and, when capable, finishing enemy forces. Assault support operations also allow the MAGTF commander to project forces in the deep fight to either confirm or deny enemy operations and degrade and/or diminish their capabilities. See MCDP 1-0 for more detailed information on reconnaissance.

SECURITY OPERATIONS

A security operation is an operation undertaken to provide the force being protected early and accurate warning of enemy operations, to provide ample reaction time and maneuver space in which to react to the enemy, and to develop the situation in engaging the threat. The ultimate goal of security operations is to protect the force from surprise and report the actions and intentions of the enemy to reduce the unknown factors in any operation. As such, security operations are "force-centric" in focus. Security operations are shaping actions. As a shaping action, economy of force is often a condition of tactical security operations.

There are three types of security missions:

- Screen.
- Guard.
- Cover.

Each of these missions varies in the degree of security provided, the forces and capabilities required, and the degree of engagement with the enemy the MAGTF commander desires. Air assault operations in support of security operations provide the MAGTF commander flexibility to rapidly mass and recover forces into and out of critical security areas. For more detailed information on security operations, see MCDP 1-0.

Screen

A screen is a type of security operation in which the primary purpose is to provide early warning to the protected force. It is a friendly-oriented tactical task to observe, identify, and report information, and fights only in self-protection.

Screening missions are unique in that they can be performed to the front, flanks, and rear of a stationary unit or facility, but only to the flanks and rear of a moving force. When the protected force is moving, units to the front are performing zone reconnaissance, advance guard, or a form of movement to contact. In conducting air assault operations in support of screening missions, the MAGTF commander assumes some degree of risk. Within a screening mission, an inherent task is that the MAATF must be able to avoid decisive engagement enemy forces. This is additionally critical in providing for safety of flight of supporting aircraft ingressing and egressing out of the security zone. Additionally, the MAGTF staff must have adequate knowledge of the enemy's capabilities and equipment. The enemy cannot possess adequate air defenses that could further threaten transiting assault support aircraft. Should the MAATF become decisively engaged, there is a possibility that it cannot be recovered by supporting assault support aviation due to being in direct contact with enemy forces. The MAGTF commander and staff must adequately weigh the operational risks associated when employing air assault operations in support of screening missions to ensure that the MAATF can be recovered or reinforced should they become decisively engaged by the enemy.

Guard

A guard is a type of security operation in which the primary purpose is to protect the main force by fighting to gain time while also observing and reporting information and to prevent enemy ground observation of, and direct fire against, the main body by reconnoitering, attacking, defending, and delaying. Guard missions can be conducted to the front, flanks, and rear of a stationary unit or facility or a moving force.

Guarding missions are a friendly-oriented tactical task to protect the main force by fighting to gain time while also observing and reporting information. The three methods of conducting guard missions are—

- Advance guard.
- Flank guard.
- Rear guard.

In conducting air assault operations in support of guarding missions, the MAGTF commander assumes an even greater degree of risk for the MAGTF in comparison to screening missions. Within a guarding mission, the inherent task is that the MAATF must be able to engage and fight enemy forces for a specified length of time (or to cause the enemy to act in a specific manner) as directed by the MAGTF. Knowledge of the enemy's capabilities and equipment are critical in ensuring that the MAATF is not deployed to guard against a more capable enemy force. The enemy air defense capabilities cannot affect employment of the MAATF. The MAGTF commander and staff must adequately weigh the operational risks associated when employing air assault operations in support of guarding missions, ensuring that the MAATF can be recovered or reinforced should they become decisively engaged by the enemy.

Cover

A cover is a type of security operation in which the primary purpose is to intercept, engage, delay, disorganize, and deceive the enemy to protect the covered force and develop the situation. It is also a friendly-oriented tactical task to conduct offensive and defensive actions independent of the main body to protect the covered force and develop the situation. A covering force performs all the critical tasks of screen and guard missions. It is, usually, a self-contained MAGTF that operates beyond the range of friendly artillery positioned with the main force. A covering force may normally task-organize to include aviation, artillery, tank, reconnaissance, CSS, and occasionally, civil affairs units in order to operate independently. A covering force, or portions of it, often becomes decisively engaged with enemy forces; therefore, the covering force must have substantial combat power to engage the enemy and accomplish its mission. A covering force develops the situation earlier than a screening or a guarding force. It fights longer and more often and defeats larger enemy forces. A covering force for a stationary force performs a defensive mission, while a covering force for a moving force generally conducts offensive actions. A covering force normally operates forward of the main body in the offense or defense, or to the rear during retrograde operations. Within a covering mission, the options at the MAGTF commander's disposal for the planning and employment of air assault operations are virtually unlimited.

Section V. Other Tactical Operations

Reinforcement of Committed Units

The MAGTF commander may direct the insertion of an air assault unit to reinforce threatened sectors and add depth to the battle area. An MAATF can reinforce a committed unit—

- With uncommitted units (reserves).
- With additional antitank assets.
- By moving artillery to weight the battle.

LINKUP OPERATIONS

When withdrawal of an air assault force from the objective area is not planned or feasible, a linkup operation is conducted to join two forces. An air assault force may participate as part of a larger force, or it may conduct a linkup with its own resources. Close coordination and detailed planning between the commanders of both units are essential.

RIVER CROSSING OPERATIONS

Air assault forces may reduce CSS considerations during river crossing operations by—

- Flying over the river.
- Supporting bridge construction.
- Deploying reconnaissance units by air to verify and collect essential intelligence on crossing sites and enemy dispositions.
- Reaching objectives on the far shore quickly, eliminating enemy interference with development and use of crossing sites.
- Rapidly airlifting engineer bridging assets forward, eliminating traffic problems on the crossing site approaches.

If a deliberate crossing is chosen, the air assault force, with its increased mobility, can be used to clear the near shore of enemy resistance. During the actual crossing, whether hasty or deliberate, the air assault force can assist by—

- Attacking enemy forces that interfere with the crossing by seizing objectives that would be secure or assisting in securing the bridgehead.
- Providing flank security.
- Securing crossing sites with or without smoke.

REAR AREA OPERATIONS

Air reconnaissance can provide wide-area surveillance and security and can be integrated into reaction force plans. Rear area operations are coordinated with the designated rear area commander. The air assault force, as a potential reaction force, can be called upon to contain the enemy force if it does not have enough combat power to destroy it. Other forces would then be called upon to destroy the enemy.

The air assault force also monitors likely infiltration routes and probable target areas for enemy attacks from the rear in order to counter enemy airmobile, airborne, or guerrilla infiltration threats.

NIGHT AND LIMITED VISIBILITY OPERATIONS

A commander may desire to take advantage of the cover of darkness to gain maximum surprise or deception, maintain the momentum of successful operations, reinforce or withdraw committed units, and/or deploy maneuver support elements. The following aircraft operational requirements must be considered during night or limited visibility operations:

- Desired directions and routes of movement for aircraft, to include identification of selected terrain features.
- The identity and location of LZs and/or PZs.
- Emergency ground-to-ground signals.
- Directions and points of landing for aircraft.
- Electronic and visual navigation aids identify presence of LZ obstacles.
- Illumination level.
- Moon phase/angle.
- Cultural lighting.
- Effects of shadows.

Some advantages of limited visibility operations areas are as follows:

- Aircraft are partially concealed from enemy visual observation.
- Maximum surprise and confusion can be achieved.
- Continuous pressure can be exerted on the enemy.
- Effective enemy air defense fire and interdiction by enemy aircraft are diminished.

However, disadvantages—the need for more elaborate control measures and the caution required by both aviators and troops slows operations—of limited visibility operations also exist. These disadvantages may be overcome with the proper equipment, constant training, and a thorough knowledge of techniques. The following factors should be considered during limited visibility operations:

- More time is required for planning, preparing, and executing.
- Flight formations are more difficult and the formations are more dispersed.
- LZs/PZs should be larger.
- Navigation is more difficult.
- Additional illumination is planned and must be immediately available in case it is necessary for mission accomplishment.

OPERATIONS IN A CHEMICAL, BIOLOGICAL, RADIOLOGICAL, AND NUCLEAR ENVIRONMENT

In the event of a nuclear attack, air assault forces can conduct a radiological survey and, when feasible, move into the target area after the explosion to stall enemy exploitation of its effect. Air assault forces can rapidly and safely bypass obstacles created by a nuclear strike, whether their objective is within or beyond the target area.

When planning air assault operations in conjunction with friendly nuclear munitions employment, the planner must consider the—

- Effects of intense light on pilot vision.
- Effects of intense heat on equipment and personnel.
- Effects of blast waves on aircraft in flight.
- Residual radiation rates on the LZs/PZs.
- Utilization of LZs/PZs; however, debris may prohibit their use.
- Effects of electromagnetic pulse on electronic equipment.
- Selection of approach and retirement lanes into possible contaminated LZs.
- Use of alternate LZs if primary zones have too high a residual radiation rate.

Planning for air assault operations in a toxic environment also includes reconnaissance of areas known or suspected of contamination, election of routes and positions with regard to contaminated areas to avoid stirring up or spreading agents with rotor wash, and protection of supplies and equipment. The three principles of CBRN operations (contamination avoidance, protection, and decontamination) are fundamental to survival during air assault operations conducted in a CBRN environment.

If air assault operations must be conducted following contamination, the air assault force may direct that a hasty (spot) decontamination of aircraft be accomplished. Decontamination reduces the hazard of agent contact and transfer. Spot decontamination is an effective means of decontaminating specific areas of an aircraft. This sustains flight operations since certain functional areas are treated before they are touched. Surfaces must be washed with decontaminants to flush agents off the aircraft's exterior. Small amounts of the CBRN agent (absorbed into the fuselage paint) will probably remain after decontamination. The evaporation of these residues can create a vapor hazard; therefore, personnel in and around the aircraft should continue to wear protective masks and gloves. The CBRN personnel are trained in spot decontamination procedures but may require equipment and support to effect all required decontamination quickly.

CHAPTER 5
COMBAT SUPPORT

The MAGTF commander requires a complete understanding of MAGTF concepts in order to appropriately use combat support to enhance the combat power of the maneuver element. Combat support units are normally in direct support of the air assault force to ensure the close coordination and continuous, dedicated support required in air assault operations.

Combat support is organized under the GCE's command and control. In most cases, it is the GCE commander who assigns combat support units their specific missions. The GCE commander also task-organizes combat support units for movement and assigns support relationships for subordinate maneuver units. In some situations, combat support units are attached to the GCE.

The commander of the combat support unit must be both a commander and a special staff officer. The commander of the combat support unit will provide advice and assistance to the GCE, the MAGTF commander, and the MAGTF staff. The combat support unit commander serves as a special staff officer during the planning phase of an operation, providing assistance and advice in the preparation of the operation order (OPORD) and can also provide limited advice and assistance during the conduct of the operation, but the primary concern is command of the unit.

FIRE SUPPORT

Fire support is the collective and coordinated employment of mortars, artillery (to include multiple launch rocket systems and High Mobility Artillery Rocket Systems [HIMARSs]), attack helicopters, CAS, naval gunfire, and other fires in support of the battle. It also includes SEAD, which is imperative in air assault operations. The mission of a fire support system is to destroy, neutralize, or suppress surface targets in support of air assault operations. The commander integrates the firepower of mortars, artillery, CAS, EW, and, when available, naval gunfire, with the maneuver of the air assault force's combat power to—

- Destroy, suppress, and neutralize targets.
- Obscure the vision of enemy forces.
- Isolate enemy formations and positions.
- Slow and canalize enemy movements.
- Destroy, delay, disrupt, or limit the enemy at ranges greater than that of direct fire weapons.
- Screen with smoke or create obstacle areas with the employment of scatterable mines.
- Reduce the effects of enemy artillery by active counter fire.

- Interdict follow-on enemy echelons.
- Provide illumination.

To effectively utilize fire support assets, the air assault force must understand artillery support relationships. The artillery commander commands the unit and serves as a special staff officer to the AFC during operational planning and preparation. If the task force is operating independently, it may be necessary to attach an artillery unit to provide adequate fire support. Attachment is a nonstandard mission and involves special considerations for the task force commander, such as the responsibility to provide security, logistic support, and lift capability to the artillery unit.

Fire Support Coordinator

While the AFC is responsible for the integration of all fires within the scheme of maneuver, the FSC is the principal assistant for the proper integration and application of fire support. The EFL and all FAC(A)s must work closely with the FSC during planning in order to ensure unity of effort and understanding during the operation. The commander and the FSC generate the maximum combat power available to support the air assault operation.

Fire Support Delivery Means

The air assault force is unique in its mission, organization, and support elements; therefore, mission commanders must tailor the planned fire support for an air assault operation specifically for that mission. Indirect fire assets must be maneuverable and capable of maintaining the rapid pace of the air assault force. The fire support delivery means available to support the air assault force may include the following:

- Mortars, organic to each rifle company and infantry battalion, that provide close-in fire support.
- Artillery that must either be positioned well forward to provide fires from the PZ to the objective area or must be air lifted with the air assault force to the objective.
- Supporting air defense units that can provide air defense support if the situation demands and the MAGTF commander directs.
- CAS will that be available to provide support. Preplanned missions should be used to the maximum extent possible. The CAS aircraft can be used to screen approach and retirement lanes. Because of their mobility and firepower, attack helicopters may be integrated into the fire support plan when other fire support means are not available.

  Note: Mission priority for attack helicopters is to escort transport aircraft.

- Naval gunfire spot teams that may be attached to the air assault force if naval gunfire is available.

FIRE SUPPORT PLANNING AND COORDINATION

Fire support planning addresses how fire support is to be used to support maneuver forces. Fire support coordination entails those actions needed to implement plans and manage resources on the battlefield. Although planning and coordination are separated, they overlap and are mutually

supporting in the fire support process. The planning and coordination process begins when the mission is received or assumed. If planning is successful, then implementation (coordination) of the plan gives the mission commander the support needed to win. For more discussion on fire support planning and coordination, see Marine Corps Tactical Publication (MCTP) 3-10F, *Fire Support Coordination in the Ground Combat Element*.

Since air assault operations may often be conducted beyond the range of artillery support, the range of supporting artillery is an initial consideration when planning air assault operations. If an air assault operation is beyond the range of artillery support, planners must consider prepositioning artillery forward prior to the assault or planning for additional fire support (e.g., naval gunfire, CAS, attack helicopters) until direct support artillery can move into the area of operation.

The following factors should be considered during planning:

- LZ preparations may be fired in support of an air assault.
- Preparations are directed against known, suspected, or likely enemy positions dominating the LZ or on the zone itself.
- The effect of fire on creating obstacles to friendly forces during landing or maneuver.
- Whether the effect of the preparation justifies loss to tactical surprise or affords the enemy sufficient time to change tactical disposition.
- The use of fire support on the LZ itself to detonate mines/boobytraps or to reduce obstacles.
- Firing of dummy preparations to deceive the enemy.
- Possible conflict between gun-target lines and aircraft approach lanes.
- Availability of both fire support units and ammunition.
- Fires must be planned to support the consolidation of the LZ and subsequent operations.
- SEAD during both the approach and retirement of air assault aircraft is fundamental to their success and survival.

Formal and Informal Planning

A formal/informal planning approach at the air assault force level is a combined process that uses the principles of both formal (downward) and informal (upward) planning. Initially, the FSC disseminates, in the OPORD, a fire support plan to support the force. The fire support coordination plan is modified as company plans are received. The rewritten fire plan is disseminated to supporting arms systems for execution.

Displacement of Fire Support

During the planning for an air assault operation, the FSC must consider the possibility of displacement of fire support assets, such as supporting artillery. If artillery can support the air assault force's movement from a secure area (without displacing forward) then it does so. If such support is not feasible, the FSC determines if other fire support is sufficient to accomplish the mission. If other support is not sufficient, it may be necessary to displace the artillery into the objective area. Once the decision to displace is made, the following must be considered:

- Displacement is accomplished by echelon to prevent temporary loss of artillery support.
- Artillery requires security in the objective area.

- Artillery will depend on assault support assets for mobility since the M777A2 prime mover (e.g., MK23 and MK25) is not air transportable.
- The CH-53 will be required to displace the artillery tubes and light vehicles.
- Ammunition resupply will probably have to be done by air.
- Supporting artillery must be available.

Enemy Air Defense Capabilities

In air assault operations, SEAD is a critical fire support task because assault support aircraft are especially vulnerable to enemy air defense; therefore, SEAD must be addressed during planning. Unless there are overriding tactical considerations, enemy air defense positions should always be avoided. If enemy air defense positions cannot be avoided, they must be aggressively suppressed. Suppression of enemy air defense may be executed either as scheduled fires, based on a specific timetable, or SEAD may be fired on call, based on the movement of the air assault force through predetermined approach and retirement lanes or across predetermined phase lines.

The FSC ensures that all flight routes and suspected enemy air defense artillery sites are targeted with preplanned fires. The FSC may be located with the mission commander and requires a dedicated fire direction net in order to control the lifting and/or shifting of SEAD fires as directed by the mission commander. Fixed-wing or rotary-wing aircraft providing escort suppresses enemy air defenses encountered en route.

Fire Support Coordination

Fire support coordination ensures that targets are adequately covered by a suitable weapon or group of weapons. Some typical fire support coordination tasks include—

- Clearing requests for fire support.
- Selecting the best supporting arms to attack a target.
- Requesting additional fire support when needed.
- Responding to intelligence reports by requesting supporting arms to attack high-payoff targets (HPTs) and high-value targets.
- Coordinating the simultaneous use of different supporting arms, particularly aircraft and surface weapons.
- Synchronizing fires in support of maneuver elements.

The FSC ensures that the developed plan remains supportable. The FSC must immediately inform the commander or the S-3 if there is not enough fire support allocated to make the plan work or if changes are necessary to the plan. To do this, the FSC must be located forward with the command group during the conduct of the air assault operation. For example, when a C2 aircraft is used, the FSC normally flies with the mission commander.

The FSC keeps abreast of the tactical situation and coordinates all fire support impacting the air assault operation. The FSC ensures that fires do not jeopardize troop safety, interfere with other fire support means, or disrupt adjacent unit operations. During conduct of the operation, shifts in priorities of fire, changes to the fire plan to support a change in scheme of maneuver, and immediate CAS are all handled by the FSC who, in close conjunction with the S-3 and air officer,

coordinates fire control activities of the air assault force. Fire support is controlled by maneuver units. Additionally, all air officers and FACs are trained to call for and adjust indirect fires. The FAC(A)s and TAC(A)s can assist the air assault force in coordinating or adjusting indirect fires since their location may allow them to see the battlefield. During planning, a fire synchronization meeting should be conducted to synchronize the method paragraph of each essential fire support task (EFST). Refer to appendix N for more information on the fire synchronization meeting. After more detailed planning and after the fire synchronization meeting, a combined arms rehearsal should be conducted so all fire support agencies can conduct a walkthrough by EFST and/or by stage of the fire support plan. Refer to appendix M for more information on the combined arms rehearsal.

ARTILLERY SUPPORT OF AIR ASSAULT OPERATIONS

The air assault force fights both offensive and defensive battles. Therefore, its organizational tactics, which emphasize the use of artillery and aerial mobility and flexibility, require special planning considerations for employment. The special planning considerations required for artillery air assault operations are—

- Artillery and other support systems ranges.
- Target importance.
- Airlift assets.
- Risk in crossing lines.
- Target location.
- PZs and/or LZs.
- Ammunition.
- Communications.
- Security.
- Capabilities.

Artillery and Other Support Systems Ranges

Air assault operations typically occur over extended distances; therefore, the FSC must position fire support systems so they can range (place fire) and mass (concentrate fire) on targets within the air assault area of operation. If the force must operate out of artillery range, there is a greater dependence on CAS and mortars.

Target Importance

Artillery is positioned to range those targets considered critical to the maneuver commander. For high-value targets, the mission commander and the FSC may consider moving artillery by aircraft to strike deep in the enemy's rear by firing across the FLOT or displacing laterally in sector.

Airlift Assets

The air movement of artillery requires a heavy use of air assets. Commanders must consider the total cost of moving not just the howitzers, ammunition, and personnel, but also the maintenance and supplies needed to sustain the air-delivered artillery. These total costs must include appropriate survivability moves.

Risk in Crossing Lines

A major consideration in planning the movement of artillery in air assault operations is the risk in crossing enemy lines/positions. The value of the target is weighed against the chances of survivability. Once the risk of moving artillery by aircraft is considered, the S-3 and FSC must evaluate the survivability of the artillery unit while on the ground and during extraction from the firing area.

Target Location

Artillery movement in air assault operations requires pinpoint LZ and target locations. Accuracy of locations determines accuracy of fires and targets are often engaged with unobserved fires.

Pickup Zones and/or Landing Zones

Artillery displacements require PZs and LZs large enough to position equipment. When the artillery unit arrives at the LZ, it must be secure and capable of providing the unit with individual gun positions.

Ammunition

The amount of available ammunition has a major impact on artillery support in air assault operations. When planning indirect fire support, the FSC must consider the amount of ammunition required and the availability of transportation assets. Artillery ammunition supply operations place a significant burden on aviation assets available to the air assault force.

Communications

In the employment of artillery in air assault operations, the ability to maintain communications is a requirement. The supporting unit must be within radio range of the supported unit to receive the call for fire (especially when positioning the M777A2 with its maximum range of 30 km); unless unavoidable, firing batteries must be within communications range of their parent battalion.

Security

During air assault operations, artillery relies on terrain positioning and infantry for security.

Capabilities

Marine Corps artillery units have the M777A2 an air transportable fire support system, which is the only howitzer in the MAGTF inventory. The M777A2 has a nonrocket assisted projectile range of 18,100 meters and its range extends to 30,000 meters with a rocket-assisted projectile. Marine Corps forces can also anticipate the presence of multiple launch rocket systems and HIMARS firing in general support. These weapons can range from 14 to 84 km with rockets and 100 to 300 km with the Army tactical missile systems. The CH-53E can lift the M777A2; however, the prime mover (medium tactical vehicle replacement series MK23 and MK25) is not air transportable.

AIR DEFENSE IN AIR ASSAULT OPERATIONS

Air assault operations conducted in areas of the battlefield where the MAGTF does not enjoy air superiority will be difficult. Air superiority, according to the *DOD Dictionary*, is "that degree of dominance in the air battle by one force that permits the conduct of its operations at a given time and place without the prohibitive interference from air and missile threats." Therefore, the effective use of limited MAGTF air defense assets becomes an important consideration in planning and executing air assault operations. Since the number and type of air defense systems that can accompany an air assault force are limited, and because assault support aircraft are vulnerable to attacking aircraft and enemy ground-based air defense weapons, intelligence information must be reliable. The commander must consider the feasibility of using assault support aircraft as the tactical situation changes. In addition to employing active air defenses, air assault forces must maximize the use of passive air defense measures, such as flying at night, using terrain flight techniques, and using dispersed flight formations.

Capabilities

Ideally, effective offensive antiair warfare (AAW) operations and the MAGTF's integrated air defense system (IADS) provide air superiority throughout the MAGTF's area of responsibility. The ACE commander attempts to establish an IADS that provides an air defense umbrella over the entire battlefield. Some air assault operations have LZs in areas that cannot be adequately covered by the MAGTF's existing IADS; therefore, it will be necessary to provide the air assault unit with air defense assets specifically designated for the operation.

The scope of the operation and the air threat, as well as the availability of air defense assets, determines the type of air defense assets provided to the air assault unit. In addition to dedicated air defense systems and air-to-air capable aircraft, commanders should consider the air defense capabilities of their unit's organic small arms and crew-served weapons. These weapons provide an excellent low altitude air defense capability. The key to the employment of these weapons against low-flying aircraft is coordinated, high-volume fire. See MCRP 3-10A.3, *Marine Rifle Squad*, for more information concerning the use of organic small arms and crew-served weapons in an air defense role.

The employment principles for air defense weapons are essentially the same for air assault operations as for other operations. Command and support relationships between air defense units and supported arms must be clearly defined. These relationships are modified, as necessary, as the operation progresses. MCRP 3-20F.8, *Low Altitude Air Defense Battalion Handbook*, provides a complete description of command and support relationships, as well as the steps a commander should take in establishing an effective air defense plan.

Planning Considerations

As part of the air assault operation planning process, the MAGTF commander and major subordinate commanders develop an air defense plan that supports the operation. The goal of the air defense plan is to provide continuous air defense coverage for the air assault force from the

time it leaves the PZs until it completes its mission. Commanders consider the following during development of the air defense plan:

- The MAGTF CONOPS.
- The MAGTF commander's air defense priorities based on evaluation of each asset for criticality, recuperability, and vulnerability. See MCRP 3-20F.8 for a complete discussion of this evaluation process.
- Threat characteristics are used to determine the appropriate air defense systems to defend the specific asset. Those characteristics are—
  - Enemy location and strength.
  - Type of enemy aircraft and ordnance.
  - Past enemy attack characteristics.
  - Enemy doctrine.
- The tactical and technical capabilities and limitations of each MAGTF air defense systems.
- Aircraft employed in an active air defense role must be maneuverable.
- Surface-to-air missile systems' (i.e., the Stinger) nighttime engagement capabilities are marginal without NVDs. Poor weather and limited visibility also limit a surface-to-air missile systems' usefulness.
- Terrain limits tactical defense alert radar capabilities by causing radar masking. Tactical defense alert radar-equipped units should be located to minimize radar masking, while reducing signature problems (smoke, electronic, visual) as much as possible.
- Terrain and weather impact both the enemy and the effectiveness of the MAGTF's air defense weapons.
- Stinger team firing positions (primary and alternate) should provide ready access to the organic vehicle. Stinger teams require good mobility to ensure their survivability, especially after conducting an engagement that reveals their position.
- Widely-dispersed, highly-mobile air defense units under an IADS require centralized command by the ACE commander through the Marine air command and control system (MACCS), decentralized control (down to the lowest possible echelon), and reliable communications.

Assault Support Aircraft in Support of Air Defense Operations

In addition to supporting air assault operations, Stinger units can use aircraft to occupy firing positions that are normally not accessible by wheeled or tracked vehicles. Using aircraft, Stinger units can easily cross terrain obstacles and rapidly bypass hostile areas. In addition to standard vertical employment methods, the use of repelling, fast rope, and special patrol insertion and extraction techniques can greatly enhance a Stinger unit's ability to provide effective air defense for supported units. Using these techniques, Stinger teams can quickly deploy to sites on hilltops and other terrain features that lack adequate areas for helicopter LZs. These sites can give Stinger teams increased surveillance and overwatch capabilities, allowing them to detect and engage hostile aircraft at the maximum range of the Stinger system.

When positioning Stinger units via aircraft, commanders must consider their relative lack of mobility once they debark. Because Stinger launch signatures are highly visible, the enemy can easily locate the firing positions from which the missiles are launched. After firing, Stinger units located in particularly vulnerable positions must quickly displace to alternate firing positions. Without their organic vehicles, Stinger units are extremely susceptible to enemy counterattacks.

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CHAPTER 6
COMBAT SERVICE SUPPORT

The HST provides CSS to air assault operations. Combat service support for air assault operations must be planned, organized, and executed to support a rapid tempo in highly-mobile and widely-dispersed operations. Just as the air assault unit is tailored to move by air, CSS must be tailored to sustain the air assault unit by air. Therefore, planners must be prepared to adapt and to be innovative with available resources.

HELICOPTER SUPPORT TEAM

The air assault unit is supported by organic, attached, and external LCE units organized to push forces, supplies, material, and ammunition forward by air. The primary CSS organization within the air assault unit is the HST. The HST is a task organization formed and equipped for employment in an LZ in order to facilitate the landing and movement of air assault troops, equipment, and supplies to and within the LZ and PZ and to evacuate selected casualties and POWs. The HST supports actions in the LZ under the control of the PZ control officer, who supports the actions conducted in the PZ. The functioning of the HST is the responsibility of the air assault unit commander. A HST is expected to accomplish the following tasks:

- Prepare, maintain, and mark LSs, remove or mark obstacles, and set up wind direction indicators.
- Establish and maintain required communications, including communications with supporting aircraft and supporting CSS units.
- Reconnoiter and select areas adjacent to LSs for supply dumps and other CSS installations, HST command posts, CASEVAC stations, and defensive positions.
- Provide LZ security.
- Direct and control aircraft operations within the LZ and support aviation units landing in the zone.
- Provide sites for emergency aircraft repair units and refueling facilities.
- Unload assault support aircraft (including external lifts).
- Load cargo nets, pallets, and casualties on board for return trips.
- Establish dumps, issue supplies to units, and maintain necessary records of supplies received, issued, and available.
- Provide personnel and vehicle ground control.
- Maintain situation map and information center.
- Provide emergency aircraft repair and refueling, if required.

- Evacuate casualties and POWs.
- Perform firefighting duties in the LZ.

Helicopter Support Team Organization

The HST is a task-organized unit composed of personnel and equipment of the air assault force and the supporting aviation unit, with augmentation from other units as required. The HST organization is determined by the operation. Normally, the HST is employed in each PZ and LZ to provide support to units operating in and around those zones. The HST normally consists of an advance party, headquarters, helicopter control element, and LZ platoon.

Advance Party. The advance party contains personnel from all elements of the HST: command, reconnaissance, communications, and LZ control. It consists of approximately 8 to 10 Marines with hand-carried equipment. The officer in charge of the advance party makes contact with the senior Marine of the reconnaissance unit who provided the ITG, and then receives a briefing of the LZ and adjacent areas. The officer in charge of the advance party assumes operational control over the HST reconnaissance unit and retains this control until the helicopter control element of the HST assumes responsibility for rotary-wing control activities. Advance party personnel reconnoiter positions for the various LSs and landing points to be located within the LZ. Communications personnel establish communications with the HST commander (or air assault unit tactical-logistical group during amphibious operations) within the LZ, as well as communications with the rotary-wing unit and the air assault force command post. The LZ control personnel control the rotary-wing aircraft operating within the LZ. When the HST is established in the LZ, the advance party disbands and its personnel revert to their parent element within the HST.

Helicopter Support Team Headquarters. An adequately trained supporting element of the parent MAATF's headquarters may be provided to the air assault unit when no CSS buildup is planned or from the LCE for when a CSS buildup is planned. When a CSS buildup is planned, providing landing support personnel to the air assault unit to form the HST headquarters facilitates the transfer of control of the LZ to the CSS unit when the CSS buildup commences. The HST headquarters consists of—

- A command section provided by the appropriate platoon headquarters, augmented as required.
- A communications section provided by the communications platoon of the air assault unit or the communications platoon, headquarters and service company, landing support battalion as appropriate.
- A military police section consisting of personnel from the military police company, division headquarters battalion or headquarters and service battalion, Marine logistics group, as appropriate.
- A security section provided by the air assault unit to provide internal security.
- An evacuation section provided by the medical section of the air assault unit.
- An HST liaison section normally accompanies the headquarters element of the air assault unit.

Other MAGTF Support

The HST is task-organized to provide responsive support to an air assault force. To complete its mission, the HST performs many diverse tasks in HST operations, which are normally performed

by different organizations within the MAGTF. The MAGTF contributes to the mission of HST operations by providing personnel and equipment. The MAGTF organizations and the normal responsibilities of those organizations that support the HST are as follows:

- The air assault unit provides overall command and control of the HST and integrates HST operations into the tactical order.
- The MAGTF command element provides the required direction and support to the air assault unit.
- The MAGTF S-2 provides the intelligence necessary to plan the lift and to conduct a reconnaissance of the proposed LZ.
- The ACE provides the aircraft/aircrew, air control, and other support elements that are required by the mission.
- The GCE provides attachments, detachments, and fire support as necessary to support the air assault unit.
- The LCE provides attachments and detachments to the air assault unit as necessary to ensure all CSS requirements beyond the organic capabilities of the air assault unit are met.

COMBAT SERVICE SUPPORT PLANNING

Before planning CSS for air assault operations, commanders and CSS personnel must understand the inherent characteristics of air assault operations. Based on this understanding, they will implement CSS with the flexibility and prompt response time required to meet the needs of an air assault operation. There are key points and specific points about air assault operations that must be understood before any detailed discussion of CSS planning can commence.

Key Points

The CSS planner must understand the following key points of air assault operations:

- Air assault operations are inherently complex evolutions, requiring detailed integration of all MAGTF capabilities: aviation, ground, and logistics.
- To be effective, air assault operations must be planned and executed rapidly to exploit transient enemy vulnerabilities as they occur. The MAGTF must be able to exploit these vulnerabilities before the enemy can take corrective action.
- The MAGTF organizations must be trained, mentally prepared, and have SOPs in place in anticipation of the opportunity to exploit an enemy vulnerability. When the vulnerability occurs and the opportunity presents itself, the MAGTF must be capable of timely action.
- Accurate and timely intelligence is critical. Placing an air assault force in the wrong place at the wrong time can result in loss of personnel, equipment, and opportunities.

Specific Points

The specific points that need to be understood by the CSS planner are as follows:

- To ensure unity of effort during an air assault operation, all MAGTF units that will move to and remain in the objective area are initially attached or placed in direct support to the air assault unit. The initiating headquarters of the OPORD specifies when or under what conditions control of units attached to the air assault unit passes back to the parent organizations.
- Confusion that disrupts the rapid buildup of combat power into the objective area can prove to be fatal. One way to avoid confusion is to form an HST for all tactical air assault operations to ensure a rapid, organized, and efficient buildup of balanced combat power in the objective area.
- An HST operation in support of an air assault operation is the responsibility of the MAATF. The AFC receives support and augmentation from the other MAGTF organizations to form an HST, but the responsibility for the execution of all HST tasks remains with the AFC.
- Personnel of the division or force reconnaissance units normally provide terminal guidance for the initial assault waves. Initial terminal guidance is especially critical for night air assault operations. Once established in the LZ, the HST assumes responsibility for aircraft terminal guidance and the AFC or higher headquarters, as appropriate, assigns reconnaissance personnel follow-on missions.
- The HST operations are normally terminated when the air assault unit no longer depends on rotary-wing support as the primary means of CSS support or when a planned CSS buildup ceases in the LZ.
- The air assault unit and units that provide attachments to the air assault units are responsible for preparing, rigging (attaching slings), and hooking up (to the aircraft) their organic equipment and supplies for external aircraft lift. This capability is acquired and maintained through training.
- Within the MAGTF, slings and cargo nets used for external vertical lifts are centrally controlled and managed by the landing support unit. Landing support units provide training assistance in LZ operations to include external lifts to MAGTF units.
- The role of landing support units in support of the MAATF varies depending on the air assault unit's mission. The landing support unit may be tasked by the AFC with complete responsibility for the organization and functioning of LZs/PZs or the assigned tasks may be limited to providing materials handling equipment and personnel, and to providing and controlling slings for external lifts when required.
- Understanding the difference between a CSS buildup and a basic load is critical.

Planning Considerations

It is imperative that the air assault unit and supporting CSS units coordinate closely during the planning of air assault operations from the initial stages onward. Concurrent planning ensures that all requirements and constraints of CSS are considered. It also provides the lead time necessary to organize and position the CSS resources required to support the operation. The HST is an essential link between the operational scheme and the CSS plan. Close and continuous coordination between the air assault unit and the supporting CSS unit ensures adequate CSS throughout the operation. To organize CSS for air assault operations, the CSS planner must consider the following:

- The air assault unit's mission and the CONOPS and duration of the operation.
- The CSS buildup, if planned.

- The task organization (including densities of personnel, weapon systems by type, equipment by type, and aircraft by type).
- Enemy situation, weather, and terrain.
- Aircraft availability and distances between supporting and supported units.
- Ammunition, water, food, and aviation fuel consumption rates.

Combat service support planning must ensure that CSS is provided, not only for the organic and attached elements of the air assault unit, but also for units providing direct and general support. The air assault unit is responsible for planning CSS for its organic and attached units. The higher headquarters that initiates the air assault operation is responsible for coordinating CSS planning of units that provide direct and general support to the air assault unit. This planning must expressly designate who will provide combat support to all participating units throughout the air assault operation. When an attachment joins the air assault unit, the attachment brings the appropriate amounts of its own CSS assets from its parent unit. These attached assets are controlled by the AFC.

Basic Load Versus Combat Service Support Buildup

The basic load and the resupply of the basic load are not considered a CSS buildup. The unit brings the basic load with it and when the basic load is depleted, its own unit performs resupply. A CSS buildup takes place when supplies beyond the basic load are moved to the objective area.

Basic Load. An assault support aircraft moves an air assault unit, based on its mission, to the objective area with the necessary personnel, equipment, and a basic load of consumable supplies to accomplish the mission. The higher headquarters that assigns the mission to the air assault unit also determines the air assault unit's basic load. The basic load for all classes of consumable supplies, except ammunition (class V), is expressed in days of supply (DOS). A DOS is the amount of supplies a unit requires to sustain itself in combat for one day. For example, a DOS for—

- Food: three meals, ready to eat per individual.
- Water: 3 to 4 gallons per individual per day in a temperate zone, but amounts are higher in both hot and cold climates.
- Fuel: the total fuel consumption of all equipment is specified in the table of authorized material. Other supplies (e.g., sandbags, barbed wire, repair parts) are normally specified on the unit SOP.

The basic load for ammunition has two parts: basic allowance and days of ammunition (DOA). The basic allowance is the quantity of ammunition (number of rounds) the Marine Corps has specified to be maintained by a unit for each weapon that unit employs in combat. A DOA is the total of the standard consumption rates for each organic and attached weapon when employed in combat. A DOA is further specified into an assault rate and a sustained rate. The assault rate, which is a higher consumption rate than the sustained rate, is specified for units conducting offensive operations. The sustained rate is specified when a unit is not conducting offensive operations. An example of a unit basic load would be one DOA assault rate and one DOA sustained rate, two DOS. The basic allowance is always a requirement, so it is implied and normally not stated. In addition to the basic allowance, the unit in the example will carry a DOA calculated at the higher assault rate to cover the initial assault and another DOA calculated at the sustained rate. The unit will also carry

sufficient consumable supplies to sustain itself in combat for 2 days without resupply. The basic load is issued to, controlled by, and carried by the air assault unit to the objective area. The basic load is considered an organic supply to the air assault unit.

Combat Service Support Buildup. Movement of the air assault unit's basic load to the objective area and resupply of the basic load to maintain the specified supply level are not considered a CSS buildup. A CSS buildup occurs when supplies above and beyond the basic load are moved to the objective area. For example, if a supply safety level of one or two DOS/DOA is to be moved to the objective area, this constitutes a CSS buildup. When a CSS buildup in an LZ commences, the control of the LZ transitions from the air assault unit HST to the designated CSS unit and the LZ is redesignated a LZ support area.

COMBAT SERVICE SUPPORT EXECUTION

The air assault force is normally configured to conduct the initial assault with 1 to 3 days of accompanying supplies (basic load) to ensure some degree of self-sustainment. When the enemy situation permits, resupply is accomplished by air on a routine basis to keep the basic load at the prescribed level.

Combat Service Support Trains

The CSS trains for all air assault units must be organized, located, and controlled to facilitate the consolidation, packaging, and air movement of the basic load into support packages configured to unit size. Generally, the air movement of the battalion's logistic train requires the same number of aircraft needed to move a rifle company. The CSS trains that support an air assault unit work in close coordination with the HST of that same air assault unit, but the HST and CSS trains are usually separate organizations. Command and support relationships can be established between the two organizations, but since the HST is a temporary organization and CSS trains are a permanent organization, keeping the two separate promotes operational effectiveness. Certain functions in the LZ, such as distribution of ammunition and other supplies, are initially accomplished by the HST and will be assumed by CSS trains. Thus, supply personnel organic to the air assault units that were initially assigned to the HST will transfer to the CSS trains when the HST is disbanded.

The organization of CSS trains varies and is based on the air assault unit's mission. The CSS trains may be centralized in one location (unit trains), or they may be echeloned in two or more locations (echeloned trains). In an air assault operation, CSS trains normally transition between unit trains and echeloned trains.

Prior to the commencement and during the initial stages of an air assault operation, unit CSS trains are employed in the vicinity of the PZ to prepare equipment and supplies for vertical lift and to move items to the PZ. The HST takes over responsibility for final preparation and any further movement. The HST is also responsible for the initial distribution of supplies at LZs in the objective area.

As elements of the air assault unit in the objective area move away from the LZ, elements of the CSS trains are echeloned into the objective area. This forward echelon assumes responsibility for receiving critical supplies contained in the unit's basic load from the HST and moving them to the elements of the air assault unit that have moved away from the LZ. This echelon also provides maintenance contact teams and medical support in the objective area. The CSS trains remain echeloned until such time that a CSS buildup commences, a CSS detachment from the MAGTF's LCE assumes responsibility for operation of the LZ, or the HST is disbanded. If a CSS buildup commences, the responsibility for moving supplies to and issuing supplies from the LZ falls on the MAGTF LCE. The entire CSS train in support of the air assault operation can be moved to the objective area where it will form a unit train. As operations continue in the objective area, the MAGTF commander may elect to echelon the CSS trains if CSS must be collocated with maneuver units to provide immediate, dedicated support.

Supply

During the execution of CSS in support of an air assault operation, the following supply issues should be considered:

- Small, frequent (as opposed to a few massive) replenishment of the ground and air elements. To meet this requirement, it is necessary to have a comprehensive logistic plan.
- Supplies going forward from logistic trains must be staged and moved using methods that reduce loading and unloading times. Palletized or external sling loads reduce ground time and aircraft vulnerability because they can be unloaded quickly.
- Available equipment and personnel capabilities and the anticipated load configurations must be considered when task-organizing the HST.
- The logistic plan must maintain a balance in the allocation of resources between the GCE and the ACE. This is particularly significant if FARPs are employed.
- The ability to resupply via surface methods whenever air movement is not essential to the achievement of the operational aim or if resupply by air is limited due to allocation, the enemy, or the weather. This is particularly significant if FARPs are employed.

Maintenance

Maintenance involves inspecting, testing, servicing, repairing, requisitioning, rebuilding, recovering, and evacuating equipment. Maintenance personnel do not normally accompany the assault echelon.

During air assault operations, repair above the operator level is accomplished in one of two ways: contact teams organic to the air assault unit or maintenance support teams from the supporting CSS detachment may be flown forward to effect immediate repair of critical equipment or deadlined and/or damaged equipment may be evacuated by air.

Field and Personnel Support Services

Field and personnel support services, such as messing and billeting, are an important part of the overall support effort and continue during air assault operations; however, these services are seldom a part of an air assault operation. Rather, they are normally accomplished in a rear area outside the air assault objective area.

Medical Support

The medical officer and the medical section of the air assault unit provide medical support. To adequately support the mission, the medical officer and the chief assistant should be included in all operational and/or tactical briefings. Medical support is planned and addressed in the OPORD's administrative and logistic annex. Medical planning should include—

- Location of the unit aid station in the objective area.
- Location of casualty collection points.
- Ground and air evacuation plans/routes.
- Location of the LCE medical facilities.
- Location of designated casualty receiving ships or stations.
- Procedures to request aviation CASEVAC (including communication instructions).

Casualty Evacuation

The primary means for CASEVAC is the assault support aircraft. Aircraft leaving the LZ and returning to the rear area can be used to evacuate casualties. In-flight medical care is essential for those casualties whose condition is serious and must be addressed during planning. If sufficient aircraft are available, one or more aircraft may be designated as CASEVAC aircraft for the more serious casualties who require in-flight medical treatment. The ACE can provide in-flight medical treatment personnel if tasked from unit-assigned flight surgeons and corpsmen, but the ACE does not possess or assign specifically trained in-flight medics to execute this role by a military occupational specialty. If required, augmentation can be requested from the combat support element. All casualties evacuated by aircraft are delivered to LCE medical treatment facilities or designated casualty receiving ships, if available. It is important to note that medical evacuation aircraft must be designated and properly marked to receive protections defined by the *Geneva Conventions*. The Marine Corps does not possess medical evacuation aircraft. Marine Corps aircraft perform a CASEVAC mission using available combatant aircraft to evacuate casualties.

Procedures related to CASEVAC are contained in the OPORD's air and medical services annexes. The medical services annex contains the medical criteria for requesting an aviation evacuation. The air annex contains aviation-related requirements, such as communications channels, to request air support and the procedures used to control the aircraft once it enters the unit area of responsibility. Normally, a unit establishes an SOP that contains both the medical and aviation aspects of CASEVAC and the SOP is referenced in both annexes.

The air assault unit establishes its unit and station near the LZ as soon as possible. During the initial stages of the operation, when maneuver units are in close proximity to the LZ, all casualties are moved to the unit aid station where minor wounds are treated and personnel return to duty if possible. The more seriously wounded are moved to the LZ where the HST evacuates them by the next available aircraft returning to the rear. Those casualties requiring in-flight medical attention are held at the aid station until an aircraft with medical personnel is inbound to the LZ. As maneuver units move further away from the LZ, it may become necessary to evacuate the more seriously wounded directly from the maneuver unit if it is possible to land an aircraft near that unit.

The air assault unit, when necessary, requests CASEVAC from the DASC using the tactical air request (TAR) net. The request is normally initiated at a battalion FSCC once a request from the

battalion aid station or a subordinate unit is received. A subordinate unit that is accompanied by a FAC may make a request over the TAR net directly to the DASC. The battalion FSCC, who is monitoring the TAR net, may disapprove the request by interrupting the transmission and voicing disapproval. Otherwise, silence is consent.

The DASC will pass all CASEVAC requests to the ACE's tactical air command center, which exercises launch authority. If given approval, they may divert airborne aircraft to perform the CASEVAC. The aircraft, once airborne, receives instructions from the DASC concerning the casualty, location of pickup, flight routes, who to contact, what radio frequency to use, and the medical facility to which the casualty will be evacuated. The DASC coordination with the GCE FSCC establishes a safe route through friendly fires for the aircraft.

The aircraft, when approaching the area where the air assault unit is operating, contacts the FSCC of the requesting unit and receives final instruction. If the casualty pickup is made at a forward unit, the FSCC instructs the aircraft as to the radio frequency on which to contact that unit and informs the unit of the time of the aircraft's arrival. The forward unit contacts the aircraft by radio and provides terminal guidance instructions and information on the friendly and enemy tactical situation.

When time permits, identification of the casualty is reported to the S-1 over the battalion administrative and logistic net.

EXTERNAL LOAD OPERATIONS

Planning and executing external load operations that do not require a CSS buildup are the responsibility of the AFC, even when the HST is provided by the landing support company. Transporting supplies and ready for use equipment by aircraft external load (i.e., sling) has the advantage of rapidly moving heavy, outsized, or urgently needed items directly to the using unit.

The logistic planner can enhance the sustainment of the air assault force by developing SOPs for sling load operations. Detailed information on the rigging of equipment and supplies for external lift by rotary-wing aircraft can be found in MCRP 3-40F.4, *Multi-Service Helicopter Sling Load: Basic Operations and Equipment*, MCRP 3-40F.5, *Single Point Load Rigging Procedures*, and MCRP 3-40F.6, *Dual-Point Load Rigging Procedures*.

External Load Considerations

External load considerations include—

- If cargo is too light or bulky, it will not fly properly when suspended under the aircraft at cruise airspeeds.
- The external load must not exceed an aircraft's lift (under given atmospheric conditions) or hook capabilities. As outside air temperature and/or altitude increases, the payload capacity of an aircraft decreases.
- Airspeeds may be slower when aircraft carry external loads.

- Dust, sand, or snow, which would be blown during hover for pickup or delivery of cargo, may preclude safe external load operations.
- Hovering to pick up or deliver a sling load during darkness is inherently more dangerous than similar daylight operations.
- The availability of suitable sling, cargo nets, cargo bags, and other air delivery items may preclude or limit external load operations.

Elements of an External Lift Mission

There are normally three different elements involved in an external lift mission: the PZ HST, the LZ HST, and the aviation unit. The PZ HST is responsible for—

- Preparing and controlling the PZ.
- Repositioning all the equipment needed for external lift operations, including sling, A-22 bags, cargo nets, and containers.
- Storing, inspecting, and maintaining all external lift equipment.
- Providing a sufficient number of trained HST crews for rigging and inspecting all the loads, guiding the aircraft, hooking up the loads, and clearing the aircraft for departure.
- Securing and protecting sensitive items of supply and equipment.
- Providing load de-rigging and disposition instructions to the receiving unit.
- Providing disposition instructions to the receiving and aviation units for slings, A-22 bags, cargo nets, and containers.

The LZ HST is responsible for—

- Preparing and controlling the LZ.
- Providing trained HSTs to guide the aircraft in and de-rig the load.
- Coordinating with the PZ HST for the control and return of the slings, A-22 bags, or any other items that belong to the supported unit as soon as possible.
- Preparing, coordinating, and inspecting backloads (e.g., slings, A-22 bags) and having them ready for hookup or loading.

The aviation unit is responsible for—

- Effecting and/or establishing coordination with the air assault unit.
- Advising the air assault unit on the limitations of the size and weight of the loads that may be rigged.
- Advising the air assault unit on the suitability of the selected PZs/LZs.
- Providing assistance for the recovery and return to the PZ of the slings, A-22 bags, cargo nets, and containers as required by the supported unit.
- Establishing safety procedures that ensure uniformity and understanding of duties and responsibilities between the ground crew and the flight crew.

AVIATION SUPPORT CONSIDERATIONS

Aviation units consume large amounts of fuel, ammunition, class IX supplies, and maintenance support during intensive air assault operations. Although aviation units are responsible for meeting their own unique logistic support requirements, the MAGTF planner must be aware of the requirements, plan for them, and be prepared to assist as necessary.

Forward Arming and Refueling Points

Forward arming and refueling points are temporary facilities. They are organized, equipped, and deployed by the ACE commander. The FARPs are positioned in or closer to the area of operations than the aviation unit's combat service area. The FARP permits combat aircraft to rapidly refuel and rearm simultaneously. Forward arming and refueling points are—

- Established in the vicinity of the supported ground unit. Whenever possible, these will be established behind the FLOT and out of range of the majority of enemy artillery units.
- Hasty and mobile FARPs are often established forward of the forward edge of the battle area/ FLOT. Because of their short duration and mobile nature, they are less likely to be targets of enemy artillery and attack.
- Positioned to reduce turnaround time, thus optimizing aircraft availability.
- Repositioned frequently to avoid detection and destruction.
- Fully mobile, using ground vehicles and aircraft.
- Capable of performing refueling and rearming operations rapidly and efficiently.
- Defended from enemy ground and air attack.
- Concealed from observation.

Aircraft Maintenance

Aircraft have substantial maintenance requirements. However, maintenance is kept to a minimum in the operational area. A method used to accomplish this and still have responsive maintenance is to move aviation maintenance teams to the aircraft requiring repair when the repair is beyond the capability of the aircraft crew. The ACE commander may assign aircraft maintenance teams to accompany the flight or position them in PZs and LZs.

Tactical Recovery of Aircraft and Personnel

Heavy lift rotary-wing aircraft can be the recovery platform for downed aircraft in a CSS role, exclusionary to a hasty TRAP-type mission. If an aircraft is forced to land on enemy terrain due to mechanical problems or combat damage, every effort is made to protect the aircraft and personnel until they can be evacuated. However, mission execution has priority over rescue and recovery operations. The ACE commander is notified immediately of any downed aircraft. The ACE commander takes action in accordance with unit SOPs to secure and recover personnel and aircraft with resources or requests assistance from the MAGTF commander. The air assault unit or other MAGTF unit may have to provide security for recovery teams. When an aircraft is downed, the senior occupant assumes command and establishes a defense of the area or organizes evasive action. If an aircraft is abandoned, steps are taken to destroy it to preclude its capture or the capture of sensitive equipment or documents. The level of authority required to destroy the aircraft is established in unit SOPs or in the OPORD.

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CHAPTER 7
EXECUTION OF AIR ASSAULT OPERATIONS

This chapter addresses the MAATF's movement from the assembly area to the PZ and on to the LZ. The air assault operation, during subsequent operations ashore, normally begins at an assembly area. If subsequent lifts are required in the same operation, the procedures described in this chapter are repeated.

This discussion is not all inclusive. Certain actions may have to be omitted or added according to operational requirements. Planning starts from the assembly area and progresses through the final objective. If any extraction is required, LZs in the vicinity of the objective area are determined during the initial planning phase.

MOVEMENT FROM THE ASSEMBLY AREA TO THE LANDING ZONE

At the prescribed time, units move from the assembly area to the staging area via a route designated by the AFC. A staging area must be:

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

Each unit commander notifies the PZ control officer upon his/her unit's arrival in the staging area. In the staging area, unit leaders separate the unit into serials according to the loading plan. Heavy loads and external loads should not be programmed in initial waves. Offloading heavy internal loads is time consuming and slows troop buildup.

Each serial includes a designated serial leader. The serial leader is usually the senior Marine on the serial or aircraft and is responsible for briefing troops and inspecting the load. If multiple serials are assigned to one aircraft, one serial leader should assume serial leader responsibilities for the group of serials. The serial leader ensures that the load is organized and ready to be loaded as planned. Upon arrival at the holding area, the PZ control party briefing includes the loading point for primary and alternate PZs and the routes to those points. At a minimum, the serial leader briefs the serial members on the following information:

- Loading procedures.
- Bump plan (individual/load bumps).
- Safety belt usage.

- Preflight safety inspection of Marines.
- In-flight procedures.
- Downed aircraft procedures.
- Offloading procedures.
- Movement from the LZ.

PROCEDURES IN THE PICKUP ZONE/ORGANIZATION OF THE PICKUP ZONE

To the maximum extent possible, the PZ control officer lays out the PZ as directed in the plan. Aviation elements arrive at the PZ in the formation directed in the plan to minimize confusion during landing. Then, the PZ control officer, or HST personnel, assists in loading by ensuring aircraft and personnel are in the proper location and formation at the correct time. If an aircraft (scheduled for the lift) is unable to complete its mission due to mechanical failure, the PZ control officer informs the unit commander, who implements the bump plan.

INFANTRY MOVEMENT TO THE PICKUP ZONE

The PZ control officer coordinates the arrival of both aircraft and troops so that the troops arrive at their respective loading point just before the aircraft land. This prevents congestion, facilitates security, and reduces vulnerability to enemy actions during PZ operations.

On the PZ control officer's signal, serials move by designated routes from their staging area, through the MACO gate, to their loading points/assigned aircraft in the PZ. The PZ control officer may use schedules, messengers, hand-and-arm signals, light signals, or (as a last resort) radio to order serials to move to the PZ.

AIRCRAFT MOVEMENT TO THE PICKUP ZONE

Aircraft begin movement to arrive in the PZ at the scheduled time. The PZ control officer contacts the aviation unit if there is a PZ change. If there has been a change in allowable lift/load, number of aircraft, or the landing formation, the AFL must contact the PZ control officer.

During air movement to the PZ, enemy antiaircraft or other fires may be encountered. Therefore, air reconnaissance may be used to locate and suppress enemy positions prior to the arrival of the air assault aircraft. Attack helicopters will not normally land in the PZ. When assault support aircraft are to be on the ground for extended periods, attack helicopters may occupy holding areas nearby or return to FARP sites. The C2 aircraft is positioned where the command group can see and control critical events.

Strict radio discipline is maintained throughout the operation; radio silence should not be broken unless absolutely necessary. Radio calls between aircraft are permitted only as a last resort when other signals are not appropriate. Use of secure and frequency-agile (active) nets further reduces the requirement for radio silence.

LIFT-OFF FROM THE PICKUP ZONE

When the assault support aircraft are loaded and ready for lift-off, the PZ control officer may signal the flight leader using hand-and-arm or light signals. The AFL may signal other aircraft by positioning lights from flashing to steady, or by a "ramps up" radio call rippled from the last aircraft in the flight to the lead aircraft. If the PZ topography prevents visual contact with all aircraft in the flight or line of sight (LOS) radio communications, a pre-briefed alternate method may be used.

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

Lift-off may be by single aircraft or by wave. Under some conditions (e.g., dusty PZ, restricted PZ, high density altitude and no wind), it is best to break waves into smaller elements. If LZ insert is executed in a single wave, then simultaneous lift-off is preferred because—

- It is easier for the EFL to plan the scheme of maneuver and provide security en route for aircraft depending on number of escort aircraft available.
- Operational control is easier.
- It reduces the enemy's time to fire at the aircraft.
- The AFL adjusts the flight's speed and rate of climb so all elements form into the en route flight formation at the required altitude.

EN ROUTE TO THE LANDING ZONE

The AFL predetermines the en route flight speed. The AFL paces the flight to ensure the flight crosses the line of departure on time.

Communication security is paramount. However, if directed in the order, flight leaders report to the mission commander and C2 agencies as they pass each checkpoint, especially when checkpoints are tied to triggers such as fires. Checkpoint information must be passed to the serial leader.

Ground commanders, serial leaders, and aircraft crewmembers must remain oriented throughout the flight. To remain oriented, they use the aircraft's internal communications system, which receives information updates from the aircrew, and they follow and verify the flight route using terrain observation, maps, aircraft compass, and aircraft speed.

When a threat is encountered along the flight route which prohibits the air assault force from using that route, the AFL requests the AMC or mission commander to modify or switch to alternate flight routes. This authority may be delegated to the AFL. If the LZ needs to be changed, the AFC makes the decision and informs the AMC or mission commander. The AMC and AFL may also be given authority to change the LZ based on the enemy threat or hazardous environmental conditions.

SECURITY

Attack helicopters provide security for downed aircraft, route reconnaissance, and other assistance en route as directed by the ACE commander. The ACE commander develops the plan for TRAP.

Fixed-wing aircraft or UASs may work with attack helicopters to provide security to the flank, front, and rear of the assault support formations. When performing this role in a medium to high threat environment, specially-equipped aircraft suppress or destroy surface-to-air missile sites and radar-directed guns. Other fixed-wing aircraft or UAS may be used to selectively jam enemy radar and communications signals using jamming transmitters or other methods.

When available, indirect fire weapons provide suppressive fires along the flight routes as planned or as necessary.

LANDING OPERATIONS

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

- Precede the assault element into the LZ for reconnaissance and/or provide suppressive fires to prevent a time gap in LZ fires (provided by other support elements). The EFL also determines if the LZ criteria (Winter) that will permit successful insertion of the air assault force exists. This assessment is based on destruction criteria of threat forces established during planning.
- Recommend last minute changes regarding aircraft landing instructions.
- Provide area cover, neutralize known enemy positions, or provide security for assault aircraft while in the LZ area.
- Observe ground approaches to the LZ for possible enemy attacks.

Nontraditional attack and ISR platforms, such as the KC-130J Harvest HAWK, MC-12W, and UAS, can provide overwatch and fires in support of land operations in permissive or low threat

environments. These ISR platforms can provide persistent monitoring of the objective area and LZ, threat detection, and ITG with infrared pointers to attack and assault support platforms.

COMMAND AND CONTROL AIRCRAFT

The C2 aircraft is positioned where it can best observe and communicate with the forward elements. The mission commander determines where he/she can best influence the action by either remaining in the C2 aircraft or by joining forces on the ground.

LANDING ZONE PREPARATORY FIRES

Preparatory fires are planned for all primary and alternate LZs. The decision to initiate LZ preparatory fires is made by the mission commander. The mission commander can delegate this authority to the AMC, EFL, AFC, FSC, or operations officer. The FSC should travel with the ground commander to expedite fires and changes to preplanned fires. To the maximum extent possible, fires are planned along all routes leading to the LZ. Planned fires should be intense and should shift or lift shortly before the first elements land. In the development and sequencing of fires, the following are considered:

- Deception fires, while not fired on the objective area, should still be fired against targets of some tactical value; however, economy of force must be considered.
- Preparations of a long duration may reduce the possibility of surprise.
- The FSC considers the availability of fire support assets and coordinates their use with artillery units. Preparations by fixed-wing aircraft are requested through the FAC(A).
- A known or suspected enemy force located in the vicinity of the LZ, regardless of size, warrants LZ preparation if the LZ is to be used. The *GO/NO GO* criteria, LZ criteria, and destruction criteria should be established based on the threat.
- Various types of ordnance used in preparation fires can cause obstacles to landing and maneuver (e.g., craters, tree blowdown, fires, smoke, poor visibility) on and near the LZ.
- FSCMs must be established for lifting or shifting fires (e.g., restrictive fire line, restrictive fire area).
- Resupply ammunition limitations.
- Rules of engagement (ROE).

Because CAS on-station time is limited by fuel and enemy air defenses, the sequencing of supporting fires is carefully controlled by the FSC to obtain maximum, continuous support. To ensure that all fire support assets are utilized at the correct time, the FSC is collocated with the DASC and must be constantly informed as to the status of the flight. This allows fires to coincide with the actual arrival of landing aircraft at the LZ.

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

LANDING TECHNIQUES

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

Planned ITG should be executed for the each landing to the maximum extent possible. Far ITG will orient the flight on the LZ and near ITG will orient aircraft to the landing points. The ITG should be provided for at least the lead aircraft in each flight, with each subsequent aircraft forming off of the lead for landing at their designated points. The ITG should be planned for both day and night conditions. As with any signal plan, all players should be aware of the ITG plan.

A simultaneous or near simultaneous landing is desired in order to place the maximum number of troops on the ground, in a given area, in the shortest possible time. Individual aircraft landing points are planned to disembark troops as close as possible to their initial positions. If ground movement times are a factor, staggered waves or landing by element are used to reduce the LZ size and the time required for ground movement. Refer to chapter 3 for discussion of insert tactics.

In most operations, if the situation permits, the operation is accomplished with a minimum number of lifts, each with the maximum number of aircraft that the LZ will accommodate. This reduces the exposure time of the aircraft, maintains unit integrity, provides maximum combat power, and gives the enemy less time to react. When separate element landings are dictated because of the LZ size, time intervals between elements are kept as short as possible. Detailed planning determines the minimum time needed between waves of assault support aircraft, facilitates the safe insertion of forces, and facilitates the CONOPS.

Troops are most vulnerable during landing; they disembark rapidly and deploy to carry out assigned missions. Therefore, planning must maximize suppressive fires provided by assault door guns during disembarkation.

The CASEVAC locations, referred to as casualty collection points, are designated in the LZ. If possible, casualty collection points should be located so that there can be continuation of the insert with simultaneous extract of CASEVACs.

At the LZ, leaders at all levels account for personnel and equipment and submit appropriate reports to higher headquarters. Rapid movement out of the LZ to rally points will facilitate a clear LZ for follow-on waves. Troops should either immediately move away from aircraft, or immediately assume the prone position near the aircraft (e.g. hasty 180), in order to allow unloaded aircraft to clear the LZ as soon as possible.

The AFC may select rally points inside the LZ when—

- Expected enemy resistance required fire and movement from the LZ.
- Inserting into wide open areas with little cover or concealment available outside the LZ.
- Accountability is a significant concern due to adverse weather or low visibility.

The AFC may select rally points outside the LZ when—

- Expected enemy resistance allows assault forces to immediately egress the LZ.
- Covered or concealed positions are immediately available outside the LZ and/or not available inside the LZ.
- Assault forces landing directly on the objective.

Key personnel killed, wounded, or missing are replaced according to unit SOP. Essential weapons missing or out of action may require the force to reorganize. After the unit completes its consolidation of the LZ, it reorganizes as necessary to carry out the ground tactical plan.

COMPLETION OF THE LANDING ZONE OPERATION

When the LZ operation is finished, aviation assets return by preselected routes to complete subsequent lifts, conduct other operations, or refuel and remain in support of ground forces (e.g., CASEVAC, immediate re-embarkation, emergency extract, resupply, TRAP).

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APPENDIX A
AIR ASSAULT TRAINING

Air assault training must be integrated into unit programs on a routine basis to develop capability at each level from squad through battalion. Commanders are responsible for their unit's air assault training. The objective is for units to conduct air assault operations with speed, precision, and confidence. Infantry units, as well as other combat, support, and CSS units should routinely receive such training.

A training program for air assault operations should include the critical individual and collective skills necessary to accomplish the warfighting mission. Unit training should identify weaknesses and train to correct those weaknesses.

SMALL-UNIT TRAINING

Standard, infantry small-unit tactics and techniques are the basis for the ground phase of air assault operations. The commander ensures that all units are proficient in these tactics, and then combines this training with training that is specific to air assault: staging, loading, air movement, landing, and unloading. The commander emphasizes the rapid loading and unloading of aircraft, as well as quickly organizing maneuver elements in the LZ to take advantage of the speed and mobility of air assault operations.

The commander trains small-unit leaders to operate independent of their parent organization in order to accomplish their part of the overall mission. Additionally, small-unit leaders must be able to take charge in the absence of their seniors. The speed and complex nature of air assault operations dictates the use of SOPs and battle drills.

MOBILITY

The commander trains units to travel light, consistent with the mission, taking only necessary equipment and supplies.

HELICOPTER EGRESS TRAINING

The Marine Corps Underwater and Intermediate Passenger Helicopter Aircrew Breathing Device Familiarization Program focuses on the use of the SRU-40 (referred to as HABD) and trains Marines on the shallow water egress trainer. This is followed by familiarization with aircraft and personal survival equipment and survival familiarization training (rafts, survival strokes, treading water) and concluded in the rotorcraft "dunker" simulator.

STANDARD OPERATING PROCEDURES AND TRAINING

Procedures for conducting air assault operations are included in unit SOPs. While SOPs include routine actions that personnel might have to complete during an operation, they must also include procedures for downed aircraft, bump plans, or other conditions that may occur during the conduct of operations. The unit's training program ensures that personnel are familiar with and proficient in the procedures contained in the SOP. Also during training, the information in the SOP is evaluated for completeness, simplicity, and applicability and procedures are refined as necessary.

ARTILLERY SUPPORT

Supporting artillery units train with the maneuver unit. They become familiar with the maneuver unit's SOP and teach selected maneuver unit personnel how to plan for, employ, call for, and adjust artillery and mortar fires. This joint training ensures mutual understanding of operational requirements, capabilities, and limitations. If possible, the same fire support units support a particular maneuver unit for each operation.

To support air assault operations, artillery personnel must be proficient in sling loading operations and the planning required to execute PZ/LZ operations. This planning requires artillery leaders to coordinate closely with both the maneuver unit that controls the lift assets and the aviation units involved. Helicopter support team and external load/unload techniques require frequent training for hookup teams, aircraft crews, zone control personnel, and communicators. A detailed discussion of external loading and unloading procedures is contained in MCRP 3-40F.4, MCRP 3-40F.5, and MCRP 3-40F.6.

AVIATION UNITS

Aviation unit commanders assist ground unit commanders in the development of training in the technical aspects of combined aviation and ground unit training. They also ensure that their units

are technically proficient. A working relationship between the maneuver and aviation units is maintained whenever possible.

INFANTRY AND AVIATION

Ground and aviation units must train together and completely understand the MAGTF's CONOPS. They must train in all types of weather and visibility. As a result of their joint training, they refine and develop compatible SOPs.

CONDUCT OF TRAINING

Air assault training begins by familiarizing individuals in aircraft procedures, including loading and unloading, crash procedures, and aircraft safety. Proficiency in these procedures provides a foundation for collective training of ground and aviation units. Collective training should include battle drills, loading and unloading, as well as organizing into combat formations on the LZ. This training allows units to maximize the speed and mobility of air assault operations.

MOCKUPS

Constraints on aircraft flight hours limit the amount of flight time available for training. Therefore, much of the individual and small-unit training has to be accomplished using aircraft mockups. Plywood and other materials can be used to build the mockups, which are relatively inexpensive. Mockups can be used to train individuals on how to approach an aircraft, how to get on the aircraft, and how to get off of the aircraft; air assault battle drills can be taught by using mockups; and combat support Marines can be trained to load weapons, equipment, supplies, and ammunition on aircraft by practicing on mockups. If the unit has a local training area of adequate size, several mockups can be used to practice battle drills to include the way the unit should offload aircraft in the LZ. The mockups can be placed in different patterns to simulate different landing formations.

INDIVIDUAL AND UNIT TRAINING

The following subjects should be included in the appropriate phases of individual and unit training:

Ground units:

- Subjects required for proficiency in ground skills and tactics.
- SOP battle drills.

- Physical and psychological preparedness.
- Methods and procedures for control and guidance of aircraft.
- Safety procedures in and around aircraft.
- Control and adjustment of supporting fires.
- Subjects required for proficiency in preparing internal and external aircraft loads.
- Practical experience in land and aerial navigation.
- Employment of attack helicopter units.
- Serial leaders' duties.
- Helicopter rope suspension techniques.
- Downed aircraft procedures.
- LZ/PZ selection.
- LZ/PZ control.
- Combat support and CSS requirements and techniques.

Aviation units:

- Operations planning.
- Terrain/low altitude flying techniques and navigation.
- Formation flying.
- Marginal weather and reduced-visibility flying techniques.
- Camouflage and security of aircraft.
- Employment of aerial weapon systems.
- Aircraft maintenance in a combat field environment.
- Unit control of aircraft and air traffic.
- ITG procedures and techniques.
- Flight operations in confined areas with maximum loads.
- Operations with external loads.
- Aerial reconnaissance and security techniques.
- Battle drills.

Subjects common to both aviation and ground units:

- Threat organizations and doctrine.
- Threat vehicles and antiaircraft weapons and their capabilities.
- Conduct of liaison and coordination.
- Forward refueling techniques.
- Training in defense against CBRN weapons.
- Signal security, discipline, and electronic attack.
- CASEVAC procedures.
- Procedures for aerial resupply.
- Training in air assault SOPs.

PREPARATION

Training time and resources must be used efficiently. Each element of the unit should be prepared to do its part before joining support units for combined exercises. Squad and platoons should be trained in air assault battle drills and preparation of internal and external loads.

STAFF TRAINING

Staffs of ground and aviation units must be trained in planning and conducting air assault operations with emphasis on the following:

- Capabilities and limitations of air assault operations.
- Command and staff relationships in the MAGTF.
- Development of plans using the reverse planning sequence.
- The MAGTF rapid response planning process.
- Fire support means and control and fire support planning for air assault operations.
- Logistic procedures and requirements for air assault operations.
- Preparation of sequenced ground and air movement plans.

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APPENDIX B
SMALL-UNIT LEADER'S GUIDE TO PICKUP ZONE AND LANDING ZONE OPERATIONS

This appendix serves as a small-unit (company and below) leader's guide for the safe, efficient, and tactically-sound conduct of operations in and around PZs and LZs.

SELECTION AND MARKING

Small-unit leaders should be proficient in selecting and marking PZs/LZs and in providing terminal guidance to aircraft. Tactical and technical considerations that impact selection of PZs/LZs are discussed in chapter 4.

There are multiple methods for LZ marking that may be selected by ground combat or combat logistic personnel to support the ground tactical plan. The examples that follow are not meant to be an exclusive list, but are options with recommendations for when they are most effective. Regardless of which marking scheme is chosen, its use should be based on environmental considerations (i.e., lighting, wind, obstacles) for the task to be performed by the aircrew, such as a precise hover for external cargo pick-up/delivery, and/or a desired aircraft orientation in the zone to support onloading or offloading of personnel.

The marking of PZs/LZs is as follows:

- The NATO-Y, when viewed from the air, will appear as an upside down letter "Y." This is especially useful at night when the final aircraft landing orientation is required. To the extent it is possible, the longer stem of the Y should be aligned to the relative winds in the LZ. While there is specified point during the approach to the spot the aircraft must align itself within the diagram, the landing shall terminate as depicted in figure B-1, on page B-2.

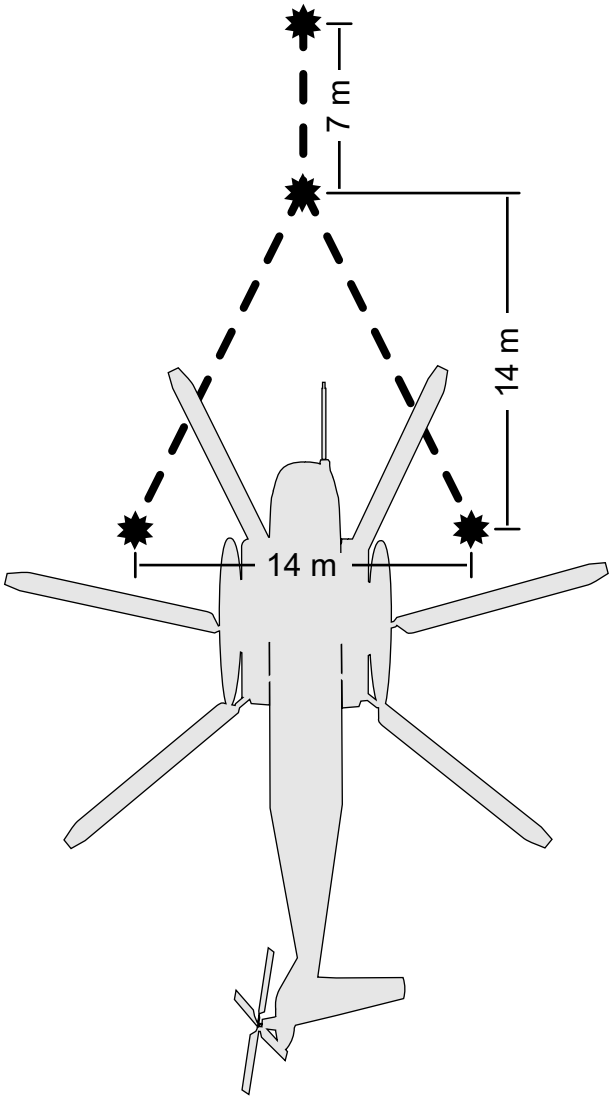
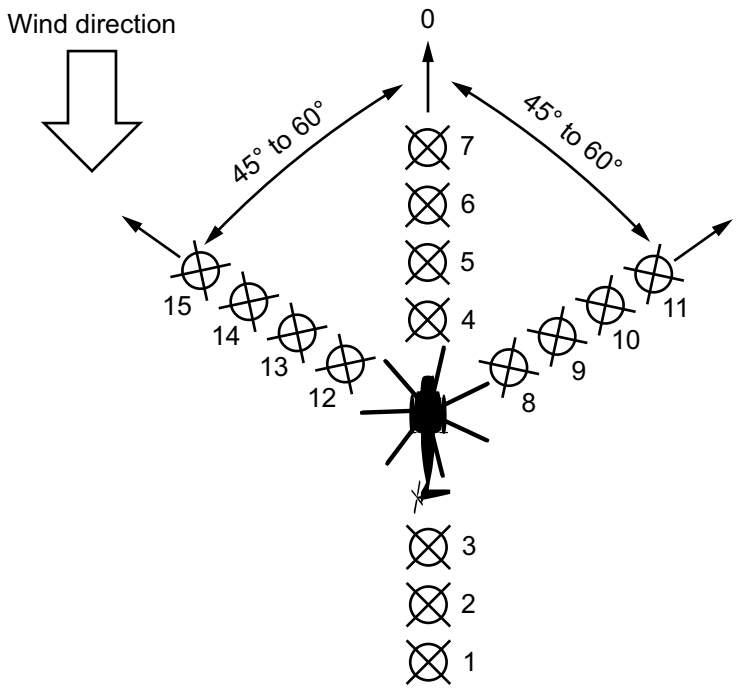


Figure B-1. NATO-Y.

- The crow's foot external sling load operations, when viewed from the air, appears as a centerline to indicate aircraft heading with reference lines approximately 45 degrees off of the centerline. This LZ marking is advantageous at night when an extended and precise hover is to be maintained. The reference lines at 45 degrees aid the pilots in catching undesired drift while hovering over the load, which decreases time to hook up and decreases the risk to ground crews. The orientation of the marking will be aligned with relative winds. In this instance, it is expected that the aircraft will approach the spot on an extended centerline. See figure B-2 on page B-3.

Note: The crow's foot shall not be referred to as an "Inverted NATO-Y."



Notes:
Distance between lights: 15 meters (15 paces), 1 pace equals a full-length stride (approximately 3 feet).

Lights 8-11 and 12-15 should be placed in line along the 45° to 60° bearing from the nose of the aircraft.

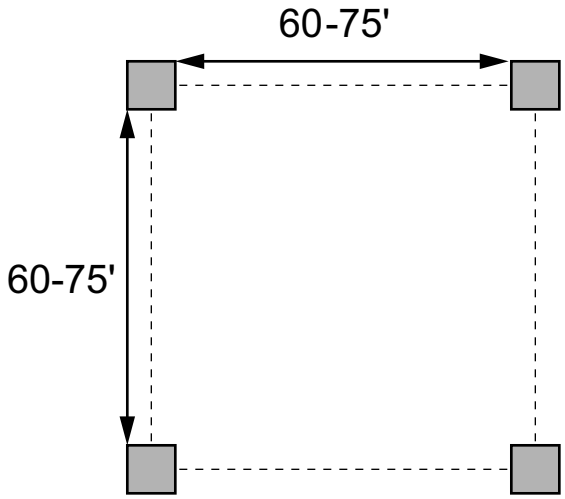
Lights 4, 8, and 12 should be placed below the outer edge of the rotor arc, with lights alighted by sector (4-7, 8-11, and 12-15) on bearing.

Distance between lights 3 and 4: 22 meters (22 paces).

Color of lights determined by light level conditions and enemy situation.

Figure B-2. Crow's Foot for External Sling Load Operations.

- The landing box provides visual reference to pilots when landing during both day and night operations. The box allows for multiple landing directions while still providing visual reference. The recommended dimensions for the landing box are 60 to 75 feet between each chemical light (referred to as a chemlight) or air panel in a square pattern, which accommodates the fuselage of each Marine Corps assault support aircraft. See figure B-3 on page B-4.
- If more than one aircraft is landing in the same PZ/LZ, there will be an additional light for each aircraft. For observation, utility, and attack aircraft, each additional aircraft landing point is marked with a single light placed at the exact point that each aircraft is to land.
- Obstacles include any obstruction to flight that might interfere with aircraft operation in the ground (e.g., trees, stumps, rocks) and cannot be reduced.
- Additional considerations for proper selection and marking are driven by the LZ's topography and composition, particularly in dusty or snow covered areas that would lead to degraded visual environments with rotor wash.



The measurements of 60–75 feet allows the fuselage of each type of assault support aircraft to fit within the box and gives reference on landing. This does not preclude using a smaller or larger box, depending on the situation.

Figure B-3. Landing Box.

CONTROL OF AIRCRAFT

Approaching aircraft are controlled by hand-and-arm signals to transmit terminal guidance for landing. The speed of arm movement indicates the desired speed of aircraft compliance with the signal. The signalman is positioned to the right front of the aircraft where the signalman can best be seen by the pilot. Signalmen hold lighted batons, flashlights, or chemlights in each hand to give signals at night. If using flashlights, care must be taken to avoid blinding the pilot. Lights should remain lit at all times when signaling; however, considerations should be made to prevent washing out pilot or aircrew NVDs. Bright signal devices are good for far ITG, but due to sensitivity of night vision goggles (NVGs), dimmed lighting is preferred for near ITG. Light sources, particularly colored lighting, should be tested to confirm compatibility with NVDs as appropriate.

ASSEMBLY AND OBJECTIVE AREAS

Prior to arrival of the aircraft, the PZ must be secured, the PZ control party positioned, and the troops and equipment positioned in the unit assembly area.

Occupation of Unit Assembly Area

Unit leaders should accomplish the following:

- Maintain all-round security of assembly area.
- Maintain communications.
- Organize troops and equipment into loads and lifts in accordance with unit air movement plan.
- Conduct safety briefing and equipment check of troops.
- Establish priority of loading for each Marine and identify bump personnel.
- Brief on the location of the straggler control points.

Movement to the Occupation of Holding Area

Linkup guides from the PZ control party meet with designated units in the unit assembly area and coordinate movement of loads to a release point. As loads arrive at the release point, load guides move each load to its assigned load assembly area. To reduce the number of personnel required, the same guide may be used to move the unit from the unit assembly area to the load assembly area. Noise and light discipline will be maintained throughout the entire movement in order to maintain the security of the PZ. Additionally, no personnel should be allowed on the PZ unless loading aircraft, rigging vehicles for sling load, or directed by PZ control. While remaining in load order, each Marine is assigned a security (firing) position by the serial leader. Each Marine is employed in the prone position, weapon at the ready, and facing outward (away from the PZ) to provide immediate close-in security. An example of a large, one-sided PZ is depicted in figure B-4. A two-sided PZ with unit and load assembly areas is depicted in figure B-5 on page B-6.

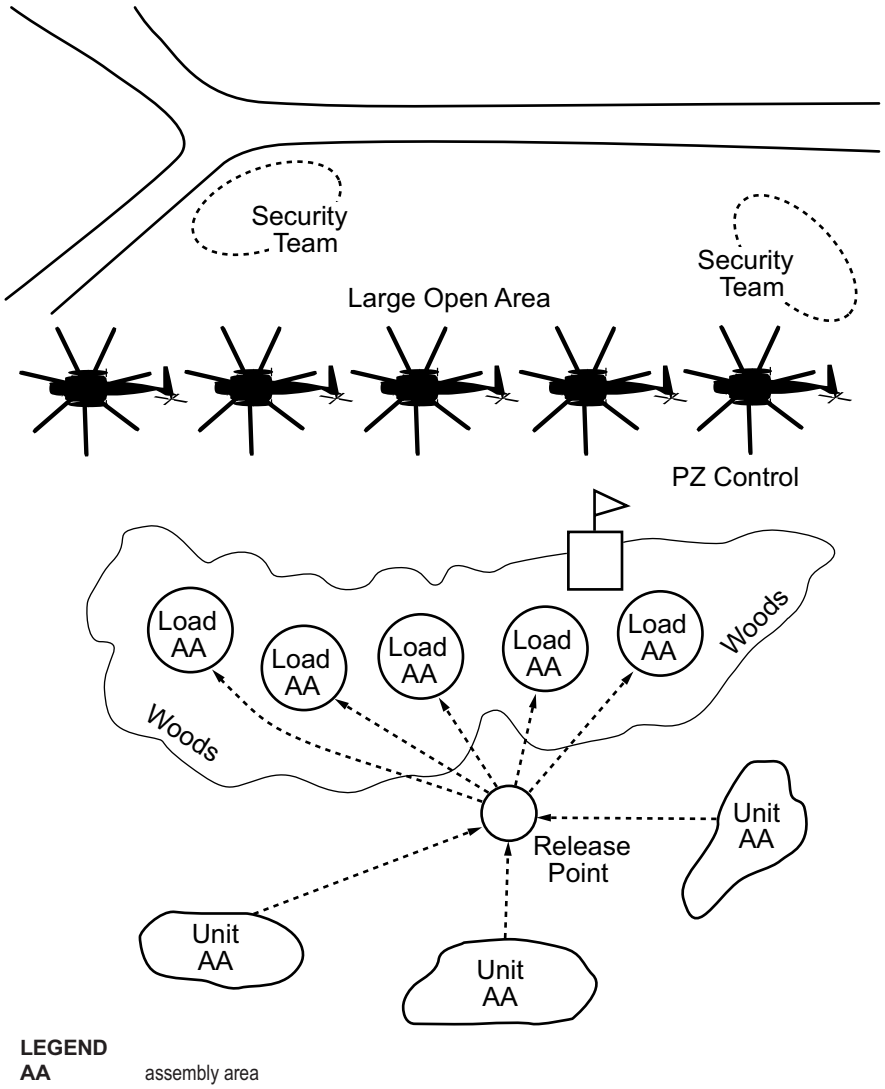


Figure B-4. Example of a Large, Open, One-Sided Pickup Zone.

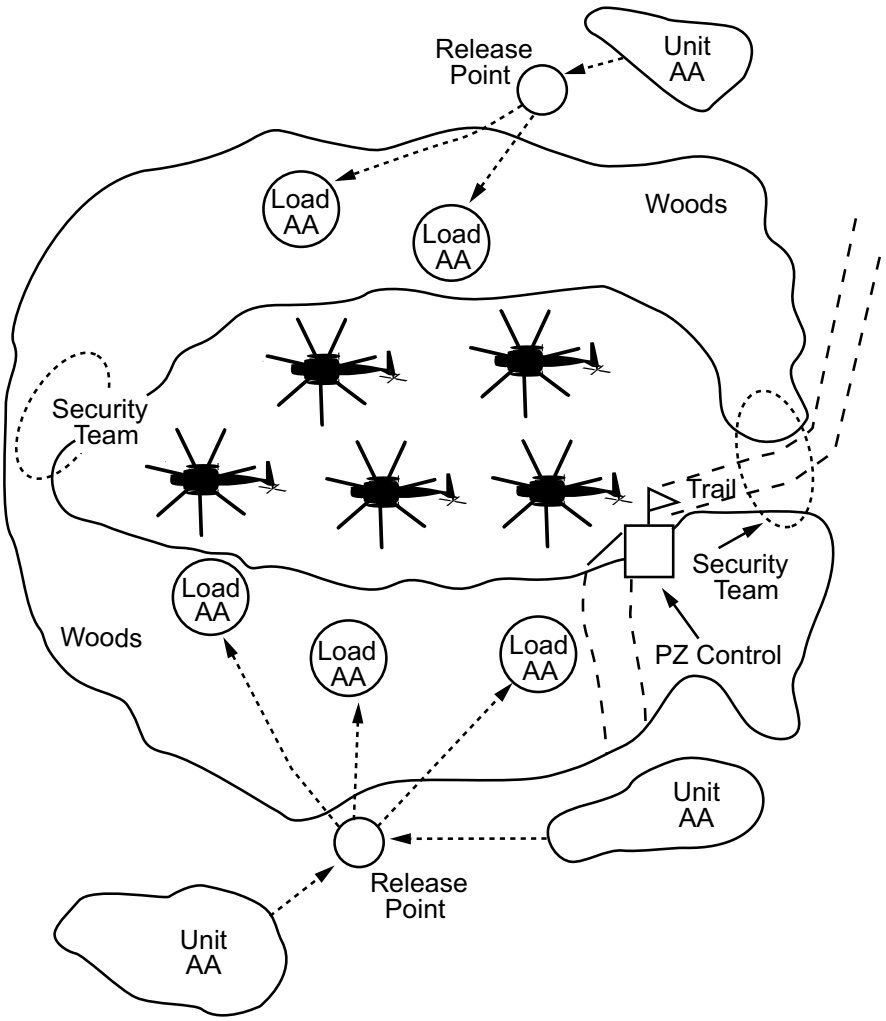


Figure B-5. Example of a Small, Two-Sided Pickup Zone.

While in the load assembly area, units should—

- Maintain tactical integrity by keeping fire teams and squads intact.
- Maintain self-sufficiency by loading a weapon and its ammunition on the same aircraft.
- Ensure key Marines, weapons, and equipment are cross-loaded among aircraft to prevent the loss of control or the loss of all of a particular asset if an aircraft is lost.
- Ensure all troop gear is tied down and checked and that short antennas are placed in radio, folded down, and secured prior to loading.
- Ensure that squad and team leaders check the equipment of their Marines to ensure it is complete and operational.
- Ensure specific aircraft seats are assigned to each Marine.

PZ CLOSURE

During platoon air assault operations, the platoon sergeant is responsible for ensuring all personnel and equipment are loaded (the PZ is clear) and security is maintained.

Single Lift

The platoon sergeant is located on the last aircraft and collects bumped Marines, if required. The platoon sergeant will be the last person to load the aircraft. Once on the aircraft, the platoon sergeant uses the troop commander's radio handset to notify the crew chief/mission commander that all personnel and equipment are loaded. Close-in security is provided by the aircraft door gunners.

Multiple Lifts

The duties of the platoon sergeant during a multiple lift are the same as for the single lift. During a multiple lift, security teams maintain security of the PZ and are the last element to depart with the platoon sergeant. Depending on the initial locations of the security teams, repositioning closer to the PZ may be necessary. Whenever possible, the aircraft lands as close to the security teams' positions as possible to enhance security and minimize the movement required by the teams.

Aircraft Loading Sequence

The following aircraft loading sequence is used:

- The serial leader initiates movement once the aircraft has landed.
- The serial moves to the aircraft in file with the serial leader leading the file.
- The serial leader should—
  - –Ensure that all personnel know which aircraft and which position to load.
  - –Ensure that all personnel wear or carry packs on the aircraft.
  - –Notify the crew chief when all serial members are on board and ready for lift-off.
- All personnel buckle up as soon as they are seated in their assigned seats. The serial leader always sits in the left front seat unless a platoon commander or company commander is on the same aircraft.
- The serial leader reports to the pilot and answers any questions the pilot may have, using the aircraft intercommunication (troop commander's) headset.

LANDING ZONE OPERATIONS

Just as there is a priority of work for defensive operations, there is a priority of actions upon landing in an LZ.

Unloading

Unloading the aircraft does not begin until directed by the crew chief or pilot. Once the aircraft has landed, personnel unbuckle seatbelts and exit aircraft as fast as possible with all equipment. Prior to leaving the aircraft, the serial leader obtains the landing directions from the pilot if they were not determined during the approach into the LZ; this aids in orientation to the LZ, particularly at night. Upon exiting the aircraft, the serial moves to its designated location within the LZ.

Immediate Action on a Hot Landing Zone

If the decision is made to use a hot LZ or contact is made upon landing, troops quickly dismount and move 15 to 20 meters away from the aircraft and immediately return the enemy's fire to enable the aircraft to depart the LZ.

If the contact is similar to a far ambush, troops will fire and maneuver off the LZ to the closest side offering cover and concealment. If troops are engaged from nearby enemy positions, they treat it as a near ambush by immediately returning fire. Marines who consider themselves in the kill zone may assault the enemy positions or attempt to get out of the kill zone. Marines not in the kill zone provide supporting fire to support the movement of Marines in the kill zone. The squad or platoon leader calls for fire support if it is available.

Once disengaged from the enemy force, the squad or platoon leader moves the unit to a covered and concealed position, accounts for personnel and equipment, and assesses the situation to determine whether or not the unit can continue the mission.

> ***Note:*** Expect assault aircraft gunners to return enemy fire when aircraft arrive and depart the LZ and while the aircraft is in the LZ.

Load Assembly Area in a Cold Landing Zone

Once the load is unloaded from the aircraft, the serial leader moves the load to its predetermined location using traveling overwatch movement techniques. All troops move at a fast pace to the nearest concealed position. Once at the concealed assembly point, the serial leader makes a quick count of personnel and equipment and then proceeds with the mission.

DUTIES OF KEY PERSONNEL

To ensure that an air assault operation is executed in an effective manner, key personnel are designated to perform specific duties.

The unit leader platoon commander—

- Maintains overall responsibility for the air assault operation and may act as the PZ control officer.
- Plans the operation.
- Briefs subordinate leaders.

- Issues OPORD.
- Conducts rehearsals.
- Rides in the AMC's aircraft to ensure better command, control, and communications.

The platoon sergeant—

- Sets up the PZ.
- Supervises marking of the PZ.
- Briefs all serial leaders.
- Supervises all activity in the PZ.
- Maintains PZ security.
- Supervises movement of troops and equipment.
- Supervises placement of loads and sling loads.
- Devises and disseminates the bump plan.
- Rides in the last aircraft for control purposes and ensures that the PZ is cleared.

The serial leader—

- Briefs personnel on their respective tasks and positions inside the aircraft.
- Assigns respective areas of security to personnel. Ensures that each Marine arrives at the proper place.
- Supervises the loading of the serial into the aircraft to ensure that all personnel assume assigned positions and have buckled their seatbelts.
- Keeps current on location by use of a map and communications with the aircraft crew during movement.
- Ensures, upon landing, that all personnel exit the aircraft quickly and move to designated positions within the LZ.

PICKUP ZONE CONTROL PARTY

The PZ control party is responsible for the organization of, control within, and coordination of all operations within the PZ. The PZ control party for a platoon air assault operation may organize as follows:

- PZ control officer is a rifle platoon commander.
- PZ control noncommissioned officer in charge is a platoon sergeant or guide.
- The radio operator has three radios: one radio monitors the aviation net for communication with the aircraft, another is used to communicate with the platoon's subordinate units, and a third operates on the company command net.

- There is one load linkup guide per air assault team or load, whose primary duties are to assist in link up and movement of the load assembly area. For platoon-sized air assault operations, these guides should be selected from their assigned serial.
- The lead aircraft signalman is responsible for visual landing guidance for the lead aircraft. The signalman can be selected from either the serial or the squad that is loading on the lead aircraft.
- The HST is responsible for load preparation and rigging. The HST consists of a team supervisor/safety observer, an inside director, an outside director, a static discharge Marine, and two hookup Marines to hook up the load. During complex external lifts, Marines from the landing support battalion may be provided to supervise platoon HST operations.

AIR ASSAULT OPERATIONS COMMUNICATIONS

During establishment and operation of a platoon-sized PZ, communications must be maintained with aviation elements in order to control the aircraft. Communications are also required to report to the company headquarters and to control security teams. During air movement, radio listening silence is maintained on the company and platoon radio nets unless otherwise directed. While on board the aircraft, all leaders communicate with their Marines using predetermined hand-and-arm signals or stating the information on a piece of paper or event map. Communication with the aircraft crew is accomplished by using the internal communications system provided by the crew.

Landing Zone Communications

Immediately after unloading the aircraft, radio operators check their radios to ensure they are configured as necessary. Radio communications on the LZ will be on the command frequency. Hand-and-arm signals and messengers are used to improve noise discipline.

Fire Support Communications

The rifle platoon makes requests for fire support through the rifle company headquarters.

SLING LOAD HOOKUP OPERATIONS

In small sling load hookup operations, company and below, six Marines are normally used as the ground crew in the PZ and LZ: a team supervisor/safety observer, an inside director, an outside director, a static discharge Marine, and two hookup Marines when needed by the platoon.

Static Discharge Equipment

The static electricity generated by rotary-wing aircraft during flight can be fatal to Marines conducting external loading and unloading operations. The static discharge grounding wand (National Stock Number 1670-01-194-0926) protects the user from static electrical shock during aircraft external loading operations. It is important that all Marines conducting external load functions be trained in proper procedures and be familiar with safety requirements. Marines should be trained in HST operations and external load procedures by the Marine logistics group's

landing support battalion. The equipment required to conduct HST operations, including external loading, is drawn from the landing support company prior to attempting external loading and unloading. More information on HST operations is found in MCRP 3-40F.4, MCRP 3-40F.5, and MCRP3-40F.6.

Protective Equipment

All ground crew personnel will wear the following protective equipment:

- Helmet.
- Protective mask or dust goggles.
- Earplugs.
- Gloves.
- Utility shirt with sleeves rolled down.

Ground Crew Emergency Procedures

The hookup team will work on the right side of the load in order to move out to the right of the aircraft in case of emergencies. If an emergency occurs during a sling loading operation, the ground crew moves to the aircraft's right and the aircraft moves to its left. The signalman moves out of the aircraft's flight path by moving to the aircraft's right.

Safety Briefing

Prior to an air assault operation, leaders within the unit chain of command give a safety briefing to all personnel. All leaders will enforce strict safety measures when working with aircraft. At a minimum, the safety briefing addresses the following issues:

- Identification tags and earplugs will be worn at all times when near or in an aircraft.
- Helmets, with chinstraps fastened, will be worn at all times. The supporting squadron can provide protective cranials upon request, if coordinated.
- Helicopter safety measures for avoidance of tail rotors and proper loading and unloading procedures.
- Rifles will be carried with the muzzle pointed downward in weapons condition four. Belt-fed weapons will not have rounds on the feed tray. Deviations to this instruction are situationally dependent, but generally on insert the aircraft crew chief will give direction to arm weapons just prior to landing if enemy contact is expected.
- Hand grenades will be secured.
- Short antennas will be bent completely down and long antennas will be tied down when using radios in proximity of rotary-wing aircraft.
- Seatbelts will be fastened upon entering the aircraft and left buckled until the crew chief signals to exit the aircraft.
- In the event of a forced landing, all personnel will lean forward with their heads down until the aircraft comes to rest. No one will exit the aircraft until the rotors have completely stopped.

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APPENDIX C
EXAMPLE OF AN ANNEX TO BATTALION SOPS FOR AIR ASSAULT OPERATIONS

1. General

a. Purpose. This annex prescribes the organization and procedures to be followed in the preparation and execution of air assault operations. Only procedures peculiar to air assault operations are included; otherwise, basic SOPs apply.

b. Application. Applies to all organic and supporting units under control of _____Battalion, _____Marine Regiment///Marine expeditionary unit, Marine expeditionary brigade, Marine expeditionary force.

2. Personnel

a. Strength, Records, and Reports

(1) Companies are organized into assault and rear echelons. Upon receipt of a warning order, companies submit personnel strength to the S-1 and equipment availability status to the S-4. The S-1 and S-4 forward this information to the S-3 in order to determine flight requirements.

(2) Upon entering the LZ, companies report personnel and equipment status to the battalion command post on the tactical net using the standard format.

b. Discipline and Order

(1) The S-1 establishes a straggler control point on each PZ in coordination with the S-3 and PZ control officer. All units will have a representative located at the straggler control point on their PZs. Bumped personnel are reported to the S-1 and/or PZ control officer by straggler control personnel for consolidation and rescheduling into appropriate LZs.

(2) Straggler control becomes the company's responsibility upon landing.

(3) Personnel landed in other than their assigned LZ are to report to the on-site unit commander (representative) immediately. Personnel are attached to that unit until ordered to return to their parent unit by this headquarters. The gaining unit reports attached personnel to the S-1 by their number and parent unit. Do not include attached personnel in unit strength reports.

c. Prisoner of War Evacuation. The POWs are immediately reported to the S-3, who issues evacuation instructions. Units detaining POWs indicate available PZ locations for pickup by air in their initial reports. The S-2 determines whether to evacuate through battalion or direct to higher headquarters.

d. Casualty Evacuation. Report all casualties for CASEVAC by priority code.

(1) Casualty evacuation requests follow standard format for casualties and are classified as routine, priority, or urgent. Radio frequencies of supporting CASEVAC units are included in each OPORD.

(2) The S-1 is responsible for providing communications-electronics operating instructions (referred to as CEOI), LZs, and flight route overlay to supporting CASEVAC units.

3. Intelligence

a. Weather

(1) Battalion S-2 obtains and disseminates the following:

- Long-range forecast immediately after receipt of mission.
- Short-range forecasts up to hostilities-2 (referred to as H-2).

(2) Command weather reconnaissance 1 hour prior to lift-off is coordinated among the mission commander, S-2, and AMC.

(3) Operations are executed only on order of this headquarters when weather is below half-mile visibility and 100-foot ceiling.

b. Terrain

(1) Maximize use of command aerial reconnaissance down to company commanders, consistent with aviation resources, available time, and tactical situation.

(2) Use sand table briefing techniques when possible in conjunction with maps and aerial photographs.

(3) Issue maps immediately after receipt of a warning order, if available. If not available, they are issued on receipt from higher headquarters.

(4) Aerial photographs are made available upon receipt. The S-2 processes all requests (conserving assets, as appropriate). Priority is given to answering priority intelligence requirements and support of the assault echelon.

c. Escape and Evasion

(1) Personnel in aircraft forced to land behind enemy lines en route to the objective will—

- Establish immediate security in vicinity of downed aircraft.
- Remain in that location using aircraft radios to contact recovery aircraft.
- Mark and clear suitable landing points for recovery and withdrawal aircrafts.

(2) The senior ground force individual assumes responsibility for organization and conduct of security until recovery is executed.

(3) If the above is not possible due to enemy pressure, evade capture and attempt to join friendly units by infiltration. Personnel attempt to escape and evade back along the flight route because maximum rescue efforts are directed along flight routes, with particular emphasis at checkpoints. Continuous attempts will be made to locate LZs/landing points suitable for rotary-wing withdrawal. The wounded are evacuated with infiltrating personnel. The dead are concealed and stripped of weapons, ammunition, and items of intelligence value. The locations of the dead left behind are recorded.

(4) If enemy pressure becomes a threat to downed aircraft personnel, the senior ground force individual takes steps to secure or destroy classified or sensitive items. Aircraft destruction is only on order of this headquarters if capture is not imminent. If contact with this headquarters cannot be made, the senior individual on the ground attempts to prevent capture by enemy.

4. Operations

a. Planning Phase

(1) Except when accomplished by higher headquarters, this headquarters prepares plans in coordination with the supporting AMC.

(2) Plans continue to be refined until executed. All operational information is given to subordinate commanders as soon as determined, particularly—

- The size and composition of the force required to execute the mission.
- Allocation of assault and logistical aircraft, based on allowable cargo load provided by the mission commander.
- Designated PZs and aircraft PZ formations. Designated flight routes, LZs, and LZ aircraft formation.

(3) Coordination between the supported and supporting commanders must include, at a minimum—

- Enemy and friendly situation.
- Mission.

- Fire support plan.
- Abort and alternate plans.
- Weather (including minimums and delays).
- Type, number, and aircraft load of assault support aircraft.
- Aircraft formations in PZ and LZ.
- Air movement information relative to timing for operations.
- Communication (primary and alternate frequencies and plans).
- Location and call sign of second in command.
- Required command reconnaissance by the mission commander and supporting aviation commanders. Time synchronization requirements.
- TRAP procedures.

(4) Operations Security. Operations security is emphasized in each phase of an air assault operation. The objective is to conceal the capabilities and intentions of the air assault force. Four, general operations security measures are considered for every operation: deception, signal security, physical security, and information security. The S-2 provides intelligence collection of threat data. The S-3 ensures that the staff and subordinate commanders are aware of operations security measures to be employed to counter the threat. Emphasis is placed on maintaining the elements of surprise and security. Additionally, all supporting elements must be aware of the necessity of maintaining a high degree of operational security. At a minimum, the commander, supporting commanders, and subordinate commanders employ the following techniques:

- Deception:
  - –Camouflage vehicles, equipment, and personnel.
  - –Overflights of other LZs (if aircraft are available and enemy situation does not preclude).
  - –Insertion at night or during other periods of reduced visibility.
  - –Noise and light discipline.
  - –Dummy laager points for aircraft.
  - –Reconnaissance overflights of several objectives.
- Signal security:
  - –Communications security techniques.
  - –Radio listening silence.
  - –Hand-and-arm signals (on the ground) usage.
  - –Low-power and secure mode on radios usage.
- Physical security:
  - –Use of security forces at LZ and PZ.
  - –Use of wires, mines, barriers, and security troops at aircraft laager points and troop assembly areas.
  - –Use of reconnaissance unit to secure LZ, if possible.

- Information security:
  - –Counterintelligence.
  - –Strict control of all operational information.
  - –Release information only to those with a need to know.
  - –Last minute release of attack time (objective) and force composition.

b. Landing Phase

(1) The aircraft commander notifies each serial leader of any changes to the order, any change in LZs and/or direction of landing, and when the aircraft is over the release point. The serial leader then informs personnel of any changes and alerts them to prepare to unload.

(2) Passengers may not move in the aircraft until clearance has been obtained from the serial leader via the aircraft crew chief. After the serial leader gives the clearance signal, troops and equipment are unloaded as rapidly as possible.

(3) After all troops and cargo have been unloaded from the aircraft, the crew chief checks the aircraft and signals the serial leader that the cabin is empty. Departure from the aircraft is executed rapidly in the direction prescribed by the battle drill.

(4) The serial leader ensures that members of the serial clear the LZ in a safe, expeditious manner. This prevents exposing personnel to unnecessary danger and prevents any delay in lift-off and landing of subsequent aircraft.

(5) Individual weapons are fired only upon order during offloading unless enemy contact is made or if planned as part of the overall fire plan.

(6) If there is no enemy contact on the LZ, actions are as follows:

- Move each aircraft load to the nearest covered and concealed position in direction of the assembly area.
- Establish LZ security for succeeding lifts (if applicable).
- Assemble, organize, and account for all personnel.
- Report.

(7) If enemy contact is made on the LZ, actions are as follows:

- Return fire immediately, upon offloading, with all available firepower to gain fire superiority.
- Fight by serials, using fire and movement, until platoon or company can be formed (according to battle drill).
- Request and coordinate fire support.
- Secure the LZ for succeeding lifts.
- Report.

(8) Keep the commander informed during all actions.

c. Air Movement Phase

(1) Radio silence is maintained to the maximum extent possible. Inability to comply with specific control times are reported as prescribed in OPORD.

(2) Troop leader remains oriented by continuous map-terrain comparisons.

d. Loading Plan

(1) The PZ is designated by this headquarters.

(2) The air officer arrives prior to the aircraft flight and reports to the PZ control officer for last minute briefing and coordination. The air officer notifies the AMC of any changes.

(3) Serials are organized to support the ground tactical plan.

(4) Assault support aircraft land in the PZs in the specified formation. Unit leaders brief troops on the aircraft formation prior to arrival of aircraft at the PZ.

(5) Aircraft should land as close to their estimated time of arrival as possible to reduce time-on-ground before loading.

(6) During a battalion move, the battalion XO, or designated representative, acts as the PZ control officer and the headquarters commandant acts as the LZ control officer. The company XO acts as the PZ control officer during company-sized operations and as the unit PZ control officer during battalion-sized operations. The PZ control officer is responsible for developing and disseminating the PZ control plan. The PZ control officer maintains contact with the AMC on a designated radio frequency. Each unit to be moved will have radio contact with the PZ control officer 15 minutes prior to aircraft arrival. Units must be prepared to alter loads based on change of aircraft availability or change in allowable cargo load. Within each company, platoon, and squad, a priority of loading must be established. Priority of aircraft loads and personnel to be bumped on each aircraft will be designated. Bumped personnel report to the straggler control point immediately.

(7) The supporting aviation unit assists in planning for the execution of loading by providing technical advice and supervision.

(8) The serial leader supervises aircraft loading.

(9) Cargo or equipment to be transported externally is secured in cargo nets or on pallets for sling loading under aircrafts. Hookup of these slings is accomplished by the HST in the PZ.

(10) Preparations for individuals are as follows:

- Fasten helmet chinstraps.
- Collapse bipods on applicable weapons systems.
- Tie down loose equipment.
- Carry rifles with the muzzle pointed downward in weapons condition four. Belt-fed weapons will not have rounds on the feed tray. Deviations to this instruction are situationally dependent; but, generally on insert, the aircraft crew chief will give direction to arm weapons just prior to landing if enemy contact is expected.
- Unfix bayonets (if fixed).
- Ensure radio operators use short whip antennas only and depress antennas to avoid breakage and to reduce the safety hazard.

(11) An accurate list for each aircraft load by name, grade, and unit is furnished to the battalion S-1 through the unit officer in charge of loading.

(12) The following sequence should be followed during the loading phase:

- Secure PZ.
- Approach aircraft only after it has landed.
- Load when directed by PZ control personnel.
- Load at double time.
- Move to the aircraft and load as directed by the serial leader.

(13) When loading personnel and cargo into an aircraft, the serial leader ensures that the following is accomplished:

- All safety measures prescribed for movement in and about the aircraft are observed.
- All personnel approach the aircraft in the prescribed manner.
- All personnel are aware of and avoid the tail rotor and engine exhaust outlets.
- All personnel and equipment stay below the arc of the top rotor and load on the opposite side of the tail rotor. Personnel should be especially watchful when loading on the slope of a hill; therefore, approach and depart an aircraft on the downslope side. The aircrew indicates which side to enter/exit the aircraft.

(14) A briefing on emergencies is conducted by an aviation representative prior to loading, as appropriate.

(15) Upon loading, the serial leaders provide the gross weight of the load (personnel plus all equipment) to the pilot in command or the crew chief.

(16) After all equipment and personnel have been loaded, the serial leader, in coordination with the aircraft crew chief, determines that—

- Equipment and cargo are in the proper places.
- Cargo or equipment is properly secured.
- Each Marine is seated with safety belt fastened.
- Weapons are placed between legs; muzzle down (except on the UH-1Y which is boarded muzzle up).

(17) When the serial leader has checked to ensure that all cargo and personnel are accounted for, the serial leader then notifies the aircraft commander or crew chief. The crew chief ensures that all personnel and equipment are properly secured for flight.

(18) During flight, the pilot commands the aircraft. The serial leader ensures the following is accomplished:

- Cargo lashing (if applicable) is monitored to determine that cargo is properly secured during flight. Aircrew have responsibility for ensuring cargo is secured in accordance with aircraft operations manuals. Crewmembers are responsible for securing cargo.
- Troops keep restraints secure and do not move within the cabin without prior authorization.
- Troops keep restraint devices secure and do not smoke during flight.
- Troops stay seated and do not move within aircraft cabin without authorization.

(19) In the event that more than one lift is required, the PZ control officer remains until the last lift to ensure control and continuous communication.

(20) General aircraft load planning requires that—

- All units develop general load plans to facilitate movement on short notice.
- The necessary equipment for aircraft loading and movement (nets, slings, and clevises) is kept on hand.
- Battalion personnel are organized and trained in loading equipment (including sling loads).
- Vehicles and major equipment are prepared at all times to facilitate airlift operations.
- Vehicles and major equipment to be transported into the objective area are reported with strength figures.

e. Subsequent Operations

(1) Withdrawal by Air. Withdrawal from an area of operations requires thorough planning, close coordination, and controlled execution. The following are considered important for any withdrawal by air:

- Primary and alternate PZs and flight routes must be planned.
- Defensive concentrations must be planned around the PZ. The security force protects the loading force and returns fire if engaged. When the last elements are ready to load, the security force calls in required fires to cover withdrawal and uses their own fire to cover their loading.
- All-round security until the first aircraft is on the ground (never assemble too early) must be maintained.
- Loads must be planned so that a force is capable of defending itself until the last lift. The platoon leader/sergeant or squad leader with a radio is the last person out of a PZ and reports to the commander that the PZ is clear of all personnel and equipment and immediately notifies the pilot of the aircraft the platoon leader/sergeant boards. If possible, plan for at least two extra assault support aircraft to go into the PZ to lift out the last unit.
- The attack helicopter unit will be in direct communication with the AFC.

(2) Displacement of Command Post. The quartering party is composed of S-1 or headquarters commandant, communications officer or representative, communications personnel, security element, and other necessary personnel, and they select the location of the command post. The C2 aircraft is used as the main command post during movement. Quartering party duties upon landing include—

- Laying out the new command post.
- Notifying the old command post when the new command post is ready for operation.
- Ensuring timely and orderly arrival and positioning of other command post elements.
- Opening the new command post. The officer in charge notifies the commander or S-3 when the old command post has closed and when the staff is operational in the new location.
- Providing controlling responsibilities. A C2 aircraft is used as the tactical command post to control and direct subordinate elements during air movement. The old command post is responsible for the dissemination of information and reports to higher and adjacent headquarters until that function is formally passed to the new command post.

(3) Passive Security of Aircraft in Unit Areas. The security of supporting aviation is the responsibility of the unit commander in whose area the supporting aviation are laagered or as designated by the headquarters.

(a) Laagers (occupancy, 1 to 36 hours) have the following characteristics:

- Select proper terrain for laagers where access by enemy ground forces is difficult (e.g., laagers surrounded by water or swamps).
- Position aircraft to blend with terrain and vegetation (e.g., locate parking areas in shadows, near trees).
- Park aircraft in laagers so that attack helicopters can provide security along avenues of approach. Lift of aircraft, if attacked by enemy, is the responsibility of the ACE commander.
- Utilize troops in or near the laagers to provide perimeter security. Aviation units augment security.

(b) Semipermanent facilities (occupancy, 1 to 7 weeks) have the following characteristics:

- Use camouflage nets and natural materials to provide concealment.
- Provide perimeter troop security around airfields and helipads.
- Construct individual and aircraft bunkers and continue progressive improvement as time permits.

5. Logistics

a. Supply

(1) Prescribed, accompanying supplies are established by the headquarters for each air assault operation. The following list is a recommended allowance:

- Class I. Each Marine carries three combat ration meals to be eaten on order.
- Classes II and IV. Units take one DOS of required combat essential expendables.
- Class III. Vehicle fuel tanks are filled three-fourths full and gas cans are filled to the weld. Units take one DOS of oil and lubricants on vehicles.
- Class V. Units maintain basic load at all times. Available supply rates and priority of delivery as specified in OPORD.
- Class IX. Units take combat essential prescribed load list.
- Water. Marines carry full Camelbaks™ (64 ounces), one bottle of water purification tablets, and embark 1 DOS of water (3 gallons) per Marine.

(2) All classes of supply are delivered using unit distribution.

(3) Routine, planned supplies are prepackaged to the maximum extent possible by the S-4.

(4) Emergency resupply containing ammunition, water, rations, and medical supplies are prepackaged by the S-4 and are ready for delivery as required.

b. Salvage

(1) Commanders guard against damage, destruction, or loss and expedite recovery of aerial delivery containers, cargo nets, and pallets.

(2) Units in objective area establish salvage collecting points when appropriate and practical.

(3) Salvage is reported to this headquarters for disposition instructions.

c. Captured Material. Captured material may be used on approval of this headquarters. Evacuation of captured material is accomplished, as the situation allows, though S-4 channels.

d. Medical Support

(1) Casualty evacuation of patients, until linkup or withdrawal, will be by air.

(2) Aid station location is normally in the battalion's rear.

(3) Requests for CASEVAC within the air assault operations area is made to the medical organization on the CASEVAC frequency or the administrative logistic net.

(4) Prisoner of war casualties needing medical treatment are evacuated through medical channels.

(5) Hospital locations are announced for each operation.

e. Transportation and Troop Movement

(1) Vehicular.

(a) Allocation of accompanying organic transport is made by this headquarters.

(b) Captured vehicles are used to the maximum to meet transportation requirements.

(2) Aircraft allocation of supporting aircraft is made by this headquarters.

6. Visual and Sound Signals

a. Visual and sound signals are used as required and prescribed by communications-electronics operating instructions and unit SOP and as modified by battalion OPORD.

b. Subordinate units employ only those pyrotechnics specifically authorized by OPORD or communications-electronics operating instructions.

7. Electronic Warfare

a. Radio stations will not attempt to enter, jam, or otherwise interfere with unknown radio nets without prior approval of this headquarters.

b. Jamming or attempts to enter nets by unknown stations should be reported to the communications officer (by a secure means) without delay. Give the time, radio frequency, type of jamming, signal strength, readability, and identity (if obtainable) of interfering station.

APPENDIX D
BILLET RESPONSIBILITIES DURING AIR ASSAULT PLANNING

MISSION COMMANDER AND/OR ASSAULT FORCE COMMANDER

The mission commander and/or AFC takes the following actions:

- Receives warning order (see app. G).
- Conducts mission analysis.
- Receives initial information from the AMC.
- Gives warning order to staff and subordinates.
- Receives personnel status report from S-1.
- Receives equipment status report from S-4.
- Receives enemy situation briefing from S-2.
- Receives friendly forces information briefing from S-3.
- Continues analysis of METT-T.
- Receives higher headquarters' OPORD.
- Begins development of commander's estimate.
- Provides guidance to staff as needed.
- Receives staff estimates.
- Obtains data from staff as needed.
- Announces concept.
- Supervises development of OPORD.
- Receives air movement information.
- Coordinates air movement matters with AMC.
- Receives air loading plan from S-3.
- Receives copy of OPORD from S-3.
- Approves or modifies and approves OPORD.
- Issues or oversees issuance of OPORD.
- Conducts/oversees presentation of OPORD brief.

AIR MISSION COMMANDER

The AMC takes the following actions:

- Receives warning order.
- Conducts mission analysis.
- Receives aircrew status report from ACE S-3.
- Receives aircraft availability report from ACE aircraft maintenance officer.
- Receives enemy situational brief from ACE S-2.
- Gives initial planning information to GCE and staff.
- Receives GCE warning order.
- Receives friendly force information briefing from S-3.
- Provides technical advice to GCE XO and S-2 for PZ/LZ identification.
- Coordinates with supported unit staff.
- Provides information to aviation unit on ground operation.
- Provides advice to GCE S-3 on PZ selection.
- Assists XO in PZ control plan.
- Provides GCE air officer with flight route computations.
- Provides advice to GCE S-3 on LZ and flight route selection.
- Coordinates PZs/LZs, flight routes, and aircraft allocation from GCE air officer and AFC.
- Obtains PZ control plan from GCE XO (PZ control officer).
- Aids GCE S-4 in selecting logistic PZs.
- Coordinates aircraft internal and sling equipment loads with GCE S-4.
- Obtains ASSAT from GCE S-3 and develops the ASLT in accordance with the S-3 and AFC.
- Briefs aviation unit on operation.
- Inspects PZs with GCE XO.
- Receives GCE OPORD.

AIR ASSAULT FORCE EXECUTIVE OFFICER

The following actions are taken by the air assault force XO:

- Receives warning order.
- Receives personnel status report from S-1.
- Receives equipment status report from S-3.
- Receives enemy situation report from S-2.
- Receives AMC initial information.

- Receives friendly forces information from S-3.
- Determines available PZs. Obtains advice from AMC.
- Submits PZs to S-3.
- Coordinates staff planning.
- Obtains PZ from S-3.
- Develops PZ control plan.
- Coordinates PZ operations with AMC/terminal controllers.
- Receives GCE commander's CONOPS.
- Obtains PZs, LZs, flight routes, and aircraft allocation from S-3.
- Coordinates PZ operations with S-1. Completes bump and straggler control plan.
- Inspects PZs with PZ control officers.
- Obtains air movement plan from S-3.
- Obtains air loading plan from S-3.
- Obtains sequence of bump from subordinate units. Annotates air movement plan with sequence of bump.
- Completes PZ control plan. Submits to S-3.
- Inspects PZs with the mission commander.
- Receives OPORD.

AIR ASSAULT FORCE S-1

The following actions are performed by the air assault force S-1:

- Receives operation notification.
- Assembles personnel data.
- Receives air assault warning order.
- Reports personnel status to mission commander and staff.
- Receives mission commander's initial information.
- Receives friendly forces information briefing from S-3.
- Begins mission analysis from personnel standpoint.
- Begins preparation of staff estimate (personnel).
- Receives commander's concept.
- Coordinates PZ operations with battalion XO. Develops straggler control plan.
- Briefs subordinate unit personnel on straggler control plan.
- Receives command post's general location from S-3.
- Coordinates POW and civilian control plan with S-2.
- Completes POW and civilian control plan. Coordinates with S-4.
- Completes S-1 portion of paragraph 4, OPORD. Gives it to S-4.

- Receives air loading plan from S-3.
- Coordinates with headquarters commandant. Develops plan for command post displacement and security.
- Coordinates command post displacement plan with S-3.
- Coordinates with S-2 for interpreter support, if applicable.
- Coordinates CASEVAC plan with S-4, surgeon, and AFL.
- Plans for recovery and evacuation of the dead. Coordinates with S-3 and S-4.
- Develops personnel replacement plan, if applicable.
- Completes Annex E (Personnel) of the OPORD.
- Receives OPORD.

AIR ASSAULT FORCE S-2

The air assault force S-2 takes the following actions:

- Receives operation notification.
- Receives command direction regarding mission and area of operations.
- Coordinates any needed map requests through the S-4.
- Assembles available intelligence data.
- Requests weather forecast.
- Distributes maps.
- Provides initial intelligence orientation and brief to mission commander, staff, and subordinate unit commanders on enemy situations.
- Obtains advice concerning LZs from AMC.
- Determines available LZs.
- Submits LZ list to S-3.
- Analyzes weather forecasts.
- Obtains advice concerning flight routes from air officer and AMC.
- Develops threat data information for proposed flight routes and provides data to AMC and AFC.
- Provides threat estimate along with available flight routes to S-3 (air officer).
- Develops escape and recovery plans. Coordinates with ACE S-2.
- Recommends priority intelligence requirements and information requirements.
- Develops intelligence collection plan with ACE and briefs S-3 on plan.
- Tasks available collection assets and recommends employment of reconnaissance assets to the S-3.
- Submits requests for intelligence to higher authority.
- Requests aviation reconnaissance and/or imagery of routes, LZs, and objectives.

- Begins preparation of staff intelligence estimate.
- Processes intelligence data gathered.
- Prepares intelligence products.
- Develops intelligence debrief plan.
- Completes staff estimate (intelligence).
- Provides S-3 with staff estimate (intelligence).
- Continues intelligence cycle and provides regular briefings to commanders and staffs.
- Recommends targets to FSC and S-3.
- Completes Annex B (Intelligence) of OPORD and submits to S-3.
- Continues intelligence cycle and provides regular briefings to commanders and staffs.
- Coordinates with S-1 for interpreter support, if applicable.
- Coordinates development of POW and civilian control plan with S-1.
- Develops debrief plan.
- Updates intelligence map as needed.

AIR ASSAULT FORCE GROUND COMBAT ELEMENT S-3

The air assault force GCE S-3 takes the following actions:

- Receives warning order.
- Assembles data on friendly elements.
- Receives mission commander initial information through the air officer.
- Receives personnel status from S-1.
- Receives equipment status from S-4.
- Receives enemy situation from S-2.
- Briefs mission commander's initial information.
- Briefs friendly forces disposition and location.
- Begins development of COA.
- Receives brief by S-2 on collection plan.
- Receives list of available LZs from S-2 and available PZs from XO.
- Receives higher headquarters' OPORD.
- Begins preparation of staff estimates for operations.
- Selects PZs. Briefs XO and air officer on PZ selection.
- Obtains available flight routes from mission commander through air officer.
- Consolidates staff information.
- Recommends LZs and flight routes.
- Determines need for indirect fire preparations.
- Determines need for EW support.

- Provides staff estimates of supportability to mission commander.
- Receives mission commander's decision.
- Begins preparation of OPORD.
- Provides XO and air officer with PZs and aircraft allocation. Selects general location for command post. Provides information to staff.
- Receives S-2 input to OPORD. Receives administrative-logistical data of the order from the S-4.
- Completes OPORD paragraphs 1, 2, 3, and 5 and Annex C (Operations). Supervises completion of pertinent annexes and assembles completed OPORD.
- Receives air movement plan from air officer.
- Receives fire plan from FSC.
- Receives EW support plan from communications officer.
- Obtains air loading plan from air officer.
- Receives paragraph 4 of the OPORD from S-4.
- Completes paragraph 5 of the OPORD.
- Completes operation overlay.
- Coordinates command post displacement with headquarters commandant.
- Obtains PZ control plan from XO.
- Complete OPORD with annexes. Submits to higher commander for approval.
- Issues OPORD.

AIR ASSAULT FORCE GROUND COMBAT ELEMENT AIR OFFICER

The air assault force GCE air officer takes the following actions:

- Receives operation notification.
- Receives air assault warning order.
- Receives personnel status from S-1.
- Receives equipment status from S-4.
- Receives enemy situation briefing from S-2.
- Receives mission commander's initial information.
- Analyzes mission commander's initial information for available assets.
- Establishes liaison with ACE/AMC.
- Assists S-3 in preparation of air movement plan.
- Recommends air requests to S-3 and processes air requests from S-3.
- Obtains PZs from S-3 and provides PZs to FSC and staff as needed.
- Establishes necessary liaison with TACP and coordinates preplanned fire support.
- Provides available flight route information to the S-3.
- Receives AMC's concept.

- Obtains LZs, flight routes, and aircraft allocation from ACE S-3. Provides data to the mission commander, FSC, subordinate unit commanders, and staff as needed.
- Obtain any additional tactical air requirements from FSC.
- Initiates requests for air support of all types (e.g., assault support request, joint TARs).
- Obtains logistical PZs from S-4.
- Coordinates air movement plan with AFC and AMC and submits to S-3 for approval.
- Distributes air movement plan.
- Obtains subordinate air loading plan.
- Consolidates air loading plans and provides to AFC, S-3, XO, and S-1.
- Receives OPORD.

AIR ASSAULT FORCE GROUND COMBAT ELEMENT S-4

The air assault force GCE S-4 takes the following actions:

- Receives operation notification.
- Obtains maps requests by S-2.
- Assembles equipment data.
- Receives air assault warning order.
- Receives personnel status from S-1.
- Provides equipment status to the AFC.
- Receives enemy situation briefing from S-2.
- Receives mission commander's initial information.
- Receives friendly forces information from S-3.
- Conducts mission analysis to determine logistic/sustainment requirements.
- Receives initial supply requirements from subordinate units.
- Begins preparation of staff estimate (logistics).
- Determines effects of ammunition supply rate on operations. Submits ammunition supply rates to FSC.
- Compiles material usage data for operation. Obtains PZs from S-3 (air officer).
- Compares usage data to materiel available.
- Requests materiel as needed.
- Coordinates with ACE S-4 on location of the FARP.
- Provides S-3 with staff appraisal (logistics).
- Begins development of support plan for operation. Obtains LZs and flight routes from S-3.
- Selects logistic PZs and provides to S-3 (air officer).
- Plans aircraft loads (internal and external) for mission support. Coordinates pickup points with mission commander and/or S-3 air officer.

- Completes paragraph 4 and Annex D (Logistics/Combat Service Support) of the OPORD.
- Coordinates plans for evacuation of enemy materiel with S-2.
- Coordinates CASEVAC plan with S-1, medical, and AMC.
- Receives OPORD.

AIR ASSAULT FORCE GROUND COMBAT ELEMENT FIRE SUPPORT COORDINATOR

The air assault force GCE FSC takes the following actions:

- Receives operational notification.
- Begins mission analysis to determine available and needed means of fire support.
- Plots locations and capabilities for indirect fire support systems supporting the force.
- Estimates fire support needed.
- Obtains ammunition supply rate from S-4/S-3 of artillery unit, determines effects of ammunition supply rate on operation, and gathers information for development of fire support plan.
- Obtains PZs from S-3.
- Continues to gather information for development of fire support plan.
- Coordinates fire support requirements with S-3.
- Provides S-3 with available fire support recommendation for indirect fire preparations.
- Obtains LZs and flight routes from S-3.
- Obtains recommended targets from S-2. Develops air requests to support ground tactical plan.
- Completes fire support plan, Appendix 19 of Annex C of the OPORD.
- Submits fire support plan to S-3 for appropriate commander's approval; on approval, distributes.
- Receives OPORD.

> ***Note:*** Subordinate units develop their own fire support plans. The FSC coordinates and consolidates subordinate unit plans into the air assault plan.

SUBORDINATE UNIT COMMANDER

The subordinate unit commander takes the following actions:

- Receives operational notification.
- Gathers personnel and equipment data.
- Reports personnel and equipment to battalion staff. Receives maps.
- Receives battalion warning order.

- Issues company warning order.
- Determines initial supply requirements.
- Submits initial supply requirements to S-4.
- Begins preparation of air loading plans.
- Continues mission preparation.
- Obtains appropriate PZs, LZs, flight routes, and aircraft allocation from S-3.
- Continues mission planning.
- Obtains air movement plan from S-3.
- Completes air loading plan.
- Submits air loading plan to S-3.
- Receives OPORD.
- Analyzes mission.
- Develops fire support plan.
- Develops ground tactical plan.
- Prepares OPORD.

GROUND TACTICAL PLAN

All planning evolves from the ground tactical plan. The plan specifies actions in the objective area that ultimately accomplish the mission. See the following scenario.

The battalion commander is faced with three primary objectives—

- Primary objective number 1: LZ Snowbird.
- Primary objective number 2: Objective Z, the Ande Municipal Airport.
- Primary objective number 3: Link up with the mechanized force.

The battalion commander is determined to keep the operation as simple as possible. Therefore, one mission was assigned to each rifle company.

- Company I (reinforced) would secure primary objective number 1, LZ Snowbird. Company I would provide security at the LZ and guidance to all incoming assets. The company commander would exercise control over the LZ, provide guides for the incoming units, and maintain security to preclude paramilitary forces from disrupting the landing plan. Once Company L has arrived, Company I would become the battalion reserve.
- Company K (reinforced) would follow Company I into LZ Snowbird and immediately deploy to seize Objective Z, the Ande Municipal Airport. Company K would continue operations until it has secured complete control of the air facility. This control would be established to allow 6th Marine Expeditionary Force and the government of Grande to operate from the airstrip and use the buildings.
- Company L (reinforced) would initially act as the reserve unit. Company L would help the designated PZ control officer, Commanding Officer, Headquarters and Service Company. Company L would provide security for the PZ and personnel as needed to assist units moving from the staging/assembly area to the PZ, as well as help load materiel into aircraft as needed. On order, Company L would load at the PZ, land in LZ Snowbird, and conduct the linkup operation.

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

LANDING PLAN

The landing plan must support the ground tactical plan. See the following scenario.

The mission commander examined the following:

- Assault support assets were available to enable two reinforced companies to be airlifted simultaneously. The battalion commander decided to lift Company I (reinforced) en mass. They would land in LZ Snowbird at 0600 and secure it. Fifteen minutes later, Company K (reinforced) would land in a single wave.
- Once Company K had departed the LZ, the rest of the battalion could commence air movement. Initially, the battalion command post would land with Company K and set up in the vicinity of LZ Snowbird. On signal, the battalion command post would establish itself in the vicinity of the Ande Municipal Airport.
- At the conclusion of landing operations, Company I would remain in the areas adjacent to LZ Snowbird.

The landing plan sequences elements into the area of operation to ensure that units arrive at the designated location and at the designated time to execute the ground tactical plan. See the following scenario.

The following considerations were examined and decisions were made:

- Size and location of LZ.
- Anticipated forces in and around the LZ.
- Unit tactical integrity.
- Ensured all Marines were briefed and oriented.
- Ensured Company I is sufficiently task-organized and equipped to destroy the enemy in the area and secure the LZ.
- Ensured the landing plan offers flexibility in the event that circumstances require it.
- Planned supporting fires in and around the LZ for—
  - —Air movement.
  - —The landing.
  - —Subsequent operations.
- Ensured plans were made for resupply and CASEVAC.

AIR MOVEMENT PLAN

The air movement plan is based on the ground tactical plan and the landing plan. It specifies the schedule and provides instructions for air movement of Marines, equipment, and supplies. This plan is detailed in the ASLT. Furthermore, it provides coordinating instructions regarding air routes, control points, speeds, altitudes, and formations. The planned use of aviation fire support, security, and linkup operations should be included. See the following scenario on page D-11.

The air movement plan for this operation was developed by the air officer in coordination with the ACE. Tentative flight routes were selected by the AFL.

The air movement plan is prepared jointly by the GCE and the ACE. The air movement plan contains aircraft allocations; designates the number and type of aircraft for each wave of the operation; specifies departure points; identifies routes to and from the PZ and LZ; and identifies loading, lift-off, and landing times. The air movement plan ensures that all required personnel and materiel are accounted for in the movement and that each aircraft is properly loaded, correctly positioned, and directed to the LZ.

LOADING PLAN

The loading plan is based on the air movement plan and detailed in the ASLT and ASSAT. Unit integrity is essential; however, personnel weapons and equipment may be spread loaded so that C2 assets, combat power, and an appropriate weapons mix arrive in the LZ ready for combat. A bump plan ensures that essential personnel and equipment are loaded ahead of less critical loads in case of aircraft breakdowns or delays. See the following scenario.

The loading plan for 3d Battalion, 6th Marine Regiment was contained in the battalion SOP for air assault operations. Load plans were carefully coordinated with the aviation elements and verified by the embarkation officer and the air officer. The loading plan would control the movement of troops, supplies, and equipment at the PZ; designate unit loading sites; and control the arrival, loading, and departure of all aircraft. Third Battalion, 6th Marine Regiment SOP was detailed, well-planned, and well-rehearsed. The PZ was selected by the battalion commander and the headquarters commandant was designated PZCO.

STAGING PLAN

Loads stand by at the PZ ready for the arrival of the aircraft. The staging plan restates the PZ organization, defines routes to the PZ, and provides instruction for link up with the aircraft. See the following scenario.

The staging plan was based on the loading plan and was covered in the battalion SOP for air assault operations. It prescribed the arrival times of units at the PZ in the proper order for movement.

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APPENDIX E
LANDING ZONE BRIEF

The LZ brief is given prior to the assault support aircraft landing in the LZ. The LZ brief radio transmissions are addressed by line number. Unknown or not applicable line numbers are referred to as negative. For example: line one-986320, line two-negative, line three-negative, line four-Calm, 3 knots east[0], etc.

1. ZONE LOCATION

   (Geographical feature, checkpoint, grid, road/intersection, etc.)

2. MARKED BY

   (Air panel, buzzsaw, chemlights, infrared strobes, smoke, talk-on, etc.)

3. OBSTACLES

   (Power lines, trees, height)

4. WINDS ARE FROM _____

   (Tell where they are blowing from with the nearest subcardinal direction and estimate speed in knots)

5. FRIENDLIES

   (Direction/distance from LZ, orientation)

6. ENEMY

   (Direction/distance from LZ, orientation)

7. REMARKS

   (Dimensions and slope of LZ, where to land with reference to mark)

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APPENDIX F
ASSAULT SUPPORT
SERIAL ASSIGNMENT TABLES

Assault Support Serial Assignment Table							
Wave	Serial	Troop Unit	No.	Supplies and Equipment	Weight		
					Personnel	Equipment	Total

Assault Support Serial Assignment Table (ASSAT) Bump Plan			
Wave	Bump Plan in Order of Priority	Description	Notes

APPENDIX G
SAMPLE AIR ASSAULT WARNING ORDER

Situation:

- Enemy forces.
- Friendly forces:

  Company_____ Likely to move by aircraft.

  Company_____ Likely to move by aircraft.

  Company_____ Likely to move by aircraft.

  Attachments:

  _____ likely to move by_____.

  _____ likely to move by_____.

Probable Mission:

- Commander's intent:_____.

General Instructions:

- Anticipated PZs: _____, _____, _____, _____.
- Anticipated LZs: _____, _____, _____, _____.
- Anticipated objectives: _____, _____, _____, _____.
- Anticipated aircraft availability:

  Company_____, CH-53E:_____, MV-22B: _____, UH-1Y:_____.

- Anticipated number of lifts:

  Company_____, CH-53E:_____, MV-22B: _____, UH-1Y:_____.

- Anticipated number of lifts:_____.

Special Instructions:

- PZ control officers:_____.
- PZ control officers:_____.
- HST requests from landing support battalion:_____.
- Personnel:_____.
- Equipment:_____.
- Special equipment:_____.

APPENDIX H
AIR ASSAULT MISSION PLANNING CHECKLIST

This mission planning checklist is designed to guide detailed mission planning after problem framing, IPB, initial GCE coordination, and ACE estimates of supportability have been completed. If possible, key personnel (mission commander, AMC, AFL, AFC, EFL, FSC, S-2) should be collocated throughout the planning process and continuously share information as the plan is refined.

	Enemy Situation. The outputs of IPB must be considered throughout planning. A streamlined request for information process is critical to developing a sound tactical plan and will enhance planning efficiency.
	Rules of Engagement. Rules of engagement will be considered during problem framing. A requirement for supplemental ROE may be identified during detailed planning. These requirements should be requested early.
	Ground Tactical Plan. Before an air assault operation can be planned, the ground scheme of maneuver must be tight. It is the foundation of a successful air assault operation.
	• GCE mission:
	– Air assault task force mission.
	– Commander's intent.
	– Objectives.
	– General scheme of maneuver.
	– PZ/LZ (X, Y, offset landing from objective).
	– Timeline/expected time on deck/required CAS coverage.
	– L-hour/H-hour (purpose/not later than/effects of changes).
	– Other joint/MAGTF assets/missions (aviation/ground).
	– Map datum/imagery/gridded reference matrix.
	• *GO* criteria:
	– Number of Marines (minimum on deck, first wave, total, extract).
	– Equipment.
	– Fire support (organic and nonorganic).
	• *NO GO* criteria:
	– Threat.
	– Weather.
	• Fires:
	– Direct fires: type/location.
	– Indirect fires: type/location/azimuth of fire (AOF)/principal direction of fire (PDF)/ordinate/communications/ preplanned targets/scheduled/TRPs/round count/direct support/general support.
	– Aviation: number/type/ordnance/TOS/playtime/call signs/communications.
	– FSCMs/ACMs.
	– Control/approval of fires/DAS to CAS transition/transfer of terminal control.

	– Priority of fires/EFST.
	– Pre L-hour fires.
	– Reactive suppression of enemy air defenses (RSEAD).
	– Attack guidance matrix (AGM)/HPT list/damage criteria/target priorities.
	– Battlefield illumination.
	• Current friendly situation:
	– Location/marking.
	– Capabilities (communications, weapons, target marking, joint terminal air controller/joint forward observer).
	– Concurrent operations.
	• Objective area considerations:
	– Movement to objective (as applicable).
	– Actions on the objective.
	– Phase lines.
	– Communications plan (tactical air direction/tactical nets).
	– Location of key personnel (commanding officer/XO/first sergeant/TACP/fire support team/corpsman).
	– TACP capabilities (radios/target marking/designating/video data link/digitally aided CAS).
	– Signal plan.
	• Contingencies:
	– Immediate re-embark (trigger/signal [primary/alternate]).
	– Emergency extract plan (trigger/signal [primary/alternate]).
	– CASEVAC plan/levels I, II, III facilities/casualty collection point (trigger/signal [primary/alternate]).
	– Detainee plan—how many and destination.
	– Resupply time—event driven and weight.
	– Airborne reaction force/QRF location/trigger/communications/response time/assets.
	• Execution checklist.
	Landing Plan. The landing plan is designed to support the ground tactical plan. It contains the details of how the assault force will be inserted and extracted, what fires will support the insert and extract and the C2 procedures for the assault. The number and type of aircraft and LZs available will affect the speed of the combat build-up in the objective area.
	• Mission assets/location/routing/TOS:
	– Offensive air support (OAS).
	– Assaults.
	– Command and control.
	– EW.
	– AAW/crisis action planning (CAP).
	– UAS.
	• Key personnel:
	– Mission commander.
	– AMC: call sign/net/location.
	– AFL: call sign/net/location.
	– EFL: call sign/net/location.

	– Alternates.
	– AFC.
	– TACP/FSC.
	• Timeline:
	– Mission.
	– Planning.
	• Environmental considerations:
	– Solar/lunar almanac program.
	– Electrical/optical tactical decision aids/absolute humidity.
	– Shadowing.
	– Winds:
	1. Acoustic signature.
	2. Battlefield obscurants/marks.
	3. Assault landing heading.
	4. Hover holds.
	– Temperature: aircraft performance.
	– Cloud cover:
	1. Aid/degrade NVG performance.
	2. Fixed-wing CAS and/or rotary-wing CAS/UAS.
	– Visibility:
	1. LZ/target acquisition.
	2. Tactics.
	3. Formations.
	– Terrain analysis:
	1. LOS communications analysis.
	2. Visual/senor acquisition:
	a. Holding area/battle position.
	• LZs:
	– Location:
	1. Primary/alternate (trigger to use alternate).
	2. Size/shape/composition/condition/elevation/slope/obstacles/key terrain.
	– Approach/departure path:
	1. Primary/alternate.
	2. IP/exit point.
	3. Escort location/type.
	– Landing plan (formation/offset/sites/points/time between elements and waves).
	– Debarkation and consolidation.
	– Time on deck.
	– Threat location/avenues of approach.
	– Winter/Devil.
	– *GO/NO GO* criteria for assaults.
	– Prohibitive interference for escorts.

	– Wave-offs.
	– Evasive actions.
	– Disembark authority (possible triggers or conditions to delay disembarkation).
	– Accountability reporting/communications path.
	• Fires
	– Indirect fires: type/location/AOF/PDF/ordinate/communications/preplanned targets/scheduled/TRPs/round count/direct support/general support.
	– Aviation: number/type/ordnance/TOS/call signs/communications.
	– FSCMs/ACMs.
	– Fires geometry.
	– Weapon to target match.
	– Control/approval of fires/DAS to CAS transition/transfer of terminal control.
	– Priority of fires/EFST.
	– Pre L-hour fires/fires in support of assaults landing (all waves/extract).
	– RSEAD.
	– AGM/HPT list/damage criteria/target priorities.
	– ITG:
	1. Far (orients flight to LZ).
	2. Near (marks actual LZ or landing points).
	3. Primary/alternate.
	4. Trigger/communications procedures.
	– Weapons condition.
	– Sectors of fire.
	– Battlefield illumination:
	1. Type/location/duration.
	2. Trigger/communications procedures.
	• Extract considerations:
	– Time/trigger/location/communications path.
	– No communications plan.
	– Location of MACO gate/MACO procedures/ITG planning:
	1. Extract by serial or maximum lift.
	2. Minimum force prior to last wave.
	• Contingencies:
	– Contingency holding/response time
	– Immediate re-embark (trigger/signal [primary/alternate]).
	– Emergency extract plan (trigger/signal [primary/alternate]).
	– CASEVAC plan/levels I, II, III facilities/casualty collection point (trigger/signal [primary/alternate]).
	– TRAP planning/TRAP force and launch criteria/downed aircraft en route or in zone.
	– Detainee plan—how many and destination.
	– Resupply time—event driven and weight.
	– Airborne reaction force/QRF location/trigger/communications/response time/assets.

	• Communications review:
	– Radio in/out:
	1. Aircraft.
	2. GCE.
	– Mandatory communications (IP-LZ integration):
	1. Net.
	2. Priority of communications.
	– MACCS reporting.
	– Situation updates.
	– Execution checklist items.
	– Chattermark.
	– Emission control (EMCON).
	– No communications plan.
	Air Movement Plan. The air movement plan supports the landing plan and ultimately the ground tactical plan. It specifies the air movement schedule and provides instruction for the movement of troops, equipment, and supplies from the PZ to the LZ. The air movement plan must integrate and deconflict mission assets.
	• Mission assets: location/routing/TOS:
	– OAS.
	– Assaults.
	– C2.
	– EW.
	– AAW/CAP.
	– UAS.
	• Key personnel:
	– Mission commander.
	– AMC: call sign/net/location.
	– AFL: call sign/net/location.
	– EFL: call sign/net/location.
	– Alternates.
	– AFC.
	– TACP/FSC.
	• Timeline:
	– Mission.
	– Planning.
	• Environmental considerations:
	– Solar/lunar almanac program.
	– Shadowing.
	– Winds.
	1. Acoustic signature.
	2. Battlefield obscurants/marks.
	– Temperature.
	1. Aircraft performance.

	– Cloud cover:
	1. Aid/degrade NVG performance.
	– Visibility:
	1. Target acquisition.
	2. Tactics.
	3. Formations.
	– Terrain analysis:
	1. LOS communications analysis.
	2. Visual/sensor acquisition.
	3. Terrain masking/clutter.
	• Ingress/egress:
	– Escort requirements/assets/type/prohibitive interference.
	– Rendezvous:
	1. Assault.
	2. Escort.
	– Profile (terrain flight/low altitude tactics/medium altitude).
	– First/last probable point of enemy contact.
	– Power checks.
	– Fire control, emissions, navigation, communication, expendable checks.
	– Weapons checks.
	– Aircraft survivability equipment settings/indications/expendable usage.
	– Distance/time/fuel analysis:
	1. Mission (hold short)/Joker/Bingo.
	2. Diverts.
	3. FARP/tanker:
	a. Fuel/ordnance requirements.
	b. Priority for fuel.
	– Goggle/de-goggle procedures.
	– CBRN.
	– Evasive actions:
	1. Slide/scram criteria.
	2. Scatter plan/rendezvous.
	– Inadvertent instrumental meteorological conditions.
	– Loss of visual contact/rendezvous.
	– Downed aircraft/on-scene commander: asset attrition.
	– Holding.
	– Battle damage checks.
	– Route (special instructions coordination):
	1. Primary/alternate.
	2. Authority to change.
	3. Formation.
	4. Airspeed.

	5. Altitude.
	6. Lighting.
	7. Communications.
	8. Obstacles.
	9. Navigation procedures.
	10. NVD considerations.
	11. Identification, friend or foe/lame duck procedures.
	• Fires:
	– Indirect fires: type/location/AOF/PDF/ordinate/communications/preplanned targets/scheduled/TRPs/round count/direct support/general support.
	– Aviation: number/type/ordnance/TOS/call signs/communications.
	– AAW/CAP/bullseye.
	– FSCMs/ACMs.
	– Fires geometry.
	– Control/approval of fires.
	– RSEAD.
	– Weapons condition.
	• Contingencies:
	– CASEVAC plan/levels I, II, III facilities/casualty collection point (trigger/signal [primary/alternate]).
	– TRAP planning/TRAP force and launch criteria/downed aircraft en route or in zone.
	– Resupply time—event driven and weight.
	– Airborne reaction force/QRF location/trigger/communications/response time/assets.
	• Communications review:
	– Radio in/out:
	1. Aircraft.
	2. GCE.
	– Communications requirements.
	– MACCS reporting.
	– Situation updates.
	– FARP/air-to-air refueling.
	– Execution checklist items.
	– Chattermark.
	– EMCON.
	– No communications plan.
	Load Plan. The load plan assigns serials, personnel and cargo, to each aircraft in each wave. The PZ is an objective area and must be planned in detail. Once the ASLT is complete, the AFC can complete the ASSAT. Pickup zone operations will set the tempo for the air assault and are the first opportunity to gain momentum. It must be simple, briefed in detail, and understood by the ACE, GCE, and LCE.
	• Mission assets: location/routing/TOS:
	– CAS.
	– Assaults.
	– C2.

	– EW.
	– AAW/CAP.
	– UAS.
	• Key personnel:
	– AMC: call sign/net/location.
	– AFL: call sign/net/location.
	– EFL: call sign/net/location.
	– Alternates.
	– AFC.
	– Aviation ground support/FARP officer in charge.
	– MMT/air boss.
	– PZ control officer.
	– MACO.
	• Timeline:
	– Mission.
	– Planning.
	• Environmental considerations:
	– Solar/lunar almanac program.
	– Shadowing.
	– Winds:
	1. Acoustic signature.
	2. Battlefield obscurants/marks.
	3. Assault landing heading.
	4. Hover holds.
	– Temperature: aircraft performance.
	– Cloud cover: aid/degrade NVG performance.
	– Visibility:
	1. Target acquisition.
	2. Tactics.
	3. Formations.
	– Terrain analysis:
	1. LOS communications analysis.
	2. Visual/sensor acquisition.
	• PZ operations:
	– Marking of friendly units and positions.
	– LZs:
	1. Location/size/shape/composition/condition/elevation/slope/obstacles/key terrain approach/departure path.
	2. Primary/alternate.
	3. IP.
	4. Escort location/type.
	– Landing plan (formation/sites/points).

	– ITG:
	1. Far (orients flight to LZ).
	2. Near (marks actual LZ or landing points).
	3. Primary/alternate.
	4. Trigger/communications procedures.
	– Wave-offs.
	– MACO gate/MACO procedures.
	– Time on deck.
	– ASLT.
	– ASSAT.
	– Serial breakdown: serial/passenger weight.
	– HST/external loads.
	– Priority serials/location of key personnel.
	– Bump plan/straggle plan/drop dead.
	– Aircraft marking.
	– Accountability reporting/communications path.
	– Threat location/avenues of approach.
	– FARP:
	1. Fuel/ordnance requirements.
	2. Priority for fuel.
	• Communications review:
	– Radio in/out:
	1. Aircraft.
	2. GCE.
	– Communications requirements.
	– MACCS reporting.
	– Situation updates.
	– Execution checklist items.
	– Chattermark.
	– EMCON.
	– No communications plan.
	Staging Plan. The staging plan assembles units and air assets in the PZ in preparation for loading. A logical and well thought out staging plan will increase the efficiency of the load plan. This phase encompasses departure point operations and routing to the PZ. Refer to the air movement plan for routing considerations.
	• Timeline:
	– Mission.
	– Planning.
	• Staging timeline:
	– GCE arrival: HST/external loads.
	– ACE arrival.
	– Alert posture.

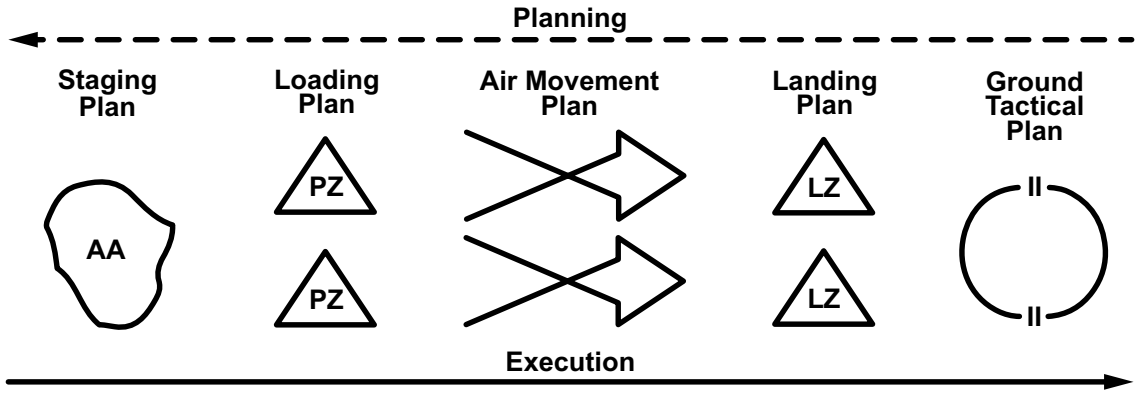
	• Airfield:
	– Marshalling.
	– Arming.
	• Amphibious shipping:
	– Deck cycle.
	– Ready cycle.
	– Point of intended movement.
	– Cross-deck requirements.
	• Communications review:
	– Radio in/out:
	1. Aircraft.
	2. GCE.
	– Communications requirements.
	– MACCS reporting.
	– Situation updates.
	– FARP.
	– Execution checklist items.
	– Chattermark.
	– EMCON.
	– No communications plan.

APPENDIX I
FIVE BASIC PLANS FOR AN AIR ASSAULT OPERATION

Successful use of assault support aircraft requires a careful analysis of METT-T and detailed, precise reverse planning. The formats in this appendix provide a guide for the development of the five basic plans that comprise an air assault operation, which are—

- Ground tactical plan.
- Landing plan.
- Air movement plan.
- Loading plan.
- Staging plan.

As discussed earlier in chapter 3, planning is conducted in reverse order beginning with the ground CONOPS and tactical plan for the mission. See figure I-1 for the planning versus execution sequence.



LEGEND

AA	assembly area
CASEVAC	casualty evacuation
RP	release point

Figure I-1. Air Assault Operations Planning vs. Execution Sequence.

GROUND TACTICAL PLAN

All planning revolves around this plan. The plan specifies actions in the objective area that ultimately accomplish the mission. The following information provides a guide that can be used to establish the plan:

- MAGTF commander's mission and intent.
- GCE commander's mission and intent.
- AFC mission and intent.
- Forced time schedule:
  –Time that assault elements land (L-hour).
  –Reverse planning sequence:

    1. Time/event
       ____ /L-hour.
       ____ /First assault waves arrive in PZ.
       ____ /Assault element arrives in assembly area.
       ____ /Assault element arrives in holding area.
       ____ /Assault element arrives in PZ.
       ____ /Issue warning order.
       ____ /Intelligence (S-2) brief.
       ____ /Mission commander's guidance.
       ____ /Staff briefs.
       ____ /Operations order.
       ____ /Mission brief.

- Actions required in the objective area:
  –Secure LZ:_____(name/coord)_____.
  –Establish LZ control at above LZs.
  –Secure objectives:_____(name/coord)_____.
  –Perform the following actions upon securing objectives:_____.

- Mission assigned to subordinate units:
  –Company ____.
  –Company ____.
  –Company ____.
  –Company ____.
  –Attachments with assault elements:____.
  –Follow-on attachments:____.
- Coordinating instructions.

LANDING PLAN

The landing plan must support the ground tactical plan. 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 following information provides a guide that can be used to establish the plan:

- Size and location of primary and alternate LZ(s).
  –Primary LZ:
  Size _____ Location _____
  Size _____ Location _____
  Size _____ Location _____
  Size _____ Location _____
  –Alternate LZ:
  Size _____ Location _____
  Size _____ Location _____
  Size _____ Location _____
  Size _____ Location _____
- Known and suspected enemy location in and around the LZ:
  Size _____ Location _____
  Size _____ Location _____
  Size _____ Location _____
  Size _____ Location _____
- Unit tactical integrity and spread loading:
  –Squads in one aircraft.
  –Platoons in one wave.
  –Key leaders NOT loaded on the same aircraft.
  –Crew-served weapons and crews sufficiently spread loaded.
- All members briefed and oriented to the landing:
  –Briefed on actions at the LZ.
  –Briefed on actions to secure the LZ.
- Task organization:
  –For landing.
  –Subsequent to landing.

- Determine who decides to switch to an alternate LZ:
  –AFC.
  –AMC.
  –Assault flight leader.
- Factors in deciding to switch to alternate LZs:
  –LZ too hot.
  –Downed aircraft in LZ.
  –Escort warning of ambush.
  –Other.
- Plan for supporting fires:
  –Planned fires for air movement.
  –Planned fires for landing.
  –Preparation fires in LZ.
  –Preparation fires near LZ.
  –Distant preparation fires.
  –Preplanned fires in and around LZ.
  –On-call fires.
  –Planned fires subsequent to landing.
- Plans for CASEVAC:
  –Air.
  –Ground.
- Plans for resupply:
  –Air.
  –Ground.

AIR MOVEMENT PLAN

The air movement plan is based on the ground tactical and landing plans. The plan specifies the air movement schedule and provides instructions for the air movement of troops, equipment, and supplies from PZs to LZs. The following information provides a guide that can be used to establish the plan:

- Tentative flight routes are selected by the AFL. The AFC's S-2 studies the routes and makes recommendations. The AFC's S-3 closely notes checkpoints and control features.
- The air movement schedule is developed to accomplish the landing plan. The air movement schedule is provided by the AFL and AMC. The AFC studies the schedule and makes recommendations.
- Air speed, flight altitudes, and aircraft formations are determined by the AFL.

- Escort of transport aircraft and air fire support during air movement is determined by the AMC.
- Aircraft availability information is provided to the AFC:
  –CH-53E____.
  –UH-1Y____.
  –AH-l____.
  –MV-22____.
  –Fixed-wing available:____.
- The wave allocation of transport aircraft is determined by the AFC.
- Wave allocation of escort aircraft is determined by the AMC.
- Air points of departure from a start point in the air to the LZ are determined by the AMC.
- Loading times are determined by the AMC.
  –Wave PZ load time:

  1_____.
  2_____.
  3_____.
  4_____.

- Lift-off times are determined by the AMC.
  –Wave lift-off time:

  1_____.
  2_____.
  3_____.
  4_____.

LOADING PLAN

The loading plan is based on the air movement plan. It ensures that Marines, equipment, and supplies are loaded on the correct aircraft. Aircraft loads are also placed in priority to establish a bump plan (see table I-1). The following information provides a guide that can be used to establish the plan:

- Refer to paragraphs 5 and 6 of the guide for the air movement plan.
  –Review the total number (by type) of transport aircraft available.
  –Review the number of aircraft by type allocated to each wave.
- Determine which personnel, weapons, and equipment will be loaded on each aircraft.
  –Maintain unit integrity.
  –Spread load key personnel, weapons, and equipment.

Table I-1. Example of an Individual Bump Plan.

BUMP PLAN		
Aircraft	**Unload**	**Sequence**
101-1	Off 1st	Johnson
	2nd	Jones
	3rd	Smith
	4th	Howard
	5th	Stevens
	6th	Britt
	7th	Randall
	8th	Bump entire load

- Determine if the preparation of a written document is necessary. An informal document lists the personnel, key weapons, and equipment by aircraft. A formal document includes an ASSAT.
- Establish a bump plan so that essential personnel and equipment are NOT unnecessarily delayed in case of aircraft complications.
  - The plan defines who (by name) gets off each aircraft first, second, third, etc., in the event the aircraft cannot carry a full load.
  - The bump plan also defines when each aircraft load will subsequently be loaded in the event an aircraft cannot fly.
- The ground commander designates unit loading sites.
- The ground commander establishes the plan and procedure for controlling the arrival, loading, and departure of all aircraft.
- The ground commander designates a PZ control officer.

STAGING PLAN

The staging plan establishes the specific sequence, loads, ground routes, guides, and times from the assembly area to the holding area and from the holding area to the PZ. The example listed in table I-2 provides a guide that can be used to establish the plan.

Table I-2. Example of a Staging Plan

Sequence	Load	Route	Guide	Depart Hold Area	Aerial Rendezvous PZ
1	101-1	A	Lt Jones	0500	0515
2	101-2	B	SSgt Brown	0500	0515
3	101-3	C	Sgt Smith	0500	0515
4	102-1	A	Lt Wells	0515	0530

APPENDIX J
AIRCRAFT AVAILABILITY TABLE

AIRCRAFT AVAILABILITY TABLE							
Unit and Designation	**Aircraft T/M/S**	**Aircraft Available**	**Aircraft Origin**	**Deck Launch Capacity**	**Troops**	**Cargo**	**Remarks**
Notes:							

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APPENDIX K
ASSAULT SUPPORT LANDING TABLE

ASSAULT SUPPORT LANDING TABLE										
			From		Time			Destination LZ		Troop/Units/ Equipment/ Total Weight
Wave	Serial	Type Aircraft	Aircraft Origin	PZ/Ship/ Airfield	Load	Launch	Land	Primary	Alternate	

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APPENDIX L
AIRCRAFT CHARACTERISTICS

To efficiently load an MAATF aboard assault support aircraft, ground commanders and staffs must know the exact composition of the force, the essential characteristics of the types of aircraft to be used for the operation, and the methods of computing aircraft requirements.

Maximum aircraft loads are affected by altitude and temperature and will differ widely according to topography and climate conditions common to specific zones or areas of military operations. Loads will further vary based on the location of, approaches to, and exits from LZs; pilot proficiency; aviation unit SOP; type of engine in the aircraft; and age of both aircraft and aircraft engine. Therefore, two identical aircraft may not be able to pick up and carry identical loads.

This appendix discusses the general characteristics of Marine Corps rotary-wing aircraft. Refer to the NTTP 3-22.5 Tactical Pocket Guide series for detailed information, technical data, and guidance for computing aircraft requirements. Also see NTTP 3-22.5-ASTACSOP for information and examples of detailed air loading and air movement forms. The same air movement forms common to amphibious operations can be used for subsequent operation ashore when such movement documentation is essential in planning operations.

AIRCRAFT AVAILABILITY

Aircraft availability is the overriding consideration in air assault operations. It is directly influenced by the adequacy and efficiency of maintenance and supply activities and aircraft utilization and scheduling procedures, as well as by the distance of support units from the operating units.

The supporting and supported commanders should be aware that everyday use, over an extended period, of all available aircraft results in a reduced mission availability rate for future operations. In the course of sustained operations, aircraft maintenance must be carefully considered and programmed so that heavy flying requirements will not cause a continual decrease in aircraft availability.

Supported unit commanders, staffs, and logistic planners must conserve the use of available aircraft by—

- Establishing acceptable availability rates prior to operational commitment.
- Establishing FARPs to eliminate flying hours expended for those purposes.

- Utilizing surface means for transportation for logistic support whenever possible.
- Coordinating logistic planning to ensure full utilization of all aircraft sorties and to avoid duplication of effort.

CAPABILITIES AND LIMITATIONS

Capabilities

Assault support aircraft have the following capabilities:

- Under normal conditions, assault support aircraft can ascend and descend at steep angles, a capability that enables them to operate from confined and unimproved areas.
- Marines and their combat equipment can be unloaded from an assault support aircraft with fast ropes and rappelling means while the aircraft hovers a short distance above the ground. A rope ladder can be used to load personnel when the aircraft cannot land.
- Cargo can be transported as an external load and delivered to areas inaccessible to other types of aircraft or ground transportation.
- Because of a wide speed range and high maneuverability at slow speeds, rotary-wing aircraft can fly safely and efficiently at a low altitude, using terrain and trees for cover and concealment.
- An assault support aircraft's ability to fly at high or low altitudes and to decelerate rapidly, combined with its capacity for slow forward speed and nearly vertical landing, enables it to operate under marginal weather conditions.
- Assault support aircraft can land on the objective area in a tactical formation, LZs permitting.
- Assault support aircraft can operate at night and in periods of reduced visibility.
- Aircraft flying at low levels are capable of achieving surprise, deceiving the enemy at the LZs, and employing shock effect through the use of suppressive fires.
- Engine and rotor noise may deceive the enemy as to the direction of approach and intended flight path.

Limitations

Limitations of Marine Corps assault support/rotary-wing aircraft include—

- The high fuel consumption rate of rotary-wing aircraft imposes limitations on range and aircraft load. Aircraft may reduce fuel load to permit an increased aircraft load. However, reducing the fuel load reduces the range and flexibility factors, which must be considered in planning.
- Hail, sleet, icing, heavy rains, and gusty winds (45 knots or more) limit or preclude use of aircraft.
- Engine/rotor noise may compromise secrecy.
- The load carrying capability of rotary-wing aircraft decreases with increases of altitude, humidity, and temperature. This limitation may be compensated for through fuel load reduction.
- Crosswinds may affect the selection of direction of landing and lift-off.

MV-22 CHARACTERISTICS

The characteristics of the MV-22 are as follows (see fig. L-1 on page L-4 for a visual representation):

Aircraft type/models:	MV-22B
Dimensions:	
Height	22 feet 1 inches
Weight	36,000 pounds (empty)
	52,600 (vertical takeoff)/57,000 (short takeoff)/ 60,500 (self-deploy)
Width	84 feet 7 inches
Length	57 feet 4 inches
Airspeed:	
Maximum endurance	130 knots calibrated airspeed (KCAS)
Maximum range	215 KCAS
Maximum airspeed	275 KCAS
Cruise	220 KCAS
Tactical cruise	240 KCAS
Fuel capacity:	
Pounds	11,700 (13,750 with aft sponson tank)
Gallons	1,720 (2,021 with aft sponson tank)
Removable	3 x ~2,200 pound Mission Auxiliary Fuel Tank System mission configurable fuel tanks to support aviation-delivered ground refueling missions
Payloads:	24 seats
	12,500 pounds external (hook limit)
	12 litters
Endurance:	3+00, air-to-air refueling capable
Weapons systems:	GAU-16/21 or M240D tailgun, belly-mounted GAU-17, LUU-2, LUU-19

Other systems:	Global Positioning System (GPS), forward-looking infrared (FLIR)

Communications equipment:

2 x ARC-210	UHF/VHF/FM radios capable of HAVE QUICK II/single-channel ground and airborne radio system (SINCGARS)/narrowband satellite communications (SATCOM) and direction finding with embedded encryption
Tactical data link	AYK-28 Blue Force Tracker with messaging capability

Additional capability includes antenna connections for Marine-portable radios. Limited airframes possess wideband SATCOM system for additional data communication capabilities.

Aircraft survivability equipment:

Radar warning receiver (RWR)	APR-39A(V)2; APR-39C(V)2
Expendables	ALE-47
Missile warning	AAR-47
Directed infrared countermeasure	AAQ-24

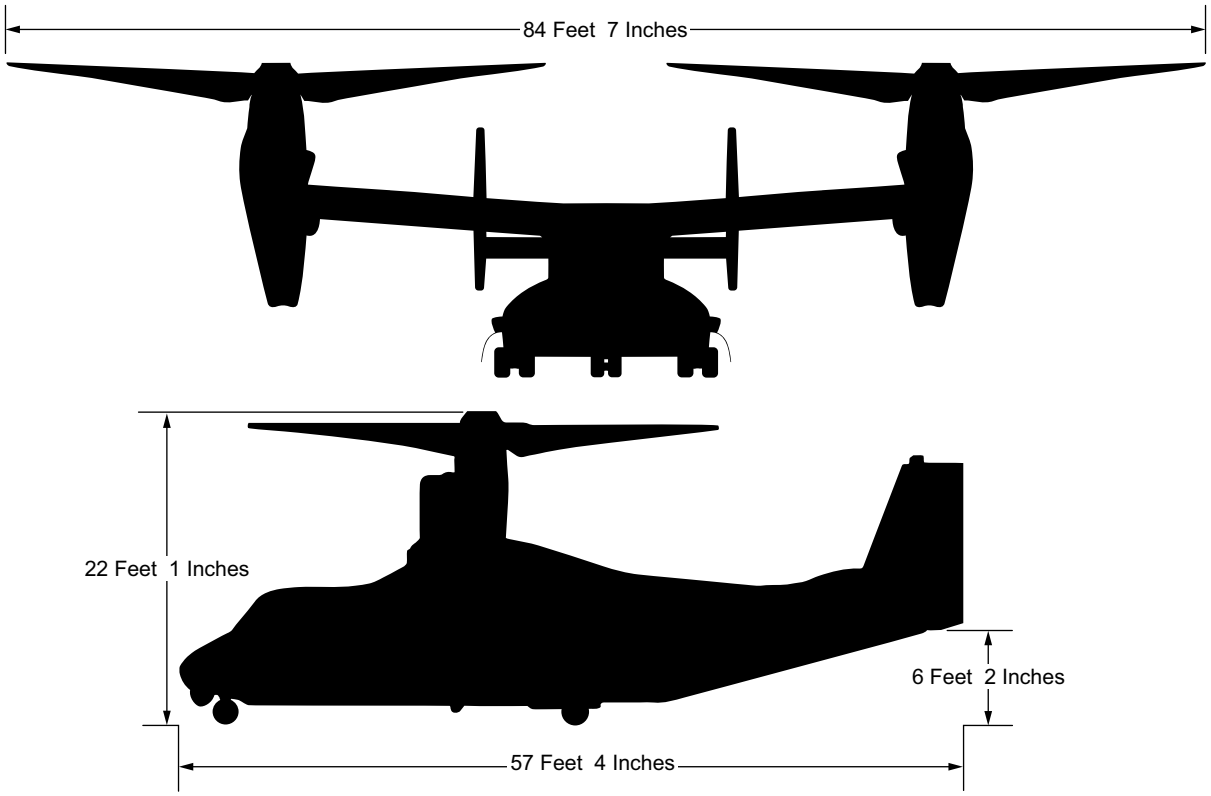

Figure L-1. MV-22 Dimensions.

CH-53E CHARACTERISTICS

The characteristics of the CH-53E are as follows (see fig. L-2 on page L-6 for a visual representation):

Aircraft type/models:	CH-53E
Dimensions:	
Height	28 feet 4 inches
Weight	43,800 pounds
Maximum gross weight	73,500 pounds
Rotor diameter	79 feet
Length	99 feet .5 inches
Airspeed:	
Maximum endurance	70 knots indicated airspeed (KIAS)
Maximum range	130–140 KIAS
Maximum airspeed	150 KIAS
Fuel capacity:	
Pounds	15,500 (aircraft fuel cells)
Gallons	2,277
Removable	3 x 5,400 pounds Tactical Bulk Fuel Delivery System mission configurable fuel tanks to support aviation-delivered ground refueling missions
Payloads:	28 seats
	43 seats with centerline seating
	Cargo roller system for internal cargo

Note: Centerline seating not available with ballistic protection system installed.

	36,000 pounds external (hook limit)
	24 litters max
Endurance: typical	3+30 hours, helicopter air-to-air refueling capable
Endurance: best case	4+30

Weapons systems:

Guns	3 x GAU-21
Other systems	GPS, FLIR, heads-up display

Communications equipment:

3 x ARC-210	UHF/VHF/FM radios capable of HAVE QUICK II/SINCGARS/ narrowband SATCOM with KY-58
Tactical data link	AYK-28(V)2 Blue Force Tracker/Electronic Data Manager

Additional capability includes antenna connections for Marine-portable radios.

Aircraft survivability equipment:

RWR	APR-39
Expendables	ALE-47
Missile warning	AAR-47
Directed infrared countermeasure	AAQ-24
Ballistic protection system	Removable, mission configurable

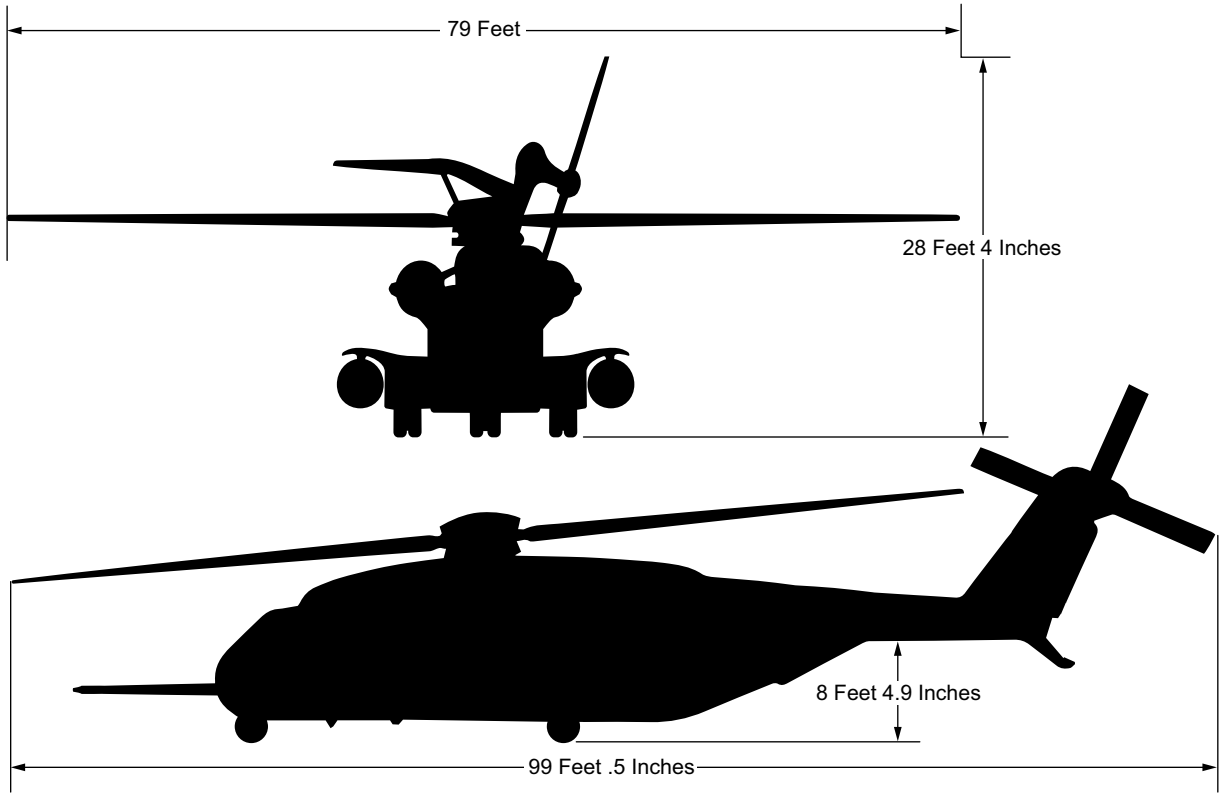

Figure L-2. CH 53E Dimensions.

UH-1Y CHARACTERISTICS

The characteristics of the UH-1Y are as follows (see fig. L-3 on page L-9 for a visual representation):

Aircraft type/models:	UH-1Y
Dimensions:	
Height	14 feet 7 inches
Weight	18,500 pounds (maximum gross weight)
Rotor diameter	48 feet
Width (folded)	15 feet 1 inch
Length	58 feet 4 inches
Airspeed:	
Maximum endurance	60–70 KCAS
Cruise	120–140 KCAS, stores dependent
Maximum airspeed	170 KCAS
Fuel capacity:	
Pounds	2,650
Gallons	386
Endurance:	2+15 (flight profile/mission dependent)
Weapons systems:	
Guns	GAU-17
	M240D
	GAU-21
Rockets	LAU-61
	LAU-68
	High explosive, white phosphorous, red phosphorous, overt/covert illumination, flechette
Precision-guided munitions	AGR-19 (Advanced Precision Kill Weapons System)

Typical mission configuration:

Ordnance	14, 2.75-inch rockets; GAU-21/GAU-17
Passengers	5-inch standard seat configuration, 6 without rucks in seats, 6 with rucks with combat securing gear, 8 administrative without ordnance fast rope gantries (up to 2 per aircraft), external load (up to 4,000 pounds administrative without ordnance; combat planning estimate: 1,500-3,500 pounds)

Other systems:

EW Payload	ALQ-231
FLIR	AAQ-22E (with laser range finder, laser designator, infrared laser pointer, and color charged coupled device)

Communications equipment:

3 x ARC-210	UHF/VHF/FM radios capable of HAVE QUICK II/SINCGARS/narrowband SATCOM with KY-58 for encryption
Miscellaneous	ROVER/mIRC via PRC-117 F/G (referred to as C3 mission kit)

Aircraft survivability equipment:

RWR	APR-39B(V)2
Expendables	ALE-47
Missile warning	AAR-47(V)2

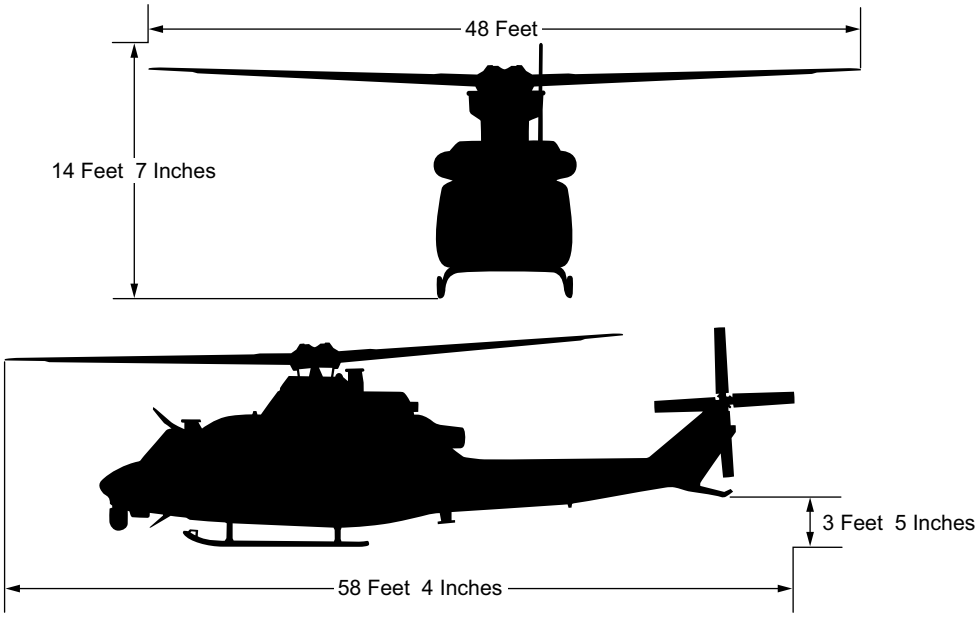

Figure L-3. UH-1Y Dimensions.

UH-60 A/L Black Hawk Characteristics

The characteristics for the UH-60 A/L/M Black Hawk are as follows (see fig. L-4 on page L-10 for a visual representation):

Aircraft types/models:	UH-60 A/L/M Black Hawk
Dimensions:	
Height	16 feet 11 inches
Weight	10,625 pounds (empty)
Maximum takeoff weight	23,500 pounds
Rotor diameter	53 feet 8 inches
Length	64 feet 10 inches
Airspeed:	
Maximum endurance	75 KIAS
Maximum airspeed	156 KIAS
Fuel capacity:	
Pounds	2,450
Gallons	362

Endurance:	
Payloads	9,000 pounds or 11 combat-loaded troops (16 with seats removed)
External capacity	23,500 pounds
Endurance	2+30 hours, depending on configuration
Weapons systems:	
Guns (defensive only)	2 x M240
Other systems:	
Navigation	Doppler/GPS navigation set
Communications equipment:	
FM	1 x ARC 210D SINCGARS with KY-58
VHF	1 x ARC-186
UHF	1 x ARC-164 HAVE QUICK II with KY-58
HF	1 x ARC-220 HF radio with KY-100
Aircraft survivability equipment:	
RWR	APR-39A(V)2
Infrared	ALQ-156A(V)2 or ALQ-162(V)2
Expendables	M-130

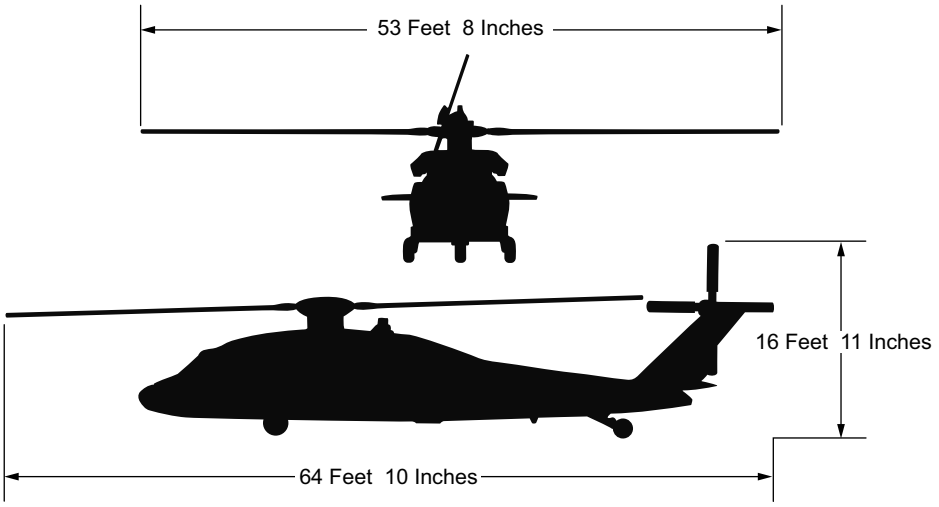

Figure L-4. UH-60 A/L/M Black Hawk Dimensions.

CH-47D/F CHINOOK CHARACTERISTICS

The characteristics of the CH-47D/F Chinook are as follows (see fig. L-5 on L-12 for a visual representation):

Aircraft type/models:	CH-47D/F Chinook
Dimensions:	
Height	18 feet 11 inches
Weight	23,400 pounds (empty)
Maximum gross weight	50,000 pounds
Rotor diameter	53 feet 8 inches
Length	98 feet 10 inches
Airspeed:	
Maximum endurance	80 KIAS
Maximum airspeed	170 KIAS
Fuel Capacity:	
Pounds	7,000
Gallons	1,030
Payloads:	20,000 pounds internal cargo
Passengers	33+3 crew, or 55 bench seating
Endurance:	2+20 hours
Other systems:	
Navigation	Doppler/GPS navigation set
Communications equipment:	
FM	1 x ARC 210D SINCGARS with KY-58
VHF	1 x ARC-186
UHF	1 x ARC-164 HAVE QUICK II with KY-58
HF	1 x ARC-220 HF radio with KY-100

Aircraft survivability equipment:

RWR	APR-39A(V)2
Missile defense	AAR-57(V)
Expendables	ALQ-212(V), M-130, and AAR-57

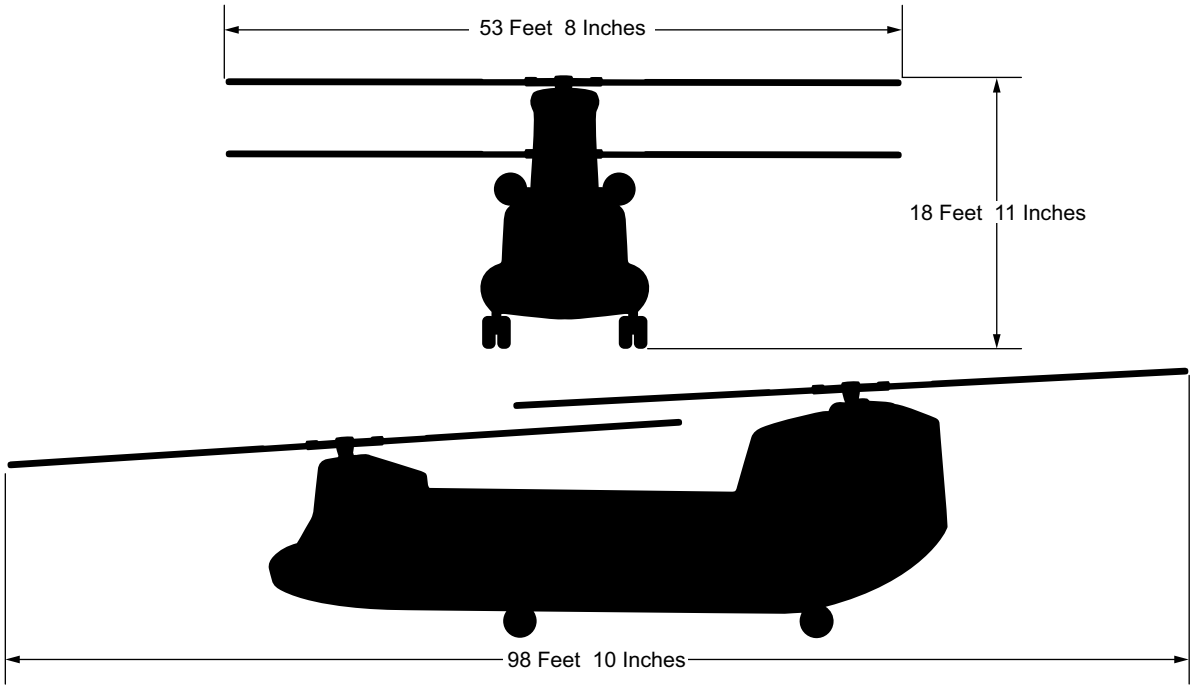

Figure L-5. CH-47D/F Chinook Dimensions.

APPENDIX M
COMBINED ARMS REHEARSAL

The combined arms rehearsal is a method or technique for all fire support agencies to conduct a walkthrough of the EFST by phase or stage of the fire support plan:

- Area overview and orientation of the battlespace.
- Ground tactical plan.
- Assets available/flows/fire support assets:
  - Rotary-wing (assault/escort/OAS).
  - Fixed-wing (EW/MIR/OAS).
  - UAS.
  - Indirect fires.
  - Ammunition/standard conventional load:
    - Artillery (munitions/AOF/series).
    - Mortars (munitions/PDF/series).
    - Naval surface fires (munitions/PDF/series).
    - Rotary-wing (munitions/battle positions).
    - Fixed-wing (munitions/IPs).
- GCE asset availability:
  - Reconnaissance.
  - Maneuver.
  - HIMARS.
  - Artillery (M777A2).
  - 81 mm mortars.

The combined arms rehearsal is chaired by the FSC. A combined arms rehearsal is particularly important when preparing for complex, integrated operations involving multiple fires agencies. It is crucial to synchronize the actions of all the units involved in the operation. The combined arms rehearsal is the confirmation of the fire synchronization meeting, it is **not** a discussion or coordination meeting. Inputs to the combined arms rehearsal are as follows:

- Mission commander's guidance for fires.
- Concept of fires.
- GCE EFST (refined).
- HPT list.
- AGM.

- Decision support matrix.
- Updated S-2 threat matrix.
- Specific mission-related ROE.

Attendees (mandatory roll call conducted) for the combined arms rehearsal are as follows:

- FSC.
- S-2.
- S-3.
- S-3A.
- Fire support team leader.
- FAC.
- Air officer.
- UAS representative.
- DASC representative.
- Artillery liaison officer (if required).
- GCE mortar representative (if required).
- EFL/alternate EFL.
- AFL's representative.
- AMC's representative.
- Tactical air representative.
- C2 and communications representative.
- EW representative.

The FSC chairs the combined arms rehearsal and is in charge of the coordination and flow of the meeting. The FSC briefs changes to the mission statement and/or the commander's concept of fires. The FSC will orient the staff members of the general GCE scheme of maneuver, conduct an area overview of the battlespace, and coordinate each EFST by phase or stage. Once the FSC has completed his/her portion of the brief, each agency will then brief their respective responsibility.

Specifically, the combined arms rehearsal affords all operational participants a collective brief of the EFST's Task, Purpose, Method, and Effects paragraphs:

Task

- The "what" of the EFST.
- FSC reviews the EFST objective.

Purpose

- The "why" of the EFST.
- FSC reviews the EFST function.

Method

- The "who" and "how" of the EFST.
- Upon completion of the brief, all executors know what to expect to say, hear, and do if the mission goes as planned.
- Usually briefed in the priority, location, observation, trigger, communications, and rehearsal format (referred to as PLOT-CR):
  - *Priority*. Priority of asset and/or the fires at that phase or stage.
  - *Location*. Location of the fire support asset and target, if known.
  - *Observation*. Observer for the fires and the observer's call sign and location.
  - *Trigger*. Trigger associated with those fires and/or the mission timeline.
  - *Communications*. On which communications net and to whom will those communications be made.
- *Rehearsal*. An actual rehearsal of the event. This may be rehearsal of the actual expected communications or as large as full rehearsal of the event.

Effects

- Quantifies what is successful accomplishment of the task.
- FSC identifies the desired effects for each EFST.

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APPENDIX N
FIRE SYNCHRONIZATION MEETING

The fire synchronization meeting is conducted to synchronize the Method paragraph of each EFST during fire support coordination planning of the air assault. Prior planning and organization is essential to conduct an effective meeting. At a minimum, the following is a list of products that need to be complete and brought to the fire synchronization meeting:

- Inputs:
  - Commander's guidance for fires.
  - Concept of fires.
  - GCE EFST.
  - HPT list.
  - AGM.
  - Decision support matrix.
  - Target list worksheets.
  - Scheduling worksheets.
  - AAT.
  - Specific mission related ROE.
- Attendees (mandatory roll call conducted):
  - FSC.
  - Air officer.
  - UAS representative.
  - DASC representative.
  - Artillery liaison officer (if required).
  - GCE mortar representative (if required).
  - EFL/alternate EFL.
  - AFL's representative.
  - Strike flight lead.
  - EW representative.

The FSC chairs the fire synchronization meeting and is in charge of the coordination and flow of the meeting. The FSC will present the general GCE scheme of maneuver to staff members and

conduct an area overview of the battlespace. The FSC will then conduct each EFST by phase or stage of the fire synchronization plan—

- Area overview and orientation of the battlespace.
- Ground tactical plan.
- Assets available/flows/fire support assets available.
  - –Rotary-wing (assault/escort/OAS).
  - –Fixed-wing (EW/MIR/OAS).
  - –UAS.
  - –Indirect fires.
  - –Ammunition/standard conventional load.
    - * Artillery (munitions/AOF/series).
    - * Mortars (munitions/PDF/series).
    - * Naval surface fires (munitions, fire support area/series).
    - * Rotary-wing (munitions/battle positions).
    - * Fixed-wing (munitions/IPs).

The fire synchronization meeting affords all operational participants a collective brief of the EFST's Task, Purpose, Method, and Effects paragraphs:

Task
- The "what" of the EFST.
- FSC reviews the objective, formation, and function (enemy focused) of the EFST.

Purpose
- The "why" of the EFST.
- FSC reviews the GCE maneuver function.

Method
- The "how" of the EFST.
- FSC coordinates and synchronizes assets to support the commander's intent. This is where the staff plans how to kill the target.
- Usually briefed by priority, allocation, and restrictions:
  - –*Priority*. Priority of the fires maneuver element.
  - –*Allocation*. The target is assigned an observer, trigger, agency, and communication path in order to execute fires.
    - * Observer (primary/secondary/tertiary).
    - * Communications net (primary/secondary/tertiary).
    - * Triggers (when/why) (event or time driven).
    - * Series/coordinated aviation attacks/preplanned.
    - * Targets/target areas of interest/TRPs.
    - * Firing unit action.

  - Assault support.
  - Assault support escort.
  - CAS actions.
  - Battlefield handover and control of fires/approval of fires.
  - Communications.
  - Routing/flow.
  - Sectors of fire/weapons conditions.
- *Restrictions*:
  - FSCMs (permission and restrictive).
  - ACMs.
  - CAS stack and airspace management.

Effects

- Quantifies what is successful accomplishment of the task.
- Products:
  - Refined EFSTs.
  - Objective area diagram.
  - Objective routing.
- Results:
  - Mission timeline.
  - Identify gaps. Brief the mission commander on any specific gaps in a desired agency task to support an aspect of the plan and make a recommendation to fill the gap with another agency if available.
  - Asset shortfalls identified.
  - Plan is integrated and deconflicted.

Although the battlefield handover is a component of the Allocation paragraph, it is normally revisited at the end of the cycle in order to synchronize the battlefield handover by phase or stage. Once the first EFST is completed in order, by agency, the process will be repeated again. Repetition of the process ensures an effective fire synchronization meeting. See table N-1 for an EFST chart.

Table N-1. Essential Fire Support Task Chart.

TASK			
PURPOSE			
METHOD	**PRIORITY**		
	Priority of Fires		
	ALLOCATION		
	Target #		
	Target Location		
		PRIMARY	**ALTERNATE**
	Controller/Coordinator		
	Controller/Coordinator Location		
	Controller/Coordinator Net		
	Target Acquisition Assets		
	Target Acquisition Assets Net		
	Delivery Assets/Size		
	Delivery Assets Location		
	Delivery Assets Net		
	Weapon		
	Forward Observer Required		
	DAS/CAS		
	Type of Control		
	Method of Attack		
	Coordinate Generation		
	Terminal Guidance		
	Gun Target Line		
	Maximum Ordnance		
	Trigger		
	Time on Target		
	Communications Plan		
	RESTRICTIONS		
	Final Attack Heading		
	Restrictive ACMs		
EFFECTS			

GLOSSARY

Section I. Acronyms and Abbreviations

AAT ..... aircraft availability table
AAW ..... antiair warfare
ACE ..... aviation combat element
ACM ..... airspace coordinating measure
AFC ..... assault force commander
AFL ..... assault flight leader
AGM ..... attack guidance matrix
AMC ..... air mission commander
AOF ..... azimuth of fire
ASC(A) ..... assault support coordinator (airborne)
ASLT ..... assault support landing table
ASSAT ..... assault support serial assignment table
ATC ..... air traffic control

C2 ..... command and control
CAP ..... crisis action planning
CAS ..... close air support
CASEVAC ..... casualty evacuation
CBRN ..... chemical, biological, radiological, and nuclear
COA ..... course of action
CONOPS ..... concept of operations
CSS ..... combat service support

DAS ..... deep air support
DASC ..... direct air support center
DOA ..... days of ammunition
DOS ..... days of supply

EFL ..... escort flight leader
EFST ..... essential fire support task
EMCON ..... emission control
EW ..... electronic warfare

FAC ..... forward air controller
FAC(A) ..... forward air controller (airborne)
FARP ..... forward arming and refueling point
FLIR ..... forward-looking infrared
FLOT ..... forward line of own troops
FM ..... frequency modulation

FSC ..... fire support coordinator
FSCC ..... fire support coordination center
FSCM ..... fire support coordination measure

GCE ..... ground combat element
GPS ..... Global Positioning System

HEED ..... helicopter emergency egress device
HF ..... high frequency
HIMARS ..... High Mobility Artillery Rocket System
HPT ..... high-payoff target
HST ..... helicopter support team

IADS ..... integrated air defense system
IP ..... initial point
IPB ..... intelligence preparation of the battlespace
ISR ..... intelligence, surveillance, and reconnaissance
ITG ..... initial terminal guidance

KCAS ..... knots calibrated airspeed
KIAS ..... knots indicated airspeed
km ..... kilometer

LCE ..... logistics combat element
LOS ..... line of sight
LS ..... landing site
LZ ..... landing zone

MAATF ..... Marine air assault task force
MACCS ..... Marine air command and control system
MACO ..... marshalling area control officer
MAGTF ..... Marine air-ground task force
MCDP ..... Marine Corps doctrinal publication
MCPP ..... Marine Corps Planning Process
MCRP ..... Marine Corps reference publication
MCTP ..... Marine Corps tactical publication
MCWP ..... Marine Corps warfighting publication
METT-T ..... mission, enemy, terrain and weather, troops and support available—time available
MIR ..... multisensor imagery reconnaissance
mm ..... millimeter
MMT ..... Marine air traffic control mobile team
MTVR ..... medium tactical vehicle replacement

NTTP ..... Navy tactics, techniques, and procedures
NVD ..... night vision device
NVG ..... night vision goggle

OAS ..... offensive air support
OPORD ..... operation order

PDF ..... principal direction of fire
POW ..... prisoner of war
PZ ..... pickup zone

QRF ..... quick reaction force

ROE ..... rules of engagement
ROVER ..... remotely operated video enhanced receiver
RSEAD ..... reactive suppression of enemy air defenses
RWR ..... radar warning receiver

S-1 ..... personnel officer
S-2 ..... intelligence officer
S-3 ..... operations officer
S-3A ..... assistant operations officer
S-4 ..... logistics officer
SATCOM ..... satellite communications
SEAD ..... suppression of enemy air defenses
SINCGARS ..... single-channel ground and airborne radio system
SOP ..... standard operating procedure

TAC(A) ..... tactical air coordinator (airborne)
TACP ..... tactical air control party
TAR ..... tactical air request
TOS ..... time on station
TRAP ..... tactical recovery of aircraft and personnel
TRP ..... target reference point

UAS ..... unmanned aircraft system
UHF ..... ultrahigh frequency

VHF ..... very high frequency

XO ..... executive officer

Section II. Terms and Definitions

acquisition—The process of locating a target with a search radar so that a tracking radar can take over and begin tracking the target. (MCRP 1-10.2)

air assault—(See the DOD Dictionary for core definition. Marine Corps amplification follows.) Operations in which air assault forces (combat, combat support, and combat service support), using the fire power, mobility, and total integration of assault support assets in their ground or air roles, maneuver on the battlefield under the control of the mission commander to provide mobility and firepower of the assigned mission. (MCRP 1-10.2)

air assault force—A force composed primarily of ground and rotary-wing air units organized, equipped, and trained for air assault operations. (DOD Dictionary)

air assault operation—(See the DOD Dictionary for core definition. Marine Corps amplification follows.) A military action in which combat forces and their equipment maneuver about the battlefield by helicopters or vertical-landed aircraft.

air defense artillery—Weapons and equipment for actively combating air targets from the ground. Also called **ADA**. (DOD Dictionary)

air mission commander—A mission commander, who shall be a properly qualified naval aviator or naval flight officer, should be designated when separate aircraft formations, each led by its own formation leader, are required for a common support mission or whenever a formation of four or more aircraft must perform a multiple sortie mission. The mission commander shall direct a coordinated plan of action and shall be responsible for the effectiveness of the mission. Also called **AMC**. (MCRP 1-10.2)

air movement—Air transport of units, personnel, supplies, and equipment including airdrops and air landings. (DOD Dictionary)

air officer—An officer (aviator/naval flight officer) who functions as chief adviser to the commander on all aviation matters. An air officer is normally found at battalion level and higher within the ground combat element and within the Marine air-ground task force command element and logistics combat element headquarters staffs. The air officer is the senior member of the tactical air control party. The battalion air officer supervises the training and operation of the two battalion forward air control parties. Also called **AirO**. (MCRP 1-10.2)

air support element—An element task-organized by the Marine air support squadron to perform various air support control functions. Employment options can range from Marine expeditionary unit level operations characterized by limited assets and endurance to a multi-division operation where the air support element is almost if not identical in capability but set apart in responsibilities and subordinate to the direct air support center. The air support element can function as an extension of the Navy tactical air control center/amphibious air traffic control center, in conjunction with the battalion tactical air control party. Also called **ASE**. (MCRP 1-10.2)

airspace coordination area—A three-dimensional block of airspace in a target area, established by the appropriate commander, in which friendly aircraft are reasonably safe from friendly surface fires. Also called **ACA**. (DOD Dictionary)

amphibious air traffic control center—The centralized air traffic control agency on an amphibious warfare ship responsible for operational control of aircraft departing from and recovering on the ship and tactical control of airborne helicopters in support of amphibious assaults. Also called **AATCC**. (DOD Dictionary)

assault echelon—In amphibious operations, the element of a force comprised of tailored units and aircraft assigned to conduct the initial assault on the operational area. Also called **AE**. (DOD Dictionary)

assault flight leader—An experienced aviator assigned the responsibility for tactical control of the assault support aircraft taking part in an air assault mission. Also called **AFL**. (As contained in this glossary, this term and its definition are applicable to this publication only.)

assault follow-on echelon—In amphibious operations, that echelon of the assault troops, vehicles, aircraft, equipment, and supplies that, though not needed to initiate the assault, is required to support and sustain the assault. Also called **AFOE**. (DOD Dictionary)

assault support—The use of aircraft to provide tactical mobility and logistic support for the Marine air-ground task force, the movement of high priority cargo and personnel within the immediate area of operations, in-flight refueling, and the evacuation of personnel and cargo. Assault support is one of the six functions of Marine aviation. (MCRP 1-10.2)

assault support coordinator (airborne)—An aviator who coordinates, from an aircraft, the movement of aviation assets during assault support operations. Also called **ASC(A)**.

battle position—1. In ground operations, a defensive location oriented on an enemy avenue of approach from which a unit may defend. 2. In air operations, an airspace coordination area containing fire points for attack helicopters. Also called **BP**. (MCRP 1-10.2)

casualty evacuation—(See DOD Dictionary for core definition. Marine Corps amplification follows.) The movement of the sick, wounded, or injured. It begins at the point of injury or the onset of disease. It includes movement both to and between medical treatment facilities. All units have an evacuation capability. Any vehicle may be used to evacuate casualties. If a medical vehicle is not used it should be replaced with one at the first opportunity. Similarly, aeromedical evacuation should replace surface evacuation at the first opportunity. Also called **CASEVAC**. (MCRP 1-10.2)

close air support—Air action by manned or unmanned fixed-wing and rotary-wing aircraft against hostile targets that are in close proximity to friendly forces and that require detailed integration of each air mission with the fire and movement of those forces. Also called **CAS**. (DOD Dictionary)

combat air patrol—An aircraft patrol provided over an objective area, the force protected, the critical area of a combat zone, or in an air defense area, for the purpose of intercepting and destroying hostile aircraft before they reach their targets. Also called **CAP**. (DOD Dictionary)

command and control aircraft—A tactical mission aircraft for the use of the assault support coordinator (airborne) and helicopterborne unit commander to coordinate and control tactical air assaults, troop movement, commander's reconnaissance, and other related missions. Also called **C2 aircraft**. (MCRP 1-10.2)

communications-electronics operating instructions—An instruction containing details on call sign assignments, frequency assignments, codes and ciphers, and authentication tables and their use. The communications-electronic operating instructions (CEOI) is designated to complement information contained in operational unit communication standard operating procedures or Annex K (Combat Information Systems) to the operation order. The most common version of CEOI in use by the Marine Corps is the automated communications-electronics operating instructions, produced by the National Aeronautics and Space Administration. Also called **CEOI**. (MCRP 1-10.2)

control point—(Part 2 of a 4-part definition.) A position marked by coordinates (latitude, longitude), a buoy, boat, aircraft, electronic device, conspicuous terrain feature, or other identifiable object which is given a name or number and used as an aid to navigation or control of ships, boats, or aircraft. (DOD Dictionary)

day(s) of ammunition—Unit of measurement of replenishing ammunition expressed as a specified number of rounds, or items of bulk ammunition as may be appropriate per weapon, unit, individual kit, set, or using device required for one day of combat. Also called **DOA**. (MCRP 1-10.2)

departure point—A navigational check point used by aircraft as a marker for setting course. (DOD Dictionary)

direct air support center—The principal air control agency of the United States Marine Corps air command and control system responsible for the direction and control of air operations directly supporting the ground combat element. Also called **DASC**. (DOD Dictionary)

electronic attack—Division of electronic warfare involving the use of electromagnetic energy, directed energy, or antiradiation weapons to attack personnel, facilities, or equipment with the intent of degrading, neutralizing, or destroying enemy combat capability and is considered a form of fires. Also called **EA**. See also **electronic warfare**. (DOD Dictionary)

electronic warfare—Military action involving the use of electromagnetic and directed energy to control the electromagnetic spectrum or to attack the enemy. Also called **EW**. See also **electronic attack**. (DOD Dictionary)

escort flight leader—An aviator in command of the escort aircraft and the integration of objective area fires during an air assault mission. Also called **EFL**. (As contained in this glossary, this term and its definition are applicable to this publication only.)

fire support coordination center—A single location in which are centralized communications facilities and personnel incident to the coordination of all forms of fire support for Marine forces. Also called **FSCC.** (DOD Dictionary)

firing position—In air assault operations, a position occupied by an individual attack helicopter in order to engage targets. See also **battle position**. (MCRP 1-10.2)

flight leader—A pilot qualified in a specific type/model/series or an aircraft commander designated in writing by the aviation unit commander. (As contained in this glossary, this term and its definition are applicable to this publication only.)

forward air controller—An officer (aviator/pilot) member of the tactical air control party who, from a forward ground or airborne position, controls aircraft in close air support of ground troops. Also called **FAC**. (DOD Dictionary)

forward air controller (airborne)—A specifically trained and qualified aviation officer, normally an extension of the tactical air control party, who exercises control from the air of aircraft engaged in close air support of ground troops. Also called **FAC(A)**. (DOD Dictionary)

forward arming and refueling point—A temporary facility, organized, equipped, and deployed to provide fuel and ammunition necessary for the employment of aviation maneuver units in combat. Also called **FARP**. (DOD Dictionary)

forward edge of the battle area—The foremost limits of a series of areas in which ground combat units are deployed, excluding the areas in which the covering or screening forces are operating, designated to coordinate fire support, the positioning of forces, or the maneuver of units. Also called **FEBA**. (DOD Dictionary)

forward line of own troops—A line that indicates the most forward positions of friendly forces in any kind of military operation at a specific time. Also called **FLOT**. (DOD Dictionary)

HAVEQUICK—An electronic counter-countermeasure modification that provides a frequency hopping capability to selected radios. (As contained in this glossary, this term and its definition are applicable to this publication only.)

headquarters commandant—Operating under the staff cognizance of the chief of staff, the officer responsible for local operational, administrative, and logistic support of the headquarters. (MCRP 1-10.2)

helicopter/tiltrotor support team—A task organization formed and equipped for employment in a landing zone to facilitate the landing and movement of troops, equipment, and supplies, and to evacuate selected casualties and enemy prisoners of war. The team is sourced from the Marine logistics group, specifically from the landing support company of the support battalion. Also called **HST**. (Upon promulgation of this publication, this modified term and definition is approved for use and will be included in the next edition of MCRP 1-10.2)

H-hour—(Part 1 of a 2-part definition.) The specific hour on D-day at which a particular operation commences. (DOD Dictionary)

holding area—A preplanned or hastily designated area for delay that facilitates coordination and/or deconfliction of aviation assets. Holding areas are usually designated along the route of flight in areas that provide cover and concealment from the enemy. Also called **HA**. (As contained in this glossary, this term and its definition are applicable to this publication only.)

initial point—(Parts 2, 3, and 4 of a 6-part definition.) 2. A well-defined point, easily distinguishable visually and/or electronically, used as a starting point for the bomb run to the target. 3. airborne—A point close to the landing area where serials (troop carrier air formations) make final alterations in course to pass over individual drop or landing zones. 4. helicopter/ tiltrotor aircraft—An air control point in the vicinity of the landing zone from which individual flights of helicopters/tiltrotor aircraft are directed to their prescribed landing sites. Also called **IP**. (NTRP 1-02)

initial terminal guidance—A mission normally assigned to reconnaissance units to provide the helicopter coordinator (airborne) with information resulting from prelanding reconnaissance. The units establish and operate signal devices for guiding the initial helicopter waves from the initial point to the landing point. Also called **ITG**. (MCRP 1-10.2)

insertion—1. Placement of troops and equipment into an operational area in air assault operations. 2. Placement of observation posts, patrols, or raiding parties by helicopter/tiltrotor, parachute, watercraft, or other means. Stealth is normally desired in the execution of an insertion. (Upon promulgation of this publication, this modified definition is approved for use and will be included in the next edition of MCRP 1-10.2.)

intelligence requirements—(See DOD Dictionary, **intelligence requirement**, for core definition. Marine Corps amplification follows.) Questions about the enemy and the environment, the answers to which a commander requires to make sound doctrine. Also called **IRs**. (MCRP 1-10.2)

L-hour—(Part 2 of a 2-part definition.) In amphibious operations, the time at which the first helicopter or tiltrotor aircraft of the airborne ship-to-shore movement wave touches down or is scheduled to touch down in the landing zone (DOD Dictionary)

laager point—A secure location on the ground designated by aviation units utilized for the rendezvous, marshalling, or positioning of flights of aircraft between missions or awaiting completion or activation of an assigned mission. Other than communications, no other support should be required. The site may be isolated and independent or it may be adjacent to an airfield, a facility, or a forward arming and refueling point. (MCRP 1-10.2)

landing point—A point within a landing site where one helicopter or vertical takeoff and landing aircraft can land. (NTRP 1-02)

landing site—(See the DOD Dictionary for core definition. Marine Corps amplification follows.) In amphibious operations, a continuous segment of coastline over which troops, equipment and supplies can be landed by surface means. (DOD Dictionary)

landing zone—Any specified zone used for the landing of aircraft. Also called **LZ**. (DOD Dictionary)

low-level flight—Flight conducted at constant airspeed and indicated altitude at which detention or observation of an aircraft or of the points from which and to which it is flying is avoided or minimized. The route is preselected and conforms generally to a straight line. (NTRP 1-02)

Marine air assault task force—A task-organized unit combining aviation assets, air assault force units, and supporting units for use in air assault operations. Also called **MAATF**. See also **air assault; air assault operations.** (Upon promulgation of this publication, this term and definition are approved for use and will be included in the next edition of MCRP 1-10.2.)

Marine air-ground task force—The Marine Corps' principal organization for all missions across the range of military operations, composed of forces task-organized under a single commander capable of responding rapidly to a contingency anywhere in the world. The types of forces in the Marine air-ground task force (MAGTF) are functionally grouped into four core elements: a command element, an aviation combat element, a ground combat element, and a combat service support element. The four core elements are categories of forces, not formal commands. The basic structure of the MAGTF never varies, though the number, size, and type of Marine Corps units comprising each of its four elements will always be mission dependent. The flexibility of the organizational structure allows for one or more subordinate MAGTFs to be assigned. In a joint or multinational environment, other Service or multinational forces may be assigned or attached. Also called **MAGTF**. (MCRP 1-10.2)

mission, enemy, terrain and weather, troops and support available–time available—1. In the context of information management, the major subject categories into which relevant information is grouped for military operations. 2. In the context of tactics, the major factors considered during mission analysis. Also called **METT-T**. (MCRP 1-10.2)

pickup zone—The zone in which assault support aircraft land to pick up troops and supplies for movement to the landing zone. Also called **PZ**. (Upon promulgation of this publication, this modified definition is approved for use and will be included in the next edition of MCRP 1-10.2)

priority intelligence requirement—(See the DOD Dictionary for core definition. Marine Corps amplification follows.) An intelligence requirement associated with a decision that will critically affect the overall success of the command's mission. Also called **PIR**. (MCRP 1-10.2)

secure area—An area that has not received hostile fire for 72 hours and in which assault support aircraft will most likely not be subject to fire during the approach, landing, takeoff, and departure. (Upon promulgation of this publication, this term and definition are approved for use and will be included in the next edition of MCRP 1-10.2.)

suppressive fire—Fires on or about a weapons system to degrade its performance below the level needed to fulfill its mission objectives, during the conduct of the fire mission. (Upon promulgation of this publication, this term and definition are approved for use and will be included in the next edition of MCRP 1-10.2.)

tactical air command center—The principal US Marine Corps air command and control agency from which air operations and air defense warning functions are directed. Also called **Marine TACC**. (DOD Dictionary)

tactical air control party—(See the DOD Dictionary for core definition. Marine Corps amplification follows.) A subordinate operational component of a tactical air control system organic to infantry divisions, regiments, and battalions. Tactical air control parties establish and maintain facilities for liaison and communications between parent units and airspace control agencies, inform and advise the ground unit commander on the employment of supporting aircraft, and request and control air support. Also called **TACP**. (MCRP 1-10.2)

tactical air coordinator (airborne)—(See the DOD Dictionary for core definition. Marine Corps amplification follows.) Within the Marine air command and control system, the senior air coordinator having authority over all aircraft operating within the assigned area. The tactical air coordinator (airborne), considered an airborne extension of the direct air support center and fire support coordination center, contributes to coordination among the tactical air control parties, airborne forward air controllers, and the fire direction of artillery and naval gunfire. Also called **TAC(A)**. (MCRP 1-10.2)

wave—A formation of forces, including ships, landing craft, amphibious vehicles or aircraft, required to beach or land about the same time. (DOD Dictionary)

Section III. Nomenclature

A-22 ..... cargo bag assembly for external load carrying on certain aircraft
AAQ-22E ..... forward-looking infrared system
AAQ-24 ..... directional infrared countermeasure
AAR-47 ..... missile and laser warning set
AAR-47(V)2 ..... missile and laser warning set
AAR-57 ..... common missile warning system
AAR-57(V) ..... common missile warning system
AGR-19 ..... laser-guided, high explosive, 2.75-inch rocket
AH-1 ..... attack helicopter (Cobra)
ALE-47 ..... countermeasures dispensing system
ALQ-156A(V)2 ..... missile approach warning system
ALQ-162(V)2 ..... radar countermeasures system
ALQ-212(V) ..... advanced threat infrared countermeasures
ALQ-231 ..... electronic support and attack pod (Intrepid Tiger)
APR-39(V) ..... radar warning receiver
APR-39A(V)2 ..... radar warning receiver
APR-39B(V)2 ..... radar warning receiver
APR-39C(V)2 ..... radar warning receiver
ARC-164 ..... aircraft radio communications (receiving and transmitting)
ARC-186 ..... aircraft radio communications (receiving and transmitting)
ARC-210 ..... aircraft radio communications (receiving and transmitting)
ARC-210D ..... aircraft radio communications (receiving and transmitting)
ARC-220 ..... aircraft radio communications (receiving and transmitting)
AYK-28(V)2 ..... airborne data processing computer

CH-47D/F ..... cargo helicopter; Army medium-lift assault support cargo helicopter (Chinook)
CH-53 ..... heavy-lift assault support helicopter
CH-53E ..... heavy-lift assault support helicopter (Super Stallion)

GAU-16 ..... gun, aircraft unit; .50 caliber machine gun
GAU-17 ..... gun, aircraft unit; 7.62 mm six-barrel automatic machine gun
GAU-21 ..... gun, aircraft unit; .50 caliber machine gun system

KC-130 ..... multirole, multi-mission tactical tanker/transport aircraft (HERCULES)
KC-130J ..... KC-130J variant with Hercules Airborne Weapons Kit (Harvest HAWK)
KY-58 ..... airborne/shipborne radio encryption device
KY-100 ..... encryption device in airborne/ground environments

LAU-61 ..... launcher, aircraft unit; 2.75 inch digital rocket launcher
LAU-68 ..... launcher, aircraft unit; 2.75 inch extended length rocket launcher
LUU-2 ..... overt illuminating parachute flare
LUU-19 ..... covert illuminating parachute flare

M130 ..... chaff or flare dispenser
M240 ..... 7.62 mm medium machine gun
M240D ..... 7.62 mm machine gun
M777A2 ..... lightweight 155 mm howitzer
MC-12W ..... multi-mission turboprop aircraft (Liberty)
MK23 ..... medium tactical vehicle replacement; standard cargo truck
MK25 ..... medium tactical vehicle replacement; standard cargo truck with self-recovery winch
mIRC ..... Microsoft Internet relay chat
MV-22 ..... medium lift, vertical takeoff and tiltrotor aircraft (Osprey)
MV-22B ..... medium lift, vertical takeoff and tiltrotor aircraft (Osprey)

PRC-117 F ..... portable radio communications device
PRC-117 G ..... portable radio communications device

ROVER ..... remotely operated video enhanced receiver

SRU-40 ..... helicopter aircrew breathing device (HABD)
Stinger ..... man-portable air defense system surface-to-air missile

UH-1Y ..... utility helicopter (Venom)
UH-60A ..... utility helicopter, medium-lift (Black Hawk)
UH-60L ..... utility helicopter, medium-lift (Black Hawk)
UH-60M ..... utility helicopter, medium-lift (Black Hawk)

REFERENCES AND RELATED PUBLICATIONS

Joint

Joint Publications (JPs)

3-02.1	Amphibious Embarkation and Debarkation
3-07	Stability
3-09.3	Close Air Support

Miscellaneous

DOD Dictionary of Military and Associated Terms

Army

Army Training Publication (ATP)

3-04.1	Aviation Tactical Employment

Marine Corps

Marine Corps Doctrinal Publication (MCDP)

1-0	Marine Corps Operations
5	Planning

Marine Corps Warfighting Publications (MCWPs)

3-03	Stability Operations
5-10	Marine Corps Planning Process

Marine Corps Tactical Publication (MCTP)

3-10F	Fire Support Coordination in the Ground Combat Element

Marine Corps Reference Publications (MCRPs)

1-10.2	Marine Corps Supplement to the Department of Defense Dictionary of Military and Associated Terms
2-10B.1	Intelligence Preparation of the Battlefield/Battlespace
3-10A.3	Marine Rifle Squad
3-20F.7	Marine Air Traffic Control Detachment Handbook
3-20F.8	Low Altitude Air Defense Battalion Handbook
3-30B.2	MAGTF Communications System
3-40F.4	Multi-Service Helicopter Sling Load: Basic Operations and Equipment

3-40F.5	Multi-Service Helicopter Sling Load: Single Point Load Rigging Procedures
3-40F.6	Multi-Service Helicopter Sling Load: Dual-Point Load Rigging Procedures

Navy

Air Navy Tactics, Techniques, and Procedures (AIR-NTTP)

3-22.3-AH1	AH-1 Combat Aircraft Fundamentals
3-22.3-CH53	CH-53 Combat Aircraft Fundamentals
3-22.3-KC-130	KC-130 Combat Aircraft Fundamentals
3-22.3-MV22	MV-22 Combat Aircraft Fundamentals
3-22.5-AH1	Tactical Pocket Guide AH-1
3-22.5-CH53E	Tactical Pocket Guide CH-53E Helicopter
3-22.5-KC-130	Tactical Pocket Guide USMC KC-130
3-22.5-MH53E	Tactical Pocket Guide MH-53E Helicopter
3-22.5-SAR-TAC	Navy Search and Rescue Tactical Information Document (SAR TACAID)
3-22.5-UH1	Tactical Pocket Guide UH-1

Navy Tactical Reference Publication (NTRP)

1-02	Navy Supplement to the DOD Dictionary of Military and Associated Terms

Navy Tactics, Techniques, and Procedures (NTTP)

3-22.3-UH1	Combat Aircraft Fundamentals UH-1
3-22.5-ASTACSOP	Tactical Pocket Guide USMC Assault Support Tactical SOP
3-22.5-MV22	Tactical Pocket Guide MV-22

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  - Paragraph number (if applicable)
  - Line number
  - Figure or table number (if applicable)
- Nature of change
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