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FM 57-35

DEPARTMENT OF THE ARMY FIELD MANUAL

**AIRMOBILE
OPERATIONS**



HEADQUARTERS, DEPARTMENT OF THE ARMY
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AIRMOBILE OPERATIONS

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CHAPTER 1

GENERAL

Section I. INTRODUCTION

1. Purpose and Scope

a. This manual provides guidance for commanders, staff officers, and other interested personnel for planning and executing airmobile operations. The material presented is applicable to nuclear warfare; where needed, appropriate modifying guidance for non-nuclear warfare is integrated throughout the manual. The provisions in this manual do not rescind or change the existing doctrine, procedures, and command relationships for air movement of troops, supplies, and equipment in the assault and subsequent phases of joint airborne operations. They do not alter the role of the Air Force in providing the Army with air transport support to and from points outside the combat zone as set forth in AR 95-100.

b. This manual deals with all aspects of airmobile operations and provides basic information concerning the planning and conduct of airmobile operations for all combat echelons from small patrols to a battle group size airmobile force. The principles and techniques are applicable to the infantry division battle group, airborne division battle group, armored cavalry regiment, and suitable elements of the armored division.

c. Users of this manual are encouraged to submit recommended changes or comments to improve the manual. Comments should be keyed to the specific page, paragraph, and line of the text in which change is recommended. Reasons should be provided for each comment to insure understanding and complete evaluation. Comments should be forwarded direct to Commandant, US Army Infantry School, Fort Benning, Ga.

2. Definitions

a. Airmobile operation—Operation in which combat forces and their equipment move about the battlefield in aerial vehicles under the control of a ground force commander to engage in ground combat.

b. Airmobile force—A force composed of ground combat ele-

ments combined with Army aviation elements to conduct airmobile operations.

3. Characteristics of Airmobile Operations

Airmobile operations are similar to other ground combat operations but differ in these respects:

a. Airmobile operations usually are executed in lightly defended areas or after a preassault nuclear or nonnuclear preparation with the advantage of initial tactical surprise.

b. Airmobile forces can land directly on or adjacent to their objectives.

c. Airmobile forces are particularly vulnerable during landing and assembly.

d. The types and amounts of heavy equipment that can be taken into the objective area are limited.

e. Airmobile forces have the ability to readily conduct operations in otherwise inaccessible areas.

f. Airmobile forces are particularly vulnerable to enemy armor due to their limited ground mobility and firepower in the objective area.

g. Airmobile operations require command of the air in the objective area and suppression of enemy ground fire.

h. Adverse weather restricts airmobile operations more than ground mobile operations.

4. Concept of Employment

a. Airmobile forces are employed in furtherance of a ground combat effort. Their use permits the commander to take advantage of the speed and flexibility of Army aircraft in accomplishing a wide variety of tasks. The capability of conducting airmobile operations enables the commander to—

(1) Pose a constant threat which may cause the enemy to divert combat forces to maintain a strong posture in rear areas to protect vital installations and hold critical terrain.

(2) Overcome distances and to bypass barriers and enemy defenses.

(3) Extend radically the area over which he can exert his influence.

(4) Deploy his forces more effectively by holding highly mobile reserves in dispersed areas.

b. The capability of ground combat units and Army aviation units for conducting airmobile operations must be highly developed

through the conduct of frequent airmobile unit training and the development of pertinent unit SOP's.

5. Missions

The missions to which airmobile forces are most readily adapted include—

- a.* Economy of force missions.
- b.* Raids.
- c.* Antiairborne and antiguerrilla operations.
- d.* Over-obstacle assault operations.
- e.* Exploitation of the effects of nuclear weapons.
- f.* Seizure and retention of critical terrain.
- g.* Blocking or screening of enemy avenues of approach.
- h.* Feints and demonstrations.
- i.* Reconnaissance and security missions.
- j.* Counterattack of enemy penetrations.
- k.* Ship to shore operations.

Section II. COMPOSITION, COMMAND, AND RESPONSIBILITIES

6. General

The composition of an airmobile force is dictated by the specific mission requirements. The force must contain a ground combat element and an aviation element, and it may also contain one or more support elements such as fire support, reconnaissance, engineers, pathfinders, and elements of any of the several technical services. Because of infantry's versatility and air transportability, the main element of an airmobile force is normally infantry. Supporting units may be attached, attached for operational control, or assigned specific support missions. The achievement of a high degree of versatility requires imagination and experimentation in organizing airmobile forces with the correct balance of the necessary elements.

7. Army Aviation

Army aviation units for support of airmobile operations are assigned to divisions, corps, and field armies. (For details of Army aviation organizations, see FM 1-5.) The aircraft organic to the division are adequate for small-scale airmobile operations. Army aviation units at corps and field army must be used to support operations that are beyond the capability of division aircraft.

8. Command Relationships

a. Because of the great demand for air transport which will exist throughout the field army, it will be normal for transport aviation elements to be attached to or placed in support of an airmobile force for the shortest possible time consistent with the mission. The lowest echelon capable of controlling and coordinating the airmobile operation exercises control of supporting aerial vehicles in accordance with the overall plan. This includes coordination of artillery, air defense, air support, army air traffic with other users of the air space over the area of operations, and the plan of maneuver with those of higher, lower, and adjacent units. During the period of attachment or support, the transport aviation unit supports the airmobile force in the manner specified by the directing headquarters which has operational control over both the airmobile force and the transport aviation unit.

b. Once an airmobile force becomes airborne, the speed of movement, requirement for radio silence, and other factors introduce many variables that are not encountered in ground operations. Skillful execution of operations under these conditions necessitates both extensive reliance on standing operating procedures (app. VII) and clear delineation of authority and responsibility by the directing headquarters which has operational control over both the ground and aviation elements.

c. The command relationship established between the ground combat unit and the transport aviation unit depends primarily on the capability of the ground unit to plan, coordinate, control, and support the air movement phase of the operation. Normally, the transport aviation unit is placed in support of the ground combat unit with operational control of both units retained by the headquarters that directs and supports the operation. For independent operations, transport aviation elements and aircraft maintenance and supply elements may be attached to the ground unit.

d. The two following examples illustrate how the foregoing factors influence command relationships:

- (1) *(a)* A transport Army aviation company from corps is attached to an infantry division to support a company-size airmobile operation in one of the battle groups. The division commander may attach the aviation company to the battle group. The battle group commander will not normally further attach the aviation company to the rifle company because after departure on the operation, the rifle company does not have the means

of coordinating aspects of the operation such as artillery, air defense, air traffic, and air support.

- (b) If the mission is to be of short duration and the aviation company is to be employed with another battle group upon completion of the first mission, the division commander may assign the aviation company a series of support missions.
- (2) A platoon of helicopters is attached to a battle group to transport a rifle company on a flank screening mission during an exploitation. Due to the expected long duration of the mission and the distances involved, the battle group commander may attach the helicopter platoon to the rifle company. In this case, the headquarters that directs the mission must provide the logistical support for the aviation unit as stated in paragraph 9.

9. Responsibilities

The responsibilities of the commanders of the various elements of the airmobile force with respect to the planning and executing of airmobile operations are discussed in succeeding chapters. Overall responsibility for the operation must be vested in the ground commander of the lowest echelon who has the means of providing the required support from outside the objective area. In some operations this may be the airmobile force commander himself; in other cases, especially in those operations involving small units, responsibility will be vested in a higher headquarters.

CHAPTER 2

ARMY TRANSPORT AVIATION SUPPORT

10. Army Aviation Organizations

See FM 1-5.

11. Liaison

When an aviation unit commander is notified that he will support an airmobile operation, he or a representative designated by him establishes and maintains contact with the airmobile force commander to advise him in all matters pertaining to the aviation unit organization and its employment.

12. Aviation Support Unit Plans

a. As soon as possible in the planning sequence (pars. 23, 24), the supporting aviation unit commander prepares and disseminates to members of his command the instructions they need to carry out their support mission. As soon as he receives the implementing directive, which specifies the number and type aircraft available for the operation, he can—

- (1) Determine the special equipment required by his unit.
- (2) Determine the navigation aids required.
- (3) Determine what maintenance support is needed.
- (4) Inform the airmobile force commander of the lift capability of the aircraft available.

b. See paragraph 24 for further planning by the aviation unit commander after he learns the airmobile force commander's tentative tactical plan.

13. Aircraft for Training

Aircraft and personnel to be used in the operation should be made available for familiarization training and rehearsals with the airmobile force.

14. Refueling

a. The aviation unit commander is responsible for providing refueling facilities and for planning the location of refueling points in coordination with the airmobile force commander.

b. The refueling facilities should be located in the loading area or in a ready area adjacent to the loading area. This permits the aircraft to maintain the highest possible lift capability on subsequent lifts. Normally, aircraft carry a minimum amount of fuel in addition to the reserve so that they can carry maximum payloads.

15. Movement to Loading Sites

a. When the loading sites have been selected, it is the aviation unit commander's responsibility to insure that all participating personnel of his unit are oriented as to their location, the route to them, and the time the aircraft are to arrive.

b. The aviation unit commander establishes local air traffic control facilities in the loading area.

16. Loading

The aviation unit commander assists in the selection of loading sites to insure that they meet requirements. He advises and assists the airmobile force commander in preparing loading plans based on the lift capability of the aircraft. He insures that loads are not in excess of the capability of the aircraft and that they are properly loaded and lashed so as not to create a hazard in flight.

17. Capabilities and Limitations of Army Transport Aircraft

a. *Helicopters.* It must be noted that there is a balance between the capabilities and limitations of a helicopter. When one of the three variables is changed (fuel, range, or payload), it will have the effect of changing at least one of the other variables.

(1) *Capabilities.*

- (a) Under normal conditions, helicopters can ascend and descend at a relatively steep angle, which enables them to operate from confined and unimproved areas.
- (b) Troops and cargo can be loaded in and unloaded from a hovering helicopter.
- (c) Cargo can be transported as an external load and delivered to areas otherwise inaccessible.
- (d) Helicopters are capable of horizontal flight in any direction: forward, backward, sideward, or obliquely.
- (e) Helicopters possess a wide speed range, from 0 to approximately 120 knots.
- (f) Due to a wide speed range and high maneuverability at slow speeds, they can fly safely and efficiently at a low altitude, using the terrain and vegetation for cover and concealment.

- (g) Their turnaround time is short, making possible rapid shuttle movements.
- (h) They can be landed in the objective area in a tactical formation, landing zones permitting.
- (i) Their ability to decelerate rapidly, combined with their capacity for slow forward speed and near vertical landing, enables helicopters to operate under marginal weather conditions.
- (j) Landings and takeoffs at night can be made with a minimum of lighting.
- (k) Aircraft flying at low level are capable of effecting surprise, obtaining deception as to landing areas, and employing shock action through the use of suppressive fires.

(2) *Limitations.*

- (a) A helicopter unit has a relatively high deadline factor during continuous operations due to maintenance requirements.
- (b) The fuel consumption rate of helicopters is high, imposing limitations on range and allowable cargo load.
- (c) Weight and balance affect flight control. Loads must be properly distributed to keep the center of gravity within allowable limits.
- (d) Hail, sleet, icing, heavy rains, and gusty winds (30 knots or greater) may limit or preclude their use.
- (e) Engine and rotor noise may compromise secrecy.
- (f) Pilot fatigue is an element requiring greater consideration in the operation of rotary-wing than fixed-wing aircraft.
- (g) The load-carrying capability of helicopters decreases with increases of altitude, humidity, and temperature.
- (h) A wind velocity above 10 knots normally affects the selection of the direction of approach and landing.

b. *Airplanes.*

(1) *Capabilities.*

- (a) Army tactical transport airplanes can operate from relatively short, unimproved landing areas providing the terrain is fairly smooth.
- (b) They have a greater range than helicopters and require less maintenance.
- (c) Cargo can be transported as an external load suspended

from bomb shackles on the wings and can be dropped with a high degree of accuracy from low altitudes.

- (d) Due to their relatively slow speed and high maneuverability, transport airplanes can fly safely and efficiently at a low altitude.
- (e) Landings and takeoffs at night can be made with a minimum of lighting.
- (f) Large internal loads can be transported in rear ramp loading aircraft.

(2) *Limitations.*

- (a) Transport airplanes require larger and more improved landing areas than helicopters.
- (b) Hail, sleet, icing, heavy rains, and gusty winds (30 knots or more) may limit or preclude their use.
- (c) A wind velocity above 10 knots normally affects the selection of the direction of approach and landing.

c. Special Considerations. The factors mentioned in *b* (2) (*a*) and (*b*) above are variable. Commanders of supporting aviation units provide specific data for each type aircraft and operation.

d. Reference. For specific capabilities of current types of Army aircraft, see TM 57-210.

18. Night and Low Visibility Operations

a. Operation Requisites. Normally, transport aircraft can operate when—

- (1) The ceiling permits safe flying above the highest terrain to be traversed.
- (2) There is enough forward visibility for the pilot to see obstacles in time to avoid them when flying at reduced speeds.
- (3) There is enough visibility for the pilot to distinguish prominent landmarks.

b. Advantages of Night Operations. Darkness offers concealment for the transport aircraft from enemy visual observation and protection from enemy aircraft.

c. Disadvantages of Night Operations.

- (1) The necessity for more elaborate control measures and for caution on the part of pilots and passengers slows down night operations. Operations may be further prolonged when it becomes necessary to fly the aircraft singly rather than in a compact formation.

- (2) The present lack of adequate guidance systems restricts the choice of landing zones.
- (3) Personnel require more training and experience.
- (4) Locating landing areas and zones is more difficult.

19. Aircraft Availability

Aircraft availability is an important consideration in airmobile operations. It is directly influenced by the adequacy and efficiency of maintenance and supply activities, as well as the distance of the operating units from their support units. Given time and support to prepare for a particular operation, transport aviation units can reach 100 percent availability for short periods. During periods of sustained operations, airplane units normally have a greater percentage of aircraft availability than helicopter units.

CHAPTER 3

PLANNING

Section I. GENERAL

20. General

a. The planning outlined in this chapter represents the ideal planning development for *major* airmobile operations. Planning for an airmobile operation is characterized by simplicity. Time will not normally be available to produce a volume of written plans or orders. For most airmobile operations involving a battle group or less, elaborate and detailed plans or orders will not be necessary. Formalized plans subordinate to the operation plan are prepared only for the more complex and complicated airmobile operations. Planning and preparation time is materially reduced by adequate training, maintaining forces in a state of operational and logistical readiness, and by the development of a standing operating procedure similar to the one shown in appendix VII.

b. Airmobile operations may be successfully undertaken with far less planning time than is required for joint airborne operations.

21. Preliminary Planning

a. Planning for airmobile operations is a continuing process. Commanders must be alert for opportunities that arise or which they may create for the employment of an airmobile force to influence materially the outcome of a ground engagement. Preliminary planning is a constant assessment of the tactical situation by the commander and staff to determine if the employment of airmobile forces is within the capability of their unit and will, if employed, materially influence the ground battle. The following factors are considered in preliminary planning:

- (1) The mission.
- (2) The current tactical situation.
- (3) The forces and aircraft available.
- (4) The enemy situation and capabilities.
- (5) The terrain and weather.
- (6) The fire support available.
- (7) The logistical support required.

b. Subordinate commands, including companies, may be directed to conduct all or part of the more detailed planning once the mission, objective, and size of the force have been established.

22. Echelonment

A unit that is directed to mount an airmobile operation is divided, when necessary, into two echelons for movement to the objective area.

a. *Assault (Airmobile) Echelon.* This echelon consists of those combat and combat support forces and their equipment that are air-landed in the objective area to engage in ground combat. It may require one or more lifts, depending on its size and the number and type of aircraft available.

b. *Rear (Nonairmobile) Echelon.* This echelon consists of the remaining portions of the unit: those not immediately needed in the objective area, such as administrative personnel and equipment; and those that cannot be transported in available aircraft, such as the light tanks of the reconnaissance platoon and the heavy equipment of the engineer platoon. This echelon accompanies the ground linkup force.

23. Planning Technique, Airmobile Force Commander

a. A unit that is directed to plan an airmobile operation begins planning immediately upon receipt of a warning order and continues until the operation is executed or canceled. The amount of detail varies with the scope of the operation, the size of the force, and the time available. The operation plan/order depends directly on the mission, enemy, terrain and weather, and the composition and capabilities of participating units, including logistical considerations.

b. Generally the operation plan is developed by working backward from the objective, considering the following in the sequence indicated:

- (1) Tactical planning for the objective area (scheme of maneuver), including a determination of the strength and composition of the forces required and the development of a logistical plan to support the tactical plan.
- (2) Landing. The sequence, time, and place of arrival of troops and material.
- (3) The air movement to facilitate the landing in the objective area.
- (4) Loading to complement and expedite the air movement.

c. Although planning follows generally the sequence indicated above, all elements of the plan are closely interrelated and are developed concurrently. Logistical planning begins at the same time as tactical planning and continues concurrently throughout the planning sequence.

d. Simplicity is the guiding principle in the preparation of airmobile operational plans.

24. Planning Technique, Aviation Unit Commander

a. The aviation unit commander works in close coordination with the airmobile force commander. Each must be made aware of all aspects of the other's planning. (See also paragraph 12.)

b. As soon as the aviation unit commander is informed of the airmobile force commander's scheme of maneuver, he can—

- (1) Advise and assist in air movement planning.
- (2) Designate flight leaders and the units to be supported by each.
- (3) Determine the composition of flights.
- (4) Inform the members of his unit of the location of loading sites, landing zones and sites, and refueling facilities.
- (5) Plan for refueling.
- (6) Prepare a schedule for the movement to the loading area.
- (7) Plan and coordinate rendezvous points for guide aircraft, if required, to lead the aerial vehicles to loading areas or ready areas.

25. Aircraft Requirements

The number of aircraft required is determined for each mission. The types of aircraft available and their allowable cargo loads are the major factors. The load-carrying capabilities of helicopters vary according to altitude, humidity, and temperature (par. 17a). TM 57-210 and FM 101-10 contain information on aircraft capabilities which is suitable for initial planning. The aviation unit commander must be consulted for actual operational capabilities.

Section II. INTELLIGENCE

26. General

Since airmobile operations are conducted in furtherance of the ground effort, the current intelligence situation and intelligence estimate of the unit are used in planning. Certain intelligence requirements are characteristic of airmobile operations or must be

given more emphasis: terrain analysis must cover a large area, weather forecasts are of critical importance, and enemy air defense units must be accurately located. Consideration should be given to including EEI designed to provide information on the feasibility of employing airmobile forces.

27. Weather and Terrain

a. Weather. Weather minimums must be established early in the planning to prescribe the worst acceptable weather in which the commander will permit the operation to be mounted. Weather minimums are established based on the type aircraft employed, navigation aids available, terrain along the flight routes, and the time of the operation. Weather information is obtained from the normal sources available within the field army.

b. Terrain. Analysis of the terrain for an airmobile operation must include careful consideration of potential landing zones and assembly areas in the objective area, avenues of approach from landing sites to the objective, the choice of landmarks to help define flight routes, and vegetation and land forms to provide concealment during the air movement. The location of emergency landing sites en route to the objective must also be considered.

28. Enemy

The intelligence requirements with respect to the enemy, in addition to the normal requirements, include a more careful consideration of his air defense installations, tactical air capability, armor capability, and airmobile capability, since they may pose a more serious threat to an airmobile force than to a ground mobile force.

29. Intelligence Operations

It is usually not possible to conduct a detailed ground reconnaissance of the objective area. Therefore, the airmobile force's ground reconnaissance plan should be designed to obtain information from units in contact which will be of value in planning flight routes immediately forward of the FEBA. Army observation aircraft can also be used in developing information to help in selecting flight routes. The commander must usually rely on aircraft for visual and photo reconnaissance of the objective area. Low oblique photos are particularly helpful. Visual reconnaissance is conducted both before the operation and during the air movement. Army aircraft used for reconnaissance can gain information of the objective area and landing zones, but they must conduct their reconnaissance without compromising the operation if possible.

30. Counterintelligence

These operations require the gathering of personnel and equipment at suitable sites on a time phased basis. In addition, briefings are required in detail for personnel in all echelons of all units involved. This poses a particular security problem which requires special emphasis on counterintelligence measures throughout planning and execution of the operation.

31. Intelligence Briefing

Intelligence briefings should be conducted in great detail and should include all information on weather, terrain, and the enemy. The intelligence information should be circulated to the lowest level and, when feasible, key personnel who take part in the airmobile operation should be given an opportunity to study photographs and maps of the objective area and surrounding terrain. Each individual should understand thoroughly the instructions pertaining to escape and evasion and methods of marking pickup sites for evacuating personnel from downed aircraft.

Section III. TACTICAL PLANNING FOR THE OBJECTIVE AREA

32. General

The plan or order for seizing and defending the objective in an airmobile operation should be simple. It is based on the current ground situation and must be closely coordinated with the overall ground scheme of maneuver. Planning and execution can be simplified by establishing and rehearsing standing operating procedures for airmobile operations. Delay in producing the plan/order or an improperly conceived plan increases the vulnerability of the airmobile force and lessens its chances for success. An analysis of the mission assigned by the higher headquarters discloses the task or tasks to be accomplished and the priority of accomplishment. Planning follows the same principles that are used for other ground operations. Planning for operations in the objective area encompasses, as appropriate, a scheme of maneuver, operation time, schedule, defense, fire support, ground linkup, withdrawal, displacement, and an alternate plan.

33. Scheme of Maneuver

a. General. The scheme of maneuver (fig. 1) provides a scheme for seizing the objective area by assigning missions and objectives, designating the forward edge of the battle area (FEBA) and a reconnaissance and security position (RSP), prescribing bound-

aries, providing a reserve, and, if necessary, a task organization. The scheme of maneuver is based on normal considerations governing the conduct of ground operations, but some modifications may be made because of initial decentralization of command control. The nature and location of landing zones are also considerations in formulating the scheme of maneuver.

b. Objective. The objectives selected should—

- (1) Further the accomplishment of the mission.
- (2) Normally be located on critical terrain.
- (3) Be within the capability of the unit assigned.
- (4) Include terrain essential for the defense of the objective(s).

c. FEBA.

- (1) The FEBA in an airmobile operation, includes all of the objectives and the maneuver space required for their defense until linkup or reinforcement is complete, or until subsequent operations are initiated.
- (2) It is desirable to include landing zones and maneuver space for seizing the objectives within the area defined by the FEBA; however, terrain considerations may not permit this.
- (3) The mission, friendly capabilities, and the enemy situation and capabilities influence the size of the area to be seized and held.

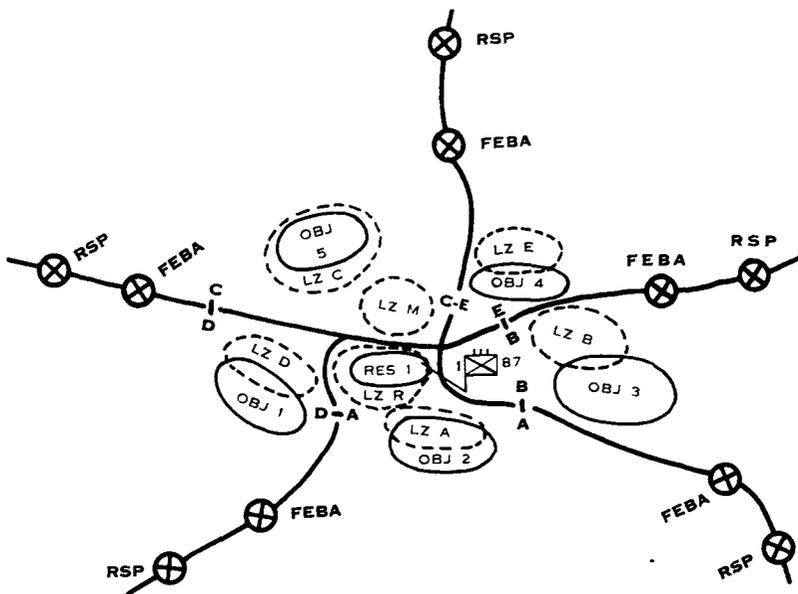


Figure 1. Scheme of maneuver.

- (4) The FEBA should take maximum advantage of natural and planned, man-made obstacles in order to add to its strength and to economize on troops.

d. Reconnaissance and Security Position. The airmobile force security echelon is normally employed on the RSP. The mission of this echelon is to provide early warning and, within its capability, to delay and disorganize the enemy, and to deceive him as to the location of the FEBA. The RSP is established beyond the FEBA where it can prevent enemy ground reconnaissance and close observation of the objective area. It may consist of outposts, observation posts, roadblocks, and reconnaissance detachments. Boundaries may be extended through the RSP to fix the responsibility of subordinate units. The RSP does not restrict the maneuver of reconnaissance units. They may reconnoiter beyond it to accomplish their mission. When the commander plans the location of the RSP, he should consider the—

- (1) Mission of the reconnaissance and security units.
- (2) Probable enemy avenues of approach.
- (3) Terrain beyond the FEBA that affords the best observation of probable enemy avenues of approach.
- (4) Units of the force that are available to form the security echelon.
- (5) Communication within the security echelon and between it and the forces within the FEBA.
- (6) Mobility of the security echelon.
- (7) Fire support available to the security echelon.

e. Boundaries and Sectors.

- (1) When the objectives and the FEBA have been selected, sectors of responsibility are assigned to subordinate units by designating boundaries. The terrain should be divided into sectors in such a way that a subordinate unit will not have to attack simultaneously in divergent directions. Boundaries should be readjusted as little as possible during the transition from the assault to the defense. It is desirable for each subordinate unit to have adequate landing zones and maneuver room within its sector. The reduced strength of the unit that furnishes the reserve must be considered when assigning its sector. Each unit has the responsibility of seizing the objectives within its sector, clearing the sector of enemy forces as required, and defending it.
- (2) Unit boundaries defining the areas of defensive responsibility may be terminated at a point short of the RSP. The

boundaries of units that are assigned responsibility for sectors of the RSP are extended from the FEBA to the limit of ground observation beyond the RSP.

f. Task Organization.

- (1) The task organization depends on the size of the sectors of responsibility as well as the nature and type of tasks assigned the major subordinate units. So far as practicable, tasks should be proportionate to the combat capability of each unit. The task organization should provide for a reserve, even though no immediate task or area of responsibility may be assigned to it.
- (2) Factors that affect the organization and that make the scheme of maneuver differ from those in other ground operations are—
 - (a) The number of missions that are to be accomplished almost simultaneously in the objective area.
 - (b) The fact that subordinate units often attack in different directions to accomplish the overall mission.
 - (c) The varying distances between units during the initial assault.
- (3) The above factors influence the commander toward decentralized control to further the accomplishment of each major subordinate unit's mission.

g. Reserve. The reserve frequently is brought into the objective area in the assault echelon, but not necessarily in the initial lift when a shuttle movement is required. The reserve may remain in the loading area with its aircraft prepared for movement to any point in the objective area. Since the airmobile force frequently has more objectives to seize than in other ground operations, the reserve usually is small. Additional reserve forces may become available from other elements as they accomplish their initial tasks. The reserve's location should take into account the—

- (1) Proximity of areas of probable employment.
- (2) Availability of routes for movement.
- (3) Availability of cover and concealment.
- (4) Enemy capabilities.
- (5) Convenience with which the reserve can provide depth to the defense in the most threatened sector.
- (6) Location of its parent unit.
- (7) Availability of aerial vehicles.
- (8) Need for dispersion in the objective area.

34. Timing the Operation

a. The commander considers the following in selecting the hour for the landing:

- (1) The enemy situation and capabilities (air and ground).
- (2) The influence of the predicted weather.
- (3) Visibility: day and night.
- (4) Availability of fire support: artillery, air, and nuclear.
- (5) Ground mobility.
- (6) Projected ground operations.

b. A daylight landing permits more effective air and artillery support than a night landing and makes it easier to assemble troops and equipment.

c. The principal advantages of landing at night are that darkness aids tactical surprise and reduces the effectiveness of enemy fire.

d. Timing the operation with respect to ground operations is influenced by the—

- (1) Depth of the operation.
- (2) Capabilities and limitations of fire support agencies.
- (3) Expected time for linkup.
- (4) Availability of logistical support.

35. Defense

a. Concurrently with planning for the seizure of the objective(s), the commander considers his defense. He applies the fundamentals of defense to the maximum extent possible. The defense of the objective area is basically a perimeter variation of the area defense (FM 7-10, FM 7-40).

b. Plans for defending objectives, once they have been seized, call for a minimum redistribution of subordinate units. When possible, troops, equipment, and vehicles should be delivered directly to RSP locations.

c. When vulnerability to nuclear attacks is a major factor to consider in defense planning, the commander may achieve additional dispersion by movement of forces to the RSP. For example, he may move a majority of his force out to occupy positions on the RSP, and employ the R&S forces on missions beyond the RSP. (See par. 72.)

36. Fire Support

a. *General.*

- (1) The airmobile force commander plans the fires to be

delivered before the assault to neutralize enemy forces within the objective area as well as those to be delivered during and after the assault to support the maneuvering elements. He may have access to artillery, air, naval gunfire support, and suppressive fires delivered by the participating Army transport aviation units. He must coordinate closely with fire support agencies while planning, because operations within the objective may be decentralized and communications may be difficult to maintain. In addition to the fires in the objective area to support the attack and defense, the commander should develop plans for fires to clear and isolate the approach and return routes. Fires planned within or near the flight corridor(s) and the objective area are carefully coordinated with the air movement. Smoke may be delivered by artillery and aircraft to mark the flight routes, aid in navigation, and screen the air movement.

- (2) If no enemy forces are known to be in the objective area, or if it is lightly defended, the commander must weigh the advantages to be gained from the fires against the possible loss of surprise and creation of damage which will adversely affect the mission.

b. Artillery Support.

- (1) When the objective area is within range of supporting artillery emplaced behind the line of contact, on-call and scheduled fires may be planned to support the air movement and subsequent operations on the objective. Suppression of enemy air defense fires, both preplanned and on-call, is given a high priority to assist the safe movement of the air column.
- (2) The artillery that moves to the objective area with the assault echelon fires in support of assault forces seizing objectives and clearing assigned sectors. In addition, it provides supporting fires to units that occupy the RSP. To support the RSP, artillery units may be required to displace from central positions within the objective area to positions close behind or beyond the FEBA. This allows the artillery longer range fires to support the RSP and also delay and disrupt enemy attacks. When units making up the security echelon withdraw, the artillery displaces again to support the defenses along the FEBA. Fire direction is the same as during other ground operations.

- (3) Air defense artillery support may be planned in an air defense and/or ground support role. The logistical problems involved in transporting air defense artillery units as part of the assault echelon should influence the commander to investigate the possibility of using other air defense means.

c. Supplementary Fire Support. When available, missile and naval gunfire support is planned to supplement artillery support. Scheduled fires from this support are incorporated with primary and alternate plans so that the fires can be lifted or shifted as required. Naval gunfire spotting and liaison teams and guided missile observers accompany the assault echelon.

d. Air Support. Air escort en route to the objective area and during operations provides protection from enemy aircraft and facilitates the seizure and defense of objectives. The airmobile force commander plans air strikes against enemy ground forces, particularly enemy armor. He also requests air strikes outside the objective area to aid deception and disrupt known or suspected enemy reserves.

e. Fire Support by Army Aircraft.

- (1) Participating Army aviation units may have the capability of employing suppressive fires during the air movement and just before landing. These fires discourage small-arms and automatic weapons fire against the aircraft by forcing enemy personnel to take cover. They do not take the place of any of the other types of fires supporting the operation. They must be carefully coordinated with all other supporting fires and with the operations of friendly units in the objective area and along the flight route.
- (2) Other Army aircraft available to the airmobile force commander may be employed to provide fire support during the air movement, assault, and defense of the objective. Attached Army aircraft capable of suppressive or area fire support may be retained under centralized control or further attached to elements of the force. These aircraft are particularly valuable when employed with reconnaissance and security forces. When they can provide adequate support, the requirement for displacing artillery and other fire support means for this purpose is eliminated. These aircraft also extend the range capability of the R&S forces and provide the commander with timely information relative to long-range enemy activities.

f. Nuclear Weapon Support.

- (1) Nuclear weapon support, regardless of the method or time of delivery or the purpose of employment, is integrated into overall fire support plans. Like all fire support, it must be coordinated with the scheme of maneuver and plan of defense. The effects of nuclear weapons should be exploited by planning an assault that can be swiftly executed to take advantage of the devastation and confusion, and by planning a counterattack to be executed when the support is used in the defense of the objective area. Plans for the use of on-call nuclear fire missions are thorough to insure prompt execution.
- (2) When nuclear weapon support is available, fewer troops may be required to accomplish the mission. The debris and fires created by nuclear weapons should be considered in planning. Alternate plans should be developed for use when planned nuclear weapon support is not carried out or when the effects it produces are significantly different from those predicted.
- (3) The offensive use of nuclear weapons permits greater dispersion of friendly forces, thus decreasing vulnerability to enemy nuclear attack.
- (4) The effects of nuclear fires such as blast pressures, dust and smoke clouds, dazzle, and thermal and nuclear radiation on pilots and aircraft in flight must be considered, as well as the influence these hazards, plus debris, will have on the tactical plan.

37. Ground Linkup

Plans for the juncture of the airmobile force and advancing friendly ground forces (fig. 2) are coordinated in advance. They include—

a. The assumption of command. (The airmobile force may become attached to the linkup force or both forces may come or remain under control of a higher commander.)

b. Command and staff liaison, before and during the operation. (This may be facilitated by the use of aircraft.)

c. A system of mutual recognition (arm bands, pyrotechnics, vehicle markings, panels).

d. Coordination of communication plans (establishment of nets, exchange of call signs and radio frequencies, and exchange of radios, if required).

e. Coordination of schemes of maneuver (establishment of link-up points; delineation of objectives and boundaries or axes of advance).

f. Fire coordination measures employed during the juncture of the airmobile force and advancing friendly forces are of major importance in preventing casualties to both the link-up force and the airmobile force. The principal measure for fire coordination is the establishment of a pre-determined mutually agreed-upon fire coordination line (FCL). The function of the FCL is to regulate flat-trajectory and high-angle fires and offensive air strikes. No more than negligible effects of nuclear fires will be permitted to extend beyond the FCL without prior coordination with the other friendly force. The FCL, where feasible, should be delineated by terrain features clearly recognizable from both the ground and the air. The FCL becomes effective at a pre-determined time or on order. The FCL is employed as protection for friendly forces beyond the line and fires delivered across the FCL must be coordinated with the other friendly force. In addition to the FCL, both the airmobile and link-up force commanders will designate no fire lines (NFL) as protection for their own respective forces from the high-angle fires of their own supporting weapons. Since the FCL applies to both the link-up and airmobile forces, when the NFL of the advancing force merges with the FCL, all high-angle fires are severely restricted and must be closely coordinated with the affected force.

g. The airmobile force provides assistance to the advancing link-up forces by providing guides and removing obstacles that were established to hinder enemy movements.

38. Communication

Communication considerations must be integrated into the planning process at the beginning of the planning phase. Plans/orders should include a selection of communication equipment and personnel to accompany the assault and rear echelons. Particular attention is given to the transportability of equipment and the dispersal of key personnel when preparing for the air movement and loading. To avoid enemy detection, communications may have to be minimized or radio silence may have to be imposed during the early stages of the operation. For detailed information on communications in the infantry and airborne divisions, see FM 7-24.

a. *Communication for Control of Airmobile Force.* Control of movement is necessary to provide precise timing and execution of the operation. Plans are prepared to insure communication between control personnel and the following:

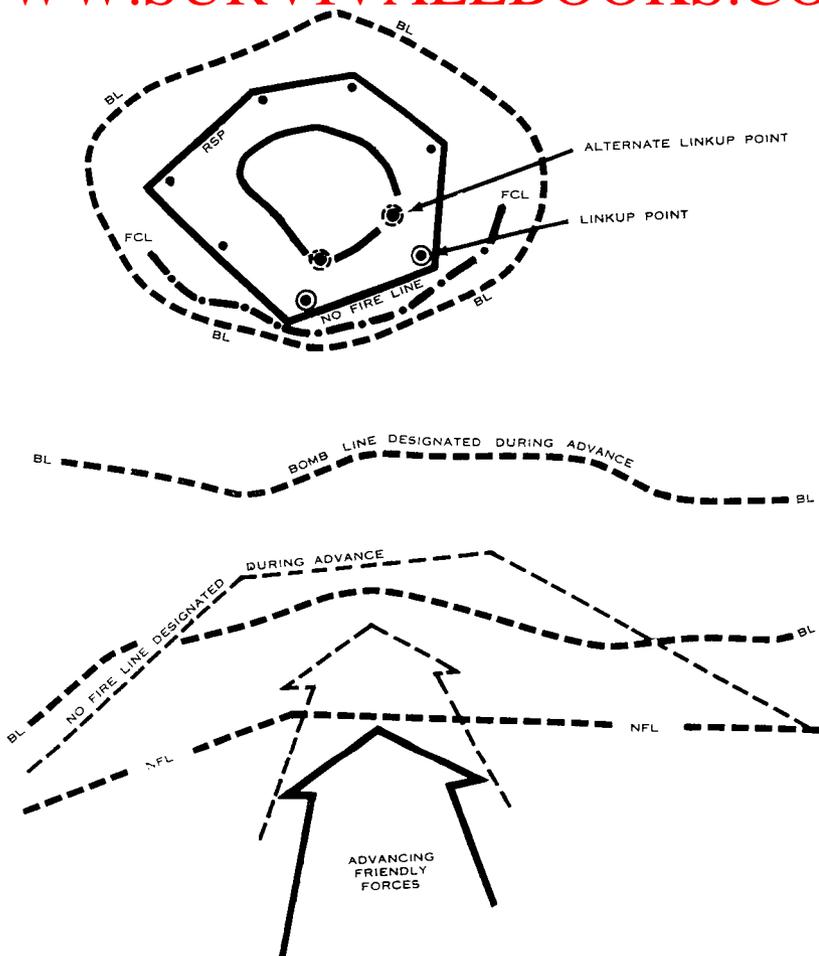


Figure 2. Coordination for linkup.

- (1) The loading area.
- (2) The objective area.
- (3) The Army aviation unit.
- (4) Aircraft in flight.
- (5) The airmobile unit's FSC.
- (6) The airmobile unit's command post.

b. Communication in the Objective Area.

- (1) For effective control of ground operations, communication must be established as the airmobile elements arrive in the combat area. Enough communication personnel and equipment are moved into the objective area early in the assault to insure timely installation of vital communication for the command post.

- (2) The following communication is necessary for effective command control:
- (a) Immediate establishment of command and fire control channels.
 - (b) Communication with supporting artillery, air, and naval forces.
 - (c) Communication with Army aviation units concerned with aerial observation, reconnaissance, buildup, air supply, and air evacuation.
 - (d) Communication with bases in friendly territory.
 - (e) Communication with other forces (including link-up forces) with a common or coordinated mission.
 - (f) Communication with higher headquarters.

39. Alternate Plans

a. Alternate plans are prepared and used in the event that—

- (1) Any part of the force fails in its particular mission.
- (2) Communication is disrupted.
- (3) Enemy action precludes the use of designated approach and return routes, or landing zones and sites.
- (4) The weather or enemy action interferes with landings.
- (5) Withdrawal from the objective area becomes necessary or desirable.
- (6) Reinforcement of the airmobile force in the objective area becomes desirable.

b. Means are provided for communicating the decision to execute an alternate plan.

Section IV. LANDING

40. General

a. The landing is based on the scheme of maneuver. Landing instructions in the operations plan/order include the sequence, time, and place of arrival of troops and materiel in the objective area and the control measures to be used. The order in which units land, the time of landing, and the landing zones and sites designated are based on the recommendations of subordinate unit commanders and the aviation unit commander. These instructions do not require detailed and complex written materials or tables to insure a successful landing. (See app. VI.) Alternate plans are provided in the event it is necessary to change or abandon the preferred landing instructions.

b. Unless the scheme of maneuver, adequacy of landing zones, or availability of aircraft dictates otherwise, the commander arranges for all units of the airmobile force to land simultaneously. When this is not feasible, units are shuttled to the objective area. The units that are to seize critical objectives are delivered first. The priority of movement of units in subsequent lifts is determined by the criticality of their missions. The shuttling of troops, resupply, and the movement of equipment may have to be suspended due to the loss of initial surprise.

41. Landing Zones

a. The airmobile force commander designates the landing zones and sites to be used by each subordinate unit and establishes priorities for their landing. Alternate landing zones are designated for use in event the desired landing zones are unusable. Concurrently with the development of the scheme of maneuver, availability of landing zones and sites are considered. The intelligence officers of the airmobile force and supporting aviation unit determine and recommend usable landing zones and sites. The intelligence officers establish the capacity (number of aircraft that can land simultaneously) of each landing site.

b. All landing zones are selected to provide the best disposition of units for seizing objectives. A unit is normally landed in its assigned sector. If there are not enough landing zones in the assigned sector, elements of the unit may land in the sector assigned another unit.

c. Assault forces land on or as close to their objectives as the terrain and enemy situation permit.

d. Other desirable characteristics of landing zones include—

- (1) Ease of identification from the air under expected conditions of visibility.
- (2) Cover and concealment close to landing zones.
- (3) Relative freedom from obstacles and enemy air defense fires.
- (4) Nearness to dominating terrain, covered routes of approach to objectives, good road nets, and terrain favorable for defense against armored attack.

e. See appendix III for additional information on the selection, preparation, and occupation of drop and landing zones. See appendix II for information on the use of landing control personnel in the objective area.

Section V. AIR MOVEMENT

42. General

a. Standing Operating Procedures. To expedite and simplify air movement planning, units that may become involved in airmobile operations must prepare unit SOP's which serve as a basis for the determination of aircraft requirements to lift specific units. Loading SOP's should be developed in detail at squad, platoon, and company level to show the personnel and equipment to be lifted by individual aircraft. Loading SOP's should be developed for several contingencies to include the more common types of utility and transport aircraft, various conditions of weather, and aircraft combat radii of 25, 50, 100 kilometers, all of which would vary the payload of the aircraft.

b. Planning Worksheet. The planning worksheet (TM 57-210) shows how many aircraft by type are required to lift a given unit. To facilitate air movement planning and the determination of aircraft requirements, personnel, major items of equipment, and significant additional cargo are shown separately. Planning worksheets may be developed as time permits for a variety of environmental conditions and distances to facilitate application of this information to a specific operational mission.

43. Air Movement

a. General. Air movement planning is under the staff supervision of the operations staff officer. The air movement is based on and supports the tactical plan. The amount of detail included in air movement instructions depends on the scope of the operation and the time available for planning and executing it. Instructions normally included in the operations plan/order consist of a flight route diagram, air movement details and movement control information. (See appendix VI).

b. Flight Route Diagram. The flight route diagram, which may prescribe crossover routes as shown in figure 3 or may be as simple as the one shown in appendix VI, is published in overlay form as a part of or an appendix to the operation order. It includes the location of loading areas, flight routes, initial points, air control points, release points, and landing zones. In order to minimize ground movement prior to an airmobile operation, dispersed loading areas are selected as close as possible to the assembly areas of the units to be airlifted. Flight routes are selected to avoid enemy strengths, to provide deception, and to take advantage of terrain. Landing zones are selected to land troops on or near their objective

in order to capitalize on surprise and to minimize ground movement in the objective area.

(1) *Approach and return routes.* Many possible routes are studied, and the desirability of using multiple routes is considered. Multiple routes in the vicinity of the objective area permit several flights to land simultaneously, but complicate movement control and fire support. Major considerations which influence the selection of flight routes are the—

- (a) *Ability of the enemy to detect the movement.* Aircraft can best avoid detection by flying at low altitudes and by taking advantage of defilade and concealment in flight. Helicopters can take advantage of periods of reduced visibility to hide their movements. Detection and interference by the enemy will be influenced by the length of time the airmobile force is passing over enemy territory. Shuttling or moving a long air column over a single route may make the airmobile force too vulnerable to enemy detection and interference. Multiple routes may be necessary to reduce the vulnerability.
- (b) *Location of enemy forces.* Whenever practicable, the

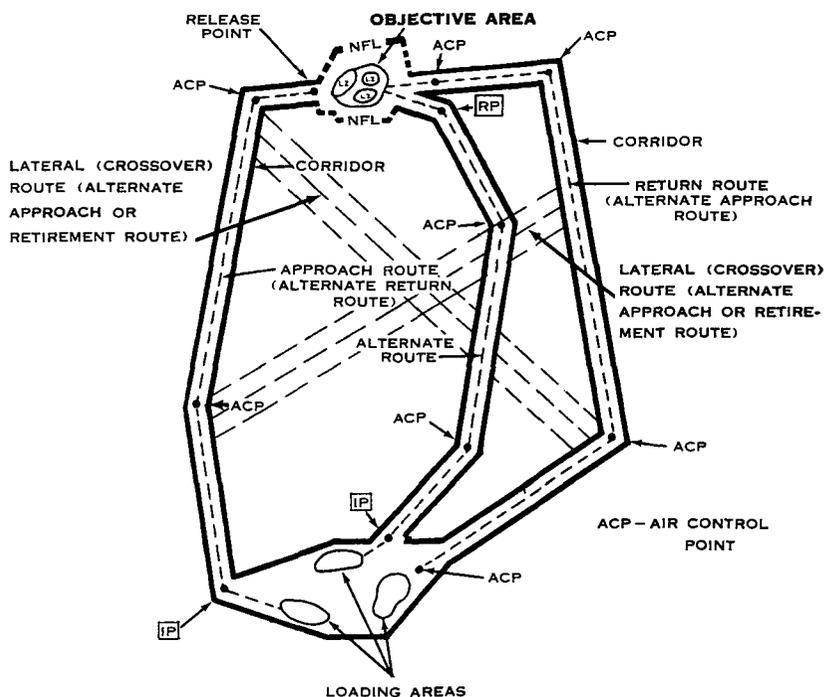


Figure 3. Flight routes.

aircraft will not fly over or near known enemy air defense weapons and troop concentrations.

- (c) *Capability of supporting weapons.* The capability of air and ground supporting weapons to reduce or destroy the enemy's ability to interfere with the air movement must be considered.
 - (d) *Restriction on friendly fires.* Friendly fires must be controlled to keep them from inflicting damage on the aircraft. A flight corridor extending from the loading area to the no fire line in the objective area is therefore prescribed and all fires within the corridor are coordinated or restricted. The width of a corridor may vary with each operation. It depends on the aircraft formation, the type aircraft, the terrain, visibility and weather, the length of the corridor, and navigation facilities. It is desirable to choose a corridor that will require the least possible restriction of the fires of friendly forces. When a return route is not the same as the approach route, an additional flight corridor is designated. This may cause further restrictions of friendly fires.
 - (e) *Ease of navigation.* Flight routes may follow recognizable terrain such as rivers, natural corridors, railroads, and roads, as an aid to navigation.
- (2) *Alternate routes.* Alternate routes are planned to provide for—
- (a) Last minute intelligence on weather, enemy, and terrain.
 - (b) A change in the tactical plan.
 - (c) A change in the fire plan which increases or reduces the effectiveness of fire during the approach flight.
 - (d) Lateral (crossover) routes are planned for use in case unexpected enemy air defense or ground fire along a primary route necessitates immediate crossover to an alternate route. Also, crossover routes may be used by movement control aircraft for hasty reconnaissance of alternate routes.
- (3) *Flight formation.* The flight formation for any given mission is dictated by technical as well as tactical considerations. Technical considerations govern the minimum flight safety precautions that must be adhered to.
- (4) *Altitude.* The aircraft normally fly at the lowest altitude above the terrain within technical safety requirements.

Low altitude reduces the enemy's capability to detect the movement and to place long-range, large caliber weapons fire on the aircraft in flight. By flying low, aircraft take maximum advantage of irregularities in the terrain, thus gaining some protection from small-arms fire.

- (5) *Flight speed.* The prescribed speed to be flown depends on the type of aircraft, the formation, and the use of externally slung loads. The aircraft normally fly at the rated cruising speed except that when two or more types of aircraft fly in a single serial, they fly at the cruising speed of the slowest aircraft.

c. Air Movement Table.

- (1) The air movement table may be published as a part of the coordinating instructions in the operations plan/order or as an annex to the operations plan/order. It includes the serial organization, designation of loading zones for each serial, and a time schedule.
- (2) The serial sequence is based on the commander's priorities for arrival of units in the objective area. The serial organization is based on the tactical plan of the airmobile unit. Transport aircraft unit integrity within serials is desirable; however, it is sacrificed to maintain the integrity of the units being lifted and to comply with the priorities and tactical plan established by the commander. The assault echelon may be organized in one or more lifts as stated in paragraph 22a.

d. Movement Control. Movement control information includes the designation and location of the flight control elements, emergency procedures, and communication and navigation information. For small-scale operations, navigation may be merely by pilotage and the use of terrain features for air control points (ACP's). For more complex operations, manned ACP's with electronic navigation facilities and terminal guidance and control in the landing areas may be required. En route navigational facilities and terminal guidance in the objective area may be provided by the unit being airlifted or by Field Army pathfinder detachments. The term "pathfinder" as used throughout the manual refers to especially selected and trained Army personnel whose mission is to aid in the terminal navigation and control of Army aircraft. The commander must carefully weigh the advantages derived from the employment of pathfinders against the possibility of loss of tactical surprise resulting from their employment. When the commander decides to use pathfinders, the personnel within the battle group

who are capable of providing guidance to Army aircraft will normally be employed for this purpose.

Section VI. WITHDRAWAL

44. General

a. Withdrawal from an objective area may be forced by the enemy or may be made voluntarily. The withdrawal may be made by air, land, or water, and by day or night. Advance planning is imperative, as the limitations of Army aviation and the circular shape of the objective area introduce complicating factors that do not exist in other withdrawals. When the situation permits, the withdrawal plan usually provides for evacuation in this sequence: supplies, materiel, and troops. Supplies and materiel which cannot be evacuated are destroyed. Extensive fire support is necessary for a successful withdrawal from an airmobile force's objective area.

b. A ground withdrawal is normally toward the linkup force. However, withdrawal from contact with the enemy may be to a position more advantageous for conducting further operations or toward another friendly position.

45. Air Withdrawal

See FM 7-40 for discussion of the factors that must be considered in planning for a withdrawal by air.

Section VII. LOADING

46. General

a. The loading should be as uncomplicated as possible. For a small-scale operation, it may be only a matter of deciding and announcing where and at what time troops are to load. For a large-scale operation, loading may be complex enough to require written instructions as to the delivery of troops and equipment in the loading area, designation of loading sites, the time and priority of loading, and other details. Under exceptional conditions, this may be applicable to a battle group size force. (See app. VI.)

b. Unit loading and unloading SOP (app. VII) make it practicable for the commander of an airmobile force as large as a battle group to simplify the loading plan to the extent shown in appendix VI. Appendix V contains an example of considerations involved in loading a company size force.

47. Loading Area

The loading area is normally at the current location of the airmobile force or as near to it as terrain restrictions permit. When a ground unit is assigned an airmobile mission while on the move, a loading area is chosen at the nearest point on its route where the aviation unit can join the ground unit with the least delay to both.

Section VIII. ABBREVIATED PLANS AND ORDERS

48. General

This 2-paragraph section is intended to reemphasize the fact that opportunities to employ airmobile forces to advantage often come suddenly and must be acted upon at once. To be able to act quickly and efficiently, the commander must plan fast and issue brief and simple orders.

49. Specific

a. When the commander has enough time, he issues a complete, written order. When time is lacking, which will frequently be the case, he may issue fragmentary oral orders. He may use a map overlay or sketch with either an oral or written order.

b. Unit SOP's covering the activities involved in airmobile operations make it possible for the commander of a force as large as a battle group to issue an overlay type operation order with a valuable saving of time.

c. When armed escort and/or fire support aircraft are available to support the movement to and ground action in the objective area, the operation should not be delayed solely for the purpose of preparing a detailed fire support plan.

d. An overlay type operations order as shown in appendix VI may be used for a short-range, short duration, operation. It may include the following shown graphically on one overlay:

- (1) Scheme of maneuver.
- (2) Ground linkup.
- (3) Air movement showing the loading area, flight route (including the initial and release points and the time of arrival at and clearance of each), altitude, speed, and landing zones.
- (4) Aircraft allocation, including aircraft numbers and the time and place of loading.

Section IX. ADMINISTRATIVE PLANNING

50. Personnel

a. *Strength Messages.* Each unit in the objective area submits a strength message as soon as possible to higher headquarters, noting any personnel losses incurred during the flight from the loading area to the objective area. After this initial strength report, unit standing operating procedure is followed in submitting "feeder" type morning reports, the personnel daily summary, and daily strength messages. See also appendix VII.

b. *Casualty Reports.* Casualty reports are prepared as soon as possible and forwarded to the unit personnel section.

51. Prisoners of War

Normally, only key prisoners of war, as designated by the unit S2, are evacuated from the objective area during the assault phase. During later stages of the operation, aircraft which would otherwise be returning empty may be used to evacuate other prisoners.

52. Graves Registration

Graves registration personnel normally accompany the rear echelon. Evacuation may be delayed at all echelons until the situation in the objective area has been stabilized.

53. Logistics

Airmobile operations require, in addition to normal detailed logistical planning, consideration of the following special factors:

a. The time between the assault landing and linkup or displacement.

b. The number and type of aircraft available for supply purposes.

c. The construction and demolition tasks to be performed in the objective area.

d. The tactical loading requirements for personnel and equipment.

54. Supply

a. *General.* The quantity and types of supplies and equipment carried are dictated by the initial combat requirements; the availability and carrying capacity of aircraft; the projected time of linkup or the time that resupply by normal means can be resumed;

the anticipated weather; and enemy capabilities. Each soldier and each subordinate unit of the assault force should carry enough supplies to sustain them until they can be resupplied. Adequate additional supplies should be maintained in the objective area at all times to replace expended assault supplies.

b. Supply by Classes.

- (1) *Class I.* The assault echelon carries enough assault and individual combat rations to last until resupplied.
- (2) *Class II.* The assault echelon carries only the minimum repair parts. Essential class II items are included in resupply.
- (3) *Class III.* The fuel tanks of vehicles are filled to the safe level and additional fuel and lubricants are carried in each vehicle. Resupply includes fuel and lubricants.
- (4) *Class IV.* The amount of class IV supply brought into the objective area is limited; consequently, resources within the objective are exploited to the fullest extent.
- (5) *Class V.* The amounts and types of class V assault supply vary with each operation. A load is prescribed, based upon the degree of opposition expected during and after the landing, the number and type of weapons with the assault echelon and requirements for bulk allotment items, the time that resupply can be expected, and experience factors. Resupply includes all types of class V supply in sufficient quantities to allow continuity of combat operations. The enemy opposition encountered in the objective area frequently requires changes in the amounts and types of resupply items preplanned for delivery.
- (6) *Miscellaneous.*
 - (a) Probable water supply points are predesignated.
 - (b) Salvage and excess supplies are evacuated through normal supply channels.
 - (c) Captured enemy materiel is used to the maximum extent within the limitations prescribed by unit SOP's and policy established by the commander.

55. Evacuation and Hospitalization

a. Medical elements, with liaison personnel from supporting medical units, are moved into the objective area to establish a system of emergency treatment and evacuation.

b. Patients are evacuated by aircraft as expeditiously as possible.

c. Medical holding facilities may be established at suitable landing sites.

d. Organic medical facilities may require augmentation in order to care for nontransportable patients in large-scale operations.

56. Transportation

a. Before linkup, airmobile forces are dependent upon air lines of communication. The flight and landing characteristics of Army fixed-wing aircraft and helicopters are exploited to deliver supplies close to using units.

b. Surface means of transportation are more limited than in other ground operations, so available motor transport normally is pooled, along with usable enemy military and civilian motor vehicles found within the objective area.

CHAPTER 4

CONDUCT OF AIRMOBILE OPERATIONS

Section I. GENERAL

57. General

This chapter describes the seizure and defense of an objective in hostile territory by an airmobile infantry division battle group in conjunction with a ground attack designed to effect an early linkup with the airmobile force. The tactical principles, phases of the operation, and conduct of the assault described apply generally to all airmobile operations. See chapter 5 for a discussion of other types of operations that may be conducted by airmobile forces.

58. Tactical Principles

a. Airmobile operations are conducted with emphasis on mobility, surprise, and speed. Tactical surprise is achieved through the ability of aircraft to deliver assault forces directly upon or immediately adjacent to the objectives. Aggressive ground attacks exploit surprise by the prompt seizure of initial objectives. The rapidity of the attack reduces vulnerability to enemy counteraction, including his use of nuclear weapons.

b. Airmobile forces are not employed on missions that can be performed as expeditiously and effectively by other forces or weapons.

c. Airmobile assaults usually are made in areas where strong enemy defense and large organized combat units are not initially present or where they have been neutralized.

d. Unity of command throughout the operation is essential.

e. The limited ground mobility and firepower of the airmobile force in the objective area necessitates special measures to reduce the vulnerability of the force to enemy armor.

f. Airmobile operations are usually conducted in conjunction with a ground attack to effect an early linkup with the airmobile force.

59. Decentralization of Control

In the assault, control is decentralized and subordinate units are relied on to seize initial objectives or perform initial tasks rapidly

by independent action. Communication must be established before successive, higher commanders can resume effective centralized control over their forces,

Section II. LOADING AREA

60. General

a. Loading is conducted according to the operations order. Loading SOP's (app. VII) facilitate a rapid and orderly launching of an operation under maximum security.

b. Aircraft are loaded in the minimum possible time. Because of the requirement for security and the threat of nuclear weapons, as well as nonnuclear types, all elements of the force must be dispersed and maximum preparations completed before the aircraft arrive at the loading sites.

61. Aircraft Loads

The assault echelon is loaded according to these basic considerations:

a. Enough troops must ride in each aircraft to unlash and unload equipment and supplies upon arrival in the objective area.

b. Unit commanders strive for tactical loading. All men carry their complete combat equipment, and ammunition must accompany each weapon.

c. Key personnel and equipment are distributed throughout each of the aircraft formations.

Section III. AIR MOVEMENT

62. General

a. The commander of an airmobile force is responsible for the conduct of its movement. He may use the personnel and facilities of the supporting transport aviation unit to the extent required. The commander of the supporting transport aviation unit advises and assists him by maintaining communication with the aircraft and by transmitting movement instructions as required.

b. Communication facilities as shown in figure 4 should be provided to insure adequate control of the air movement.

63. Approach Flight

a. Serials take off from the loading area, by flights, at the time prescribed in the order unless otherwise directed by the force com-

COMMUNICATION IN OBJECTIVE AREA MAY
BE BY PATHFINDERS INITIALLY

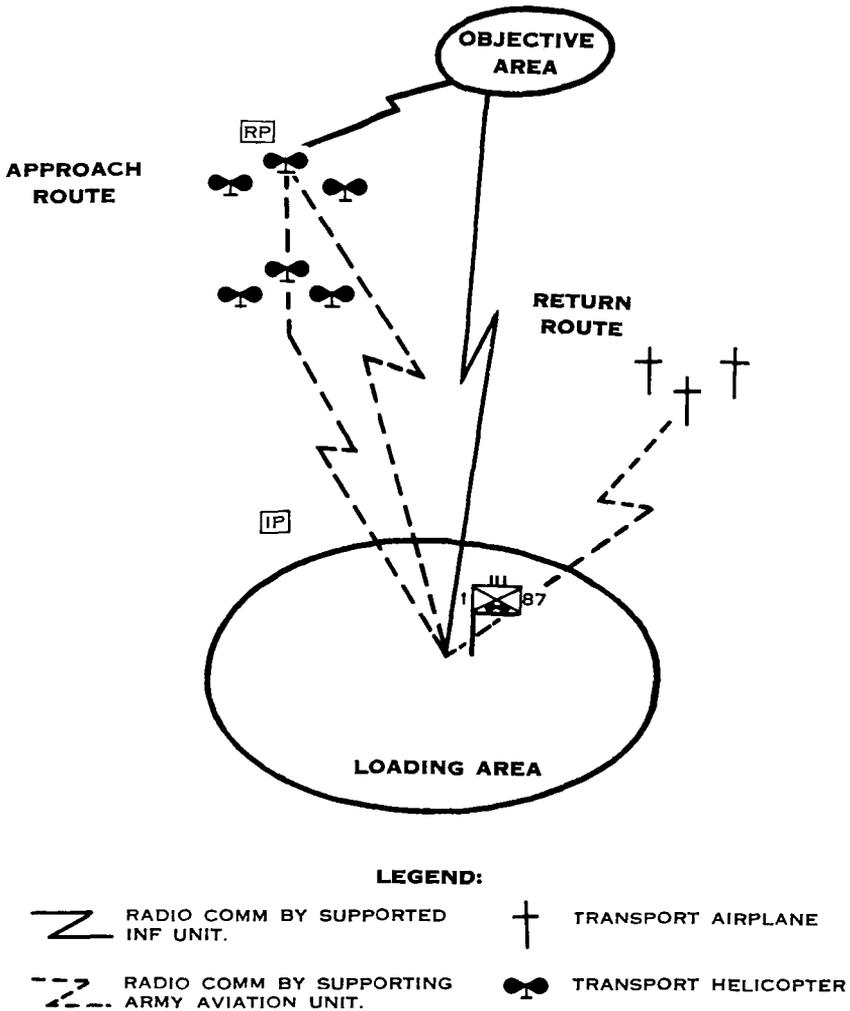


Figure 4. Air movement control communications.

mander. The takeoff and movement to the IP are executed so the flights arrive at the IP at the prescribed time and in the proper formation.

b. Personnel controlling the movement are kept informed on the progress of the loading and of any changes in serial composition, delays, etc., due to aircraft aborting prior to or on takeoff. This is particularly important during shuttle movements.

c. The supporting aviation unit provides the necessary men and

equipment at loading sites to physically control aircraft takeoff. They may be assisted by pathfinders.

d. Flight routes are defined by air control points (checkpoints). Normally, the IP and RP are easily recognizable landmarks. They may be indicated by visual or electronic devices, especially at night and during periods of low visibility. As many additional ACP's as are required for navigation may be designated and marked in like manner. Pathfinders may provide the necessary personnel and equipment to mark all checkpoints.

e. The aviation unit commander is responsible for executing the flight as prescribed in the order. He keeps the force commander informed of progress during the flight and makes any recommendations he considers appropriate.

f. Personnel controlling movement maintain contact with the column during flight, with pathfinders (if used) in the objective area, and transmit movement instructions as required (change in routes, altitude, formation, speed, etc.) in coordination with the flight operations center (FOC) in control of that corps area.

g. Upon reaching the RP, serials within the air column leave the column and proceed to the assigned landing zones. Necessary instructions on the final approach to the landing zone and on landing may be transmitted by pathfinders at the landing zone(s). Contact between them and serial commanders is established at a predesignated point or time.

h. Alternate means of locating landing zones and ACP's should be provided for by placing self-erecting navigation aids or by infiltrating patrols equipped with communication gear.

64. Unloading and Return Flight

a. To reduce congestion in the landing zones and minimize the time aircraft are exposed to enemy fire while on the ground, they are unloaded rapidly and take off for return movement by flights without organizing into serials. Pathfinders within the objective may assist in clearing combat troops and equipment from the landing sites and in the takeoff of aircraft to speed up the action and avoid traffic congestion.

b. Flights return to the loading area over designated return routes. If an alternate route is to be used, necessary instructions are issued and coordinated with the FSC and other affected headquarters.

c. When returning flight leaders reach a predesignated point, they contact the loading area for instructions.

Section IV. THE ASSAULT

65. General

a. The assault phase of an airmobile operation begins with the landing of the lead elements and continues through the seizure of the objective area and the occupation of the reconnaissance and security position.

b. The battle group usually seizes and defends the minimum terrain necessary to accomplish its mission. Adequate maneuver room and protected landing zones for resupply are included, as required.

c. The fact that an airmobile force usually lands where there are few fixed defenses and few well-organized enemy combat troops facilitates rapid seizure of initial objectives. The enemy may be expected to react rapidly. Initial counterattacks are likely to be hasty, uncoordinated thrust along main avenues of approach with any units available. These attacks progressively increase in strength, mass, and coordinated effort, and may possibly include counterattacks by airmobile forces. The enemy will usually employ armored units in these attacks, if available. The early preparation of a defense against armor is therefore a major consideration.

d. There are two general types of airmobile assault. They differ primarily in the proximity of the landing zones to the initial objectives assigned to a unit.

(1) The first type involves the simultaneous landing of assault units directly upon or immediately adjacent to initial objectives and is the type used whenever feasible. Landing zones and landing sites (strips) are selected to capitalize on surprise and the capability of small units to land on almost any type of terrain. This type of assault has the following advantages:

- (*a*) Surprise is exploited by seizing initial objectives and vital installations before defending forces can react.
- (*b*) Assault units avoid the exhaustion resulting from forced marches, carrying heavy combat loads, and manhandling equipment over long distances.
- (*c*) Greater initial dispersion makes the force less vulnerable to nuclear weapons.

(2) The second type involves the landing, assembly, and reorganization, and then an attack to seize initial objectives. Landing zones and landing sites are selected with more

emphasis on their suitability for landing, assembly, and reorganizing larger units without enemy interference. This type of assault is used if the terrain and enemy situation do not permit landing on or immediately adjacent to initial objectives. It has these advantages:

- (a) Loading, movement, and landing are simplified by the movement of major units to landing zones intact.
 - (b) Landing in an undefended zone reduces losses of aircraft and personnel in the landing phase.
 - (c) Coordinated action is facilitated by establishing control of small units before engaging the enemy in ground combat.
 - (d) Less time is required to train and rehearse troops for this type of assault since it most nearly resembles conventional ground combat.
 - (e) More protection is provided supporting weapons, command posts, and logistical installations in the vicinity of the landing zones.
 - (f) Fire support from outside the objective area is more easily coordinated with ground maneuver.
- (3) A variety of factors influences the selection of the type of assault: the mission, the state of training of participating units, the terrain, the strength and disposition of enemy forces, the capability of either side for employing nuclear weapons, and other factors. Frequently, it will be advantageous to use both types of assault in one operation.

e. The mission and requirement for depth of defense may dictate the assignment of wide frontages to combat elements of the force. However, airmobile units lack ground mobility because of the restricted quantities and types of equipment accompanying them in an assault. The lack of tanks and other motor vehicles increases the difficulty of conducting offensive or defensive operations requiring shock action or good ground mobility. This deficiency in ground mobility is partially balanced by shorter lines of communication within the objective area and by the possible use of Army aircraft to move reserves, supplies, and equipment.

f. The reduced artillery support is partially overcome by greater reliance on the use of long-range artillery fires from friendly ground forces within range, armed Army aircraft, and by increased close air support. Further compensation is gained from the difficulty the enemy has in concentrating effective fires on hostile formations suddenly placed in his rear areas.

66. Landing and Reorganization

a. General. The period between the start of the landing and the end of the reorganization of the assault elements is the most critical one as far as vulnerability to enemy attack is concerned. When assault units land on or immediately adjacent to their initial objectives, they may have to delay reorganization until the objectives have been seized. All units reorganize at the earliest practicable moment.

b. Landing.

- (1) Troops land on assigned landing zones with subordinate units disposed on landing sites according to the planned tactical employment. Battle group separate units and the reserve land on the company landing zones or a separate landing zone centrally located within the objective area.
- (2) The rapidity with which units land varies greatly with the type and quantity of aircraft and the capacity of the landing zones. When the assault echelon can be transported in one lift, a unit may land in a few minutes. If the assault echelon has to be shuttled, a longer time is required.
- (3) When necessary, the initial flights bring in the assault elements necessary to seize and secure the landing zone. Reconnaissance units land early and proceed immediately on their ground reconnaissance missions. Command groups land early so that they can establish control promptly, permitting commanders to gain timely information of the progress of the ground action. Forward observers and air control teams land early so that they can quickly employ all supporting fires both from within and without the objective area. Supporting weapons land as close as possible to their planned initial firing positions.
- (4) All individuals and units land with essential weapons, equipment, and ammunition to insure their combat readiness and to reduce the time required for assembly. Additional equipment and supplies are delivered in later serials. If the aircraft can lift light command and reconnaissance vehicles and weapons, they are landed with the units.
- (5) Troops and equipment are unloaded from aircraft quickly and cleared from the landing sites (strips). This facilitates control of incoming aircraft, reduces danger of accidents, and reduces casualties from enemy fires.
- (6) When enemy fire interferes with the landing, prompt

countermeasures are taken by all available means. If there are excessive casualties among troops or aircraft, the airmobile force commander reports the situation and determines whether or not the landing zone(s) or site(s) (strips) will continue to be used, or whether alternate plans will be carried out. If countermeasures against enemy fire are ineffective, alternate landing zones or sites are used.

c. Reorganization.

- (1) When units land directly on or immediately adjacent to their initial objectives, squads, platoons, and special teams proceed to their objectives immediately, with little or no reorganization. In this type of assault, they reorganize concurrently with or soon after the seizure of the initial objectives.
- (2) When assembly areas are required, they are located within or adjacent to landing zones but clear of landing sites (strips). The elements that land first may be charged with gaining and maintaining security of the landing zones. Succeeding elements move intact directly from the landing sites to the predesignated assembly areas, assisted by guides and other appropriate assembly aids. All elements carry with them the equipment they immediately require for their missions. Upon arrival in assembly areas, unit commanders report the status of their units, receive any new instructions, and continue on their missions. These reports of readiness for action permit the battle group and company commanders to make any changes in missions that are warranted by changed circumstances.
- (3) Troops may be designated to remain on landing zones to protect the area, assemble stragglers, establish prisoner of war collecting points, care for casualties, or handle incoming supplies.
- (4) Reorganization is complete when assault elements of all units are assembled and communication is established.

67. Seizure of Initial Objectives

a. The initial ground combat stresses the coordinated action of small units to seize initial objectives rapidly before the advantage of surprise is lost. All units attack as rapidly as the situation permits, using all available fire support. Units assigned to perform reconnaissance and security missions are positioned in the serial to land early and move out rapidly, or land on the RSP to establish

roadblocks; to locate enemy forces; to disrupt enemy communication facilities; and to provide the commander with early warning, security, and information. Normally, these missions are performed by the battle group engineer and reconnaissance platoons. The engineer platoon constructs the roadblocks and obstacles, and prepares bridges for demolition, while the reconnaissance platoon occupies the outposts and patrols forward of the RSP. When these units land directly on the RSP, consideration must be given to reconnoitering the area between it and the FEBA for enemy. When initial objectives are heavily defended, the bulk of the force is employed to seize them; when they are lightly defended, the bulk of the force may be used to clear assigned sectors as required and prepare defensive positions in depth.

b. Units or personnel landed in areas other than those planned, direct their efforts to the general mission and establish contact with their respective headquarters as soon as practicable.

c. As soon as communications and the tactical situation permit, centralized control is established.

d. The commander places himself where he can exercise personal influence and he promotes successful action by shifting or allocating artillery, air, and other fire support; by redistributing forces, modifying missions, changing objectives and boundaries; and by employing reserves.

e. After initial objectives have been captured, subordinate units may seize additional objectives that make a coordinated defense easier to establish. Defensive positions are organized, communication supplemented, reserves reconstituted, and other measures taken to prepare the force to repel enemy counterattacks, to minimize the effects of attack by nuclear weapons, or to resume the offensive. Extensive patrolling is begun between adjacent defensive positions along the FEBA and the RSP, and forward of the RSP.

68. Development of the Objective Area

a. After the initial ground missions have been accomplished, the major consideration is to organize the FEBA. The first step is to seize quickly critical terrain features along the FEBA.

b. The extent to which the FEBA is occupied and organized for defense is determined largely by the mission, enemy capabilities, and defensive characteristics of the terrain. Appropriate commanders adjust the preplanned disposition of the troops and installations to fit the realities of the terrain and situation. If the mission calls for an early continuation of the ground offensive beyond the initial limits of the FEBA and if the likelihood of enemy

counterattack during the interim appears negligible, the FEBA is only lightly organized. On the other hand, if the mission calls for defense of the initial objective area for a considerable period of time, or if an early enemy counterattack appears likely, more effort is expended in organizing the FEBA and defense in depth. As additional units are landed in the objective area, positions are organized more strongly. The forces on the RSP are reinforced relatively early in the operation, making maximum use of aircraft. Reconnaissance forward of the RSP is intensified both by aircraft and surface means. Artillery and mortars, properly protected, may be displaced to positions close behind or beyond the FEBA to provide fire support to R&S forces. Roadblocks, minefield, and similar artificial obstacles are continuously improved along all likely avenues of approach, particularly those suitable for enemy armor.

Section V. DEFENSE OF THE OBJECTIVE AREA

69. General

a. Airmobile operations involving the retention of the objective area normally have a defensive phase. The period of time involved may vary from a few hours to a few days depending on the mission assigned, the size and composition of the force, enemy reaction, and the type operation contemplated.

b. Defense measures against nuclear weapons and armored attack are of particular importance in this type of operation.

70. Conduct of Defense

a. Defense of the objective area employing the perimeter defense is accomplished by organizing and occupying the dominant terrain along the FEBA to cover main routes of approach into the position; covering unoccupied terrain between defended localities by fire, mines, and other artificial and natural obstacles; patrolling continuously; and withholding a reserve with as much mobility as practicable. Enemy attacks are countered by shifting units, reinforcing threatened areas, employing massed fire support, and counterattacking with reserves. The interior lines of communication in the circular objective area facilitate shifting troops, massing fires, and committing reserves, including units from portions of the FEBA not under attack. Reserves are held in positions of readiness prepared to counterattack, to occupy defense positions, or to execute blocking missions.

b. Positions are prepared in depth within the capabilities of the force. Engineer support is used for whatever construction, demoli-

tion, or special skill may be required during the conduct of the defense.

71. Defense Against Armor

a. Continuing emphasis must be placed on improving and extending antitank defense in the objective area because of its vulnerability to enemy armor. Organic antitank weapons, artificial obstacles, natural obstacles, and tactical air and other available support must be used to maximum advantage.

b. During the assault, air support is the primary defense against enemy armor. Aircraft attack enemy targets which appear, dispersing them and delaying enemy buildup. In this manner, well-coordinated enemy attacks are delayed until the force can assemble, reorganize, seize initial objectives, and organize initial defenses. Throughout the operation, enemy armor is attacked at long distances from the FEBA and maintained under observation and attack as long as it poses a threat.

c. Strong points along the FEBA use natural obstacles such as rivers, swamps, woods, built-up areas, and gullies or ditches, augmented by minefields, wire entanglements, tank traps, demolitions, chemicals, and similar artificial obstacles to strengthen their defenses. Antitank weapons are located in depth along favorable avenues for armor.

72. Defense Against Nuclear Attack

a. The airmobile force normally seizes objectives of significant tactical importance. Therefore, early attack by enemy mobile forces, supported by nuclear and nonnuclear weapons, is to be expected. The force must have reserves with enough mobility to counter enemy efforts.

b. The requirement for dispersion to protect the airmobile force from destruction by nuclear weapons is in direct conflict with the requirement for an objective area small enough to be defended. Usually, the size of the area organized by a battle group will be such that major elements of the force may be lost to one or more nuclear weapons. Consequently, reserves of appropriate size may be provided within friendly lines ready for rapid airmobile movement into the objective area.

c. The practicability of a successful defense in a dispersed formation can be increased by using nuclear weapons to attack enemy concentrations.

d. In most airmobile operations, some elements of the force are close enough to enemy units and vital installations to obtain a

measure of protection from their nuclear weapons. In addition, normally active and passive defensive measures are used, with emphasis on the importance of camouflage, deep foxholes, and overhead cover for individual protection.

e. In addition to meeting conventional requirements for defense, the position must be selected with a view to the influence of the terrain on nuclear bursts. Wooded or built-up areas may become impassable because of secondary fires and debris. Ground forms provide shields under certain conditions while under others they tend to canalize the effects of a nuclear burst.

f. Key command, control, and logistical installations are duplicated when possible and are provided as much protection as practicable.

g. To achieve further dispersion, the commander orders a majority of the force (up to about two-thirds) out to occupy the RSP. The R&S forces may then be used to reconnoiter in the direction of most likely enemy threats or approaching friendly linkup forces. The conduct of the defense from positions then occupied on the RSP to the FEBA is similar to the conduct of a delaying action.

Section VI. SUBSEQUENT OPERATIONS

73. General

a. After the objective area is established, the airmobile force may engage in a variety of operations. These include defense of the area, linkup with surface forces, operations to exploit initial successes, withdrawal from the area, and others.

b. The buildup of troops is limited. The buildup of supplies and equipment is limited to that necessary to support operations until ground linkup and to provide for periods during which adverse weather or enemy air action may hinder resupply. If necessary for the continued operation of aircraft or increase in the use of aircraft, engineer support may be used to maintain or improve landing facilities.

74. Ground Linkup

a. The execution of the ground linkup (par. 37) is an important phase of airmobile operations. Close coordination of the force in the objective area with the linkup force depends on prior planning, close liaison between the forces, and effective communication. Each force promptly exploits the success of the other.

b. In the initial stages of the operation, coordination may be

limited to an exchange of information. As the linkup force nears the objective area, fires are coordinated by a system of recognition signals for direct fire weapons, or the exchange of location of no fire lines for indirect fire weapons. As the situation develops, objectives and axes or boundaries for the advancing friendly force are changed to facilitate the linkup. Avenues of approach close to and through the objective area are held open by elements of the airmobile force. When necessary, elements of the airmobile force take offensive action to break roadblocks and to otherwise disrupt enemy forces delaying the linkup force.

c. During the approach of the linkup force, the airmobile force may be subjected to the most violent attacks of the operation. Enemy forces withdrawing before the linkup force may find key road junctions, defiles, and other critical areas along their withdrawal routes blocked by the force in the objective area. In this case, they will make desperate attempts to penetrate the objective area and escape. The airmobile force resists to the utmost by committing all available reserves, as well as units from portions of the FEBA not under attack.

75. Nature of Subsequent Operations

After linkup, the airmobile force may be directed to continue ground operations or it may be relieved to prepare for subsequent airmobile assaults.

a. The airmobile force, with other forces, may conduct an exploitation from the objective area to capitalize on surprise and obtain a decisive tactical success. The combat forces and logistical support needed for exploitation are air-landed or brought in by surface means. The exploiting forces require mobility and firepower. Exploitation operations are conducted according to the same principles and techniques as other ground operations, with emphasis on rapidity of action.

b. The airmobile force may be employed in the exploitation to execute additional airmobile assaults to seize and secure critical objectives in order to facilitate friendly maneuver and delay enemy withdrawal.

CHAPTER 5

TYPES OF AIRMOBILE OPERATIONS

Section I. GENERAL

76. Introduction

This chapter describes how airmobile operations can be employed in conjunction with movements to contact and offensive, defensive, retrograde, airborne, amphibious and special operations, emphasizing the differences in planning for each. The sequence of planning for all tactical operations is the same as that outlined in chapter 3, but certain planning phases may be omitted or deemphasized to conform with the tactical and logistical aspects of a particular type of operation.

77. Considerations

a. The great variety of ways that airmobile operations can be used to advantage in conjunction with most ground operations will result in a demand for more Army aircraft than are normally available to a ground combat unit. To determine how those that are available can best be used, the following factors must be considered:

- (1) The characteristics of the terrain in different parts of the area of operation.
- (2) The experience of both the transport aviation and ground units in conducting airmobile operations.
- (3) The size and type of mobile ground forces available for reconnaissance and security missions.
- (4) The capability of enemy air and ground fire units to interfere with the aircraft.
- (5) The capability of ground transport to meet requirements for the movement of units and for logistical support.
- (6) The number of aircraft available, their allowable cargo loads, range, and state of maintenance.
- (7) The weather's effects on transport aircraft and ground transport.
- (8) The effect of aircraft employment on the secrecy of operations.

- (9) The effect of an airmobile operation on fire support plans.
- (10) The adequacy of communication systems for controlling airmobile operations over extended distances.
- (11) The effects of enemy use of toxic chemicals in an area and the air above it (presence of chemical contamination).

b. The following precepts apply to the planning and conduct of all operations involving the employment of Army transport aircraft:

- (1) Transport aircraft are not employed on missions that can be accomplished efficiently by other means of transport in the time available.
- (2) All tactical units (except tank units) and tactical and administrative support units as required, will be trained for participation in airmobile operations to attain the degree of proficiency required for rapid and frequent organization of airmobile forces on short notice. Training in airmobile operations may require some units to substitute or delete heavy items of equipment due to the payload limitations of transport aircraft.
- (3) Centralized control of aviation units should be retained as long as possible to simplify refueling and maintenance and to facilitate the concentration of the units in support of critical operations.
- (4) Tactical loading is employed whenever contact may be imminent when the force lands.
- (5) Close coordination with all fire support agencies is necessary if airmobile operations are to be successful. Unnecessary interference with friendly fires is avoided. Extensive artillery support, including smoke, and close air support are employed.
- (6) Friendly units are kept informed of all air movements so they will not be mistakenly identified as enemy. Likewise, enemy air movements must be promptly identified and reported.

Section II. EMPLOYMENT WITH GROUND OPERATIONS

78. General

The illustrations in this section show the possible application of airmobile operations in each type of ground operation. The considerations peculiar to each type of operation are covered in the text.

79. Movement to Contact

During movement to contact, airmobile forces may be employed with the covering force, between the covering force and advance guard, with the advance guard, and on the flanks of the main body (fig. 5). Reconnaissance for suitable landing zones is continuous throughout movement to contact. Airmobile security elements between the advance guard and covering force normally are under control of the column commander. He controls them by assigning phase lines; specific objectives; and zones, areas, or routes of reconnaissance.

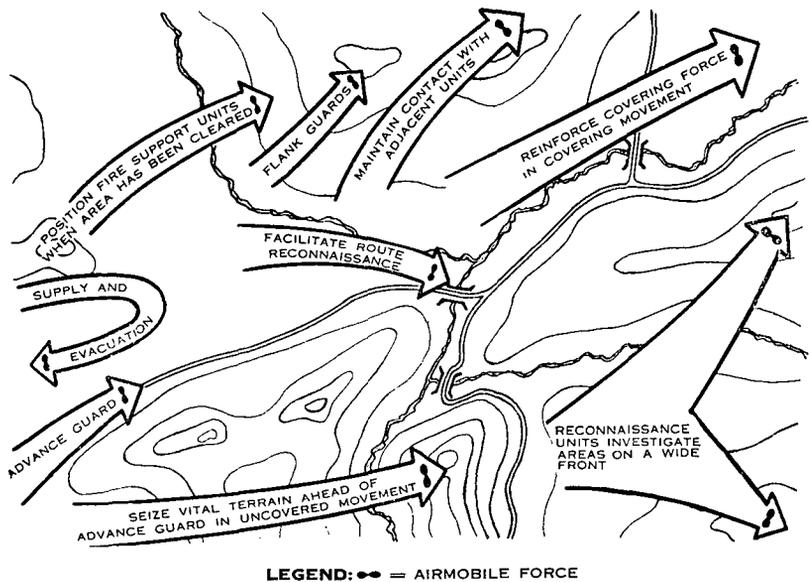


Figure 5. Movement to contact.

80. Offense

Airmobile forces employed in offensive actions can transform limited success into sizable gains, or they can substantially lessen the time required to execute an operation.

a. Meeting Engagement (Fig. 6). In a meeting engagement, the force that seizes the initiative has the advantage. The column commander must have control over an Army aviation unit to be able to use airmobile forces quickly and effectively in a meeting engagement.

- (1) He can use airmobile security forces to quickly seize critical terrain on the enemy flanks or rear and to gain knowledge of enemy actions. The size of these forces is

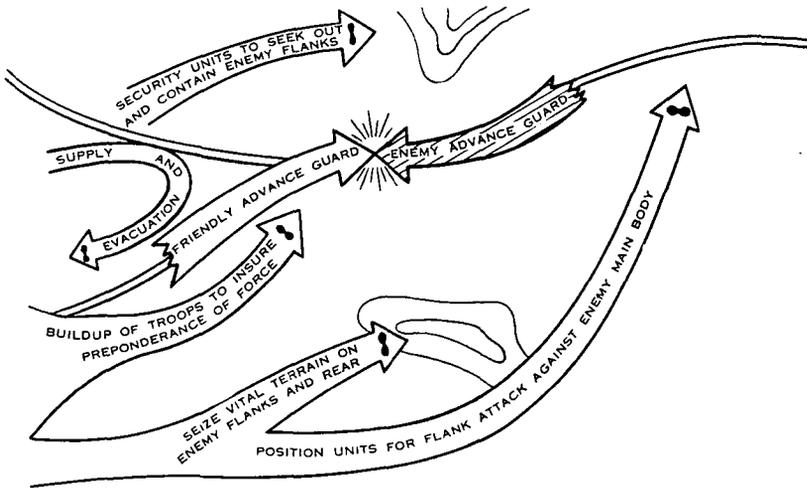


Figure 6. Meeting engagement.

based on aircraft availability and the fire support that can be provided.

- (2) As soon as the commander obtains information on the enemy and suitable landing zones, he can launch airmobile maneuvering forces against the enemy. He can do this more promptly if his reserve consists of airmobile forces. It is important to launch the operation before the enemy can deploy for an attack.

b. Attack Against Delaying Positions (Fig. 7). Airmobile reconnaissance and security forces can determine the depth of enemy delaying positions and note the obstacles prepared or improved by the enemy. With this information, airmobile forces can bypass initial delaying positions and obstacles and strike succeeding ones or seize and secure critical terrain in the enemy area. This may impel the enemy to withdraw from his initial positions before the ground force has to deploy to attack or may force the enemy into decisive engagement.

c. Attack Against Organized Positions (Fig. 8). An attack by vertical envelopment may overcome the defensive strength of an organized position that a ground force might find difficult to penetrate or outflank. In addition, airmobile forces can attack with greater speed than other ground forces. They should be large enough to take advantage of the surprise gained. They can use multiple routes to reduce the time they are exposed during the air movement, if this does not restrict supporting fires too much. Every effort is made to neutralize enemy fires while airmobile forces are flying over an organized position. The aviation units

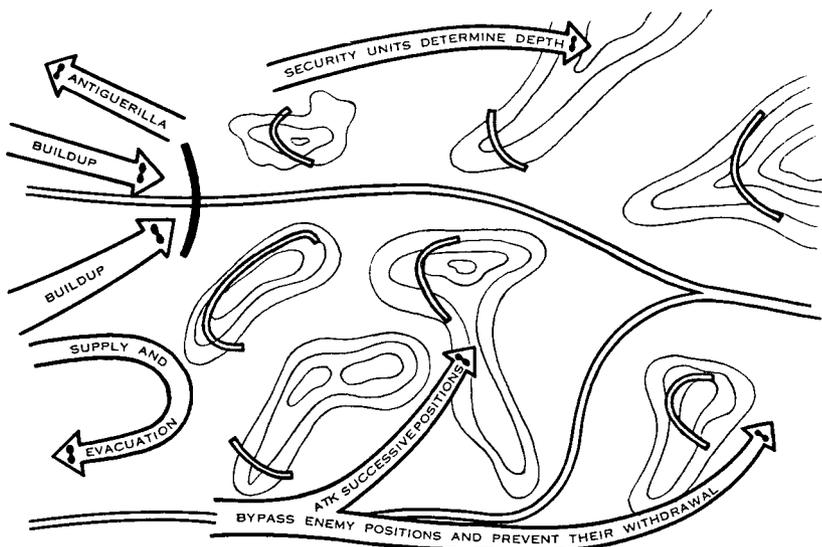


Figure 7. Attack against delaying positions.

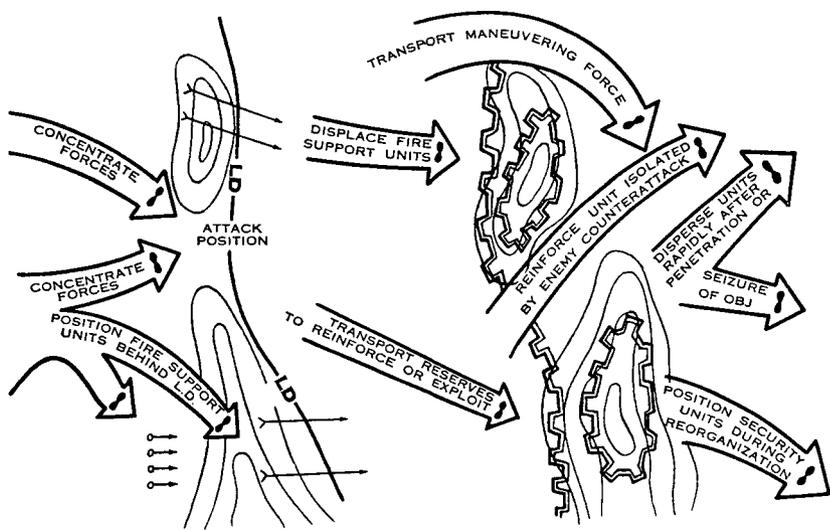


Figure 8. Attack against organized positions.

must be under centralized control so they can be used efficiently to disperse units that have penetrated or seized an objective. Reserve forces may be held in readiness for subsequent commitment as an airmobile force to reinforce or exploit a penetration.

d. Attack of a River Line (Fig. 9).

- (1) Airmobile reconnaissance forces are used early in the approach to a river to determine enemy strength and

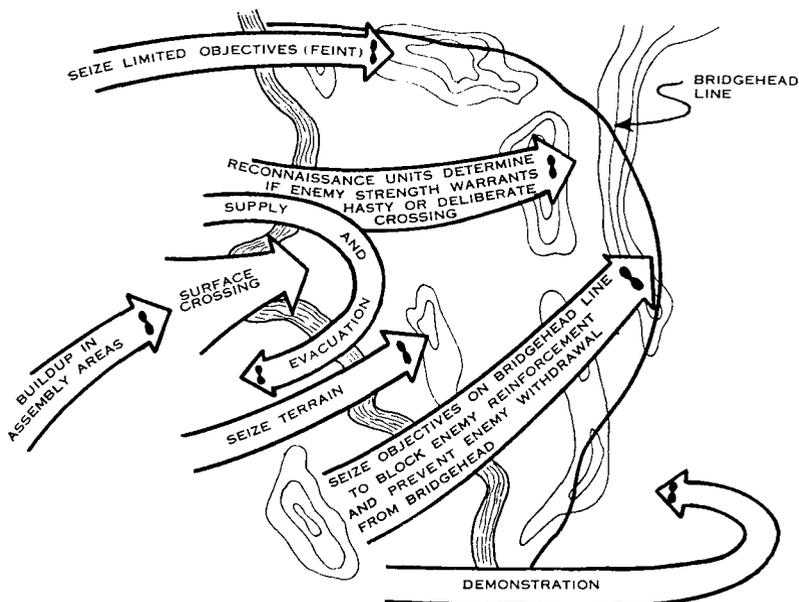


Figure 9. Attack of a river line.

dispositions and locate crossing sites. If possible, airmobile forces seize a bridgehead before the enemy can position his force and prepare his defense. A river is not an obstacle to airmobile forces. When faced with airmobile forces, the enemy may have to reduce the strength of his river line to protect his rear area.

- (2) Airmobile forces seize objectives that dominate the ground forces' crossing sites. They should be on their objectives early enough to warn of counterattacking enemy forces or to prevent them from striking the ground forces while they are astride the river. The airmobile forces should also seal off surface routes of withdrawal and approach while the bridgehead is being developed.
- (3) Less engineer assistance is required when airmobile forces can be used in attacking a river line, and the problems of supply and evacuation are reduced by using aircraft for transport.

e. Pursuit (Fig. 10). The commander of a pursuit force can maintain or rapidly regain contact with the enemy by using airmobile forces. He gives the encircling force the highest priority when assigning Army aircraft. Because an encircling movement is quickly planned and executed, airmobile forces may have to rely on the intelligence already at hand. For this reason and because

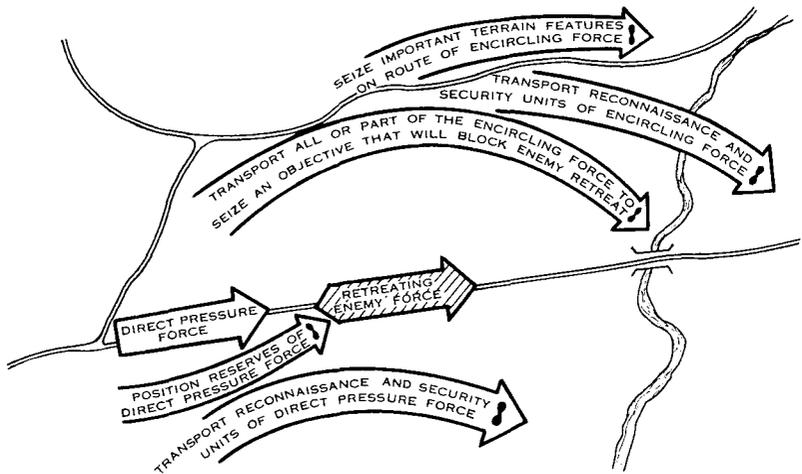


Figure 10. Pursuit.

speed and accuracy of movement and landing are of more importance than secrecy, pathfinders may be used. When operating over extended distances, communication and logistical support require special consideration.

f. Infiltration. Airmobile forces may be used in the infiltration. Secrecy, deception, communications, and logistical support may require more emphasis in this type operation.

81. Defense

a. Area Defense (Fig. 11). The area of operations in area defense may be much smaller than in the mobile defense or in offensive operations, reducing the amount of Army aviation support required, quantity-wise. The shorter distances facilitate centralized control and simplify the problems of maintenance, refueling, and communication. The situation in area defense allows more time to prepare landing sites and establish maintenance and refueling installations and, since there are fewer areas of possible employment, planning can be more detailed.

b. Mobile Defense (Figs. 12 and 13). Because of the extended distances between units in mobile defense, Army aviation support can be used to greater advantage. The mobility provided by aircraft can assist the defender by supporting his widely dispersed elements in defensive action and by enabling him to concentrate superior forces for offensive action. The distances involved increase the difficulties of maintenance, refueling, and communica-

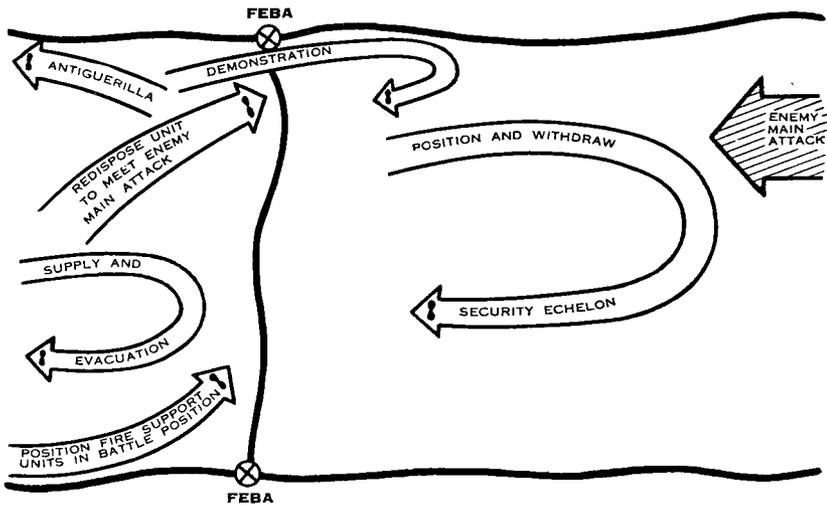


Figure 11. Area defense.

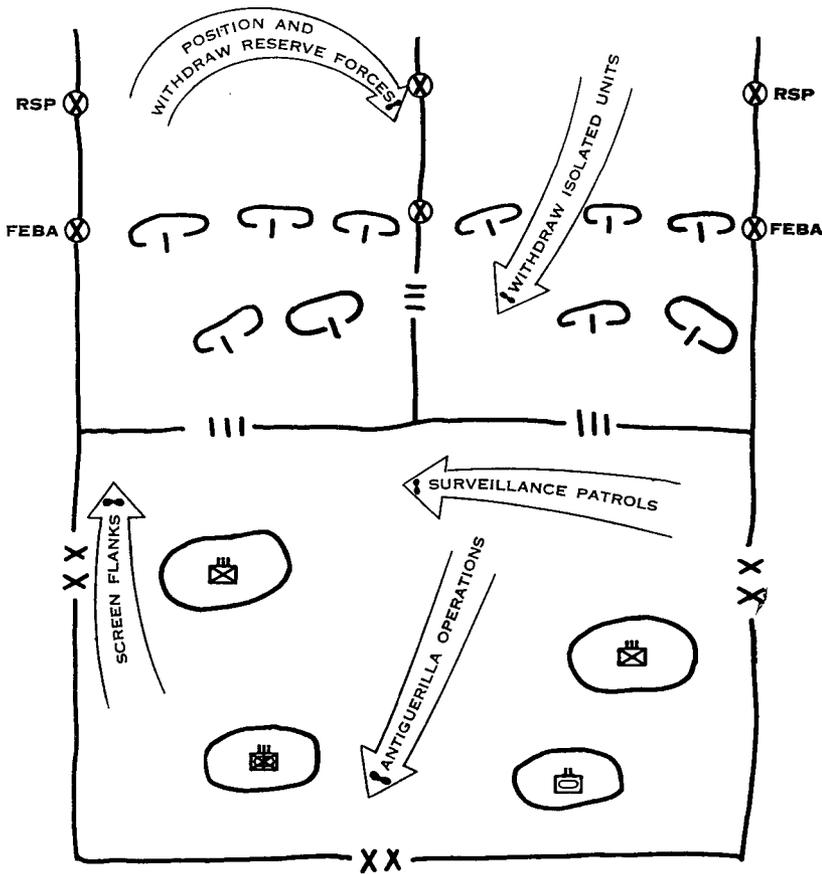


Figure 12. Mobile defense (security forces).

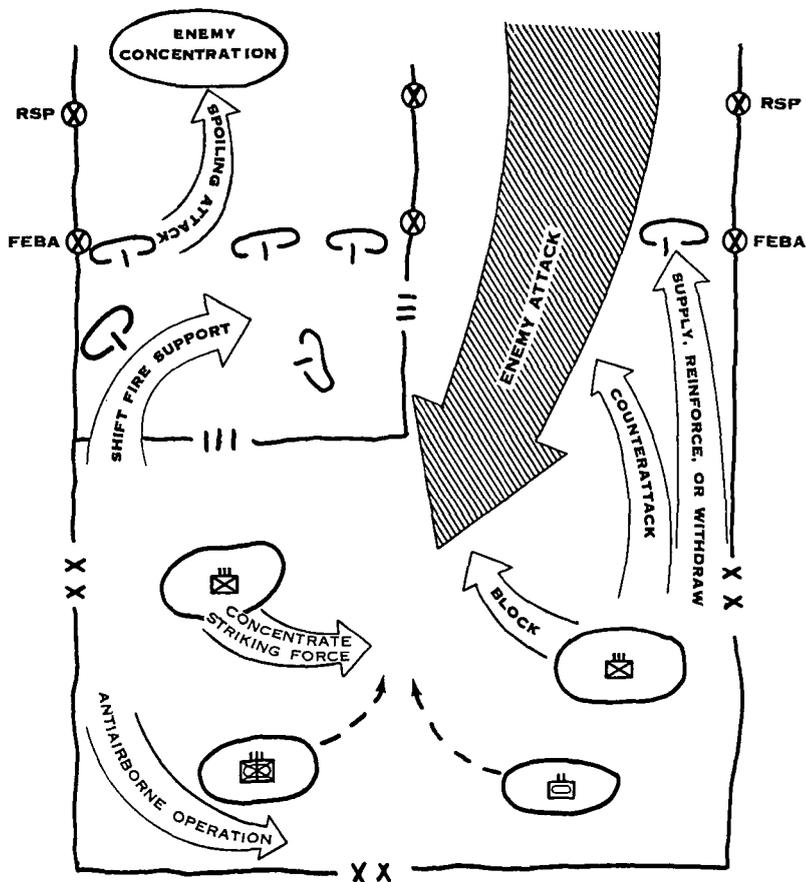


Figure 13. Conduct of mobile defense.

tion. Forward refueling installations may have to be established. Plans for employing airmobile forces in counterattacks must be flexible because of the broad area of operation.

c. *Counterattack* (Fig. 14). The commander has the capability of moving forces to block enemy penetrations by keeping an airmobile force in reserve. Airmobile reserves of higher units may be held in readiness for a counterattack in dispersed positions farther from the line of contact than reserves that depend on surface transport. Airmobile reserves of adjacent units may be massed to meet a penetration in a particular unit's area before the enemy exploits the penetration. Special consideration must be given to coordination with fire support units that are to lay down fires within the penetration area, and with other surface and airmobile forces participating in the counterattack. The coordination should be rehearsed in as many probable penetration areas as time

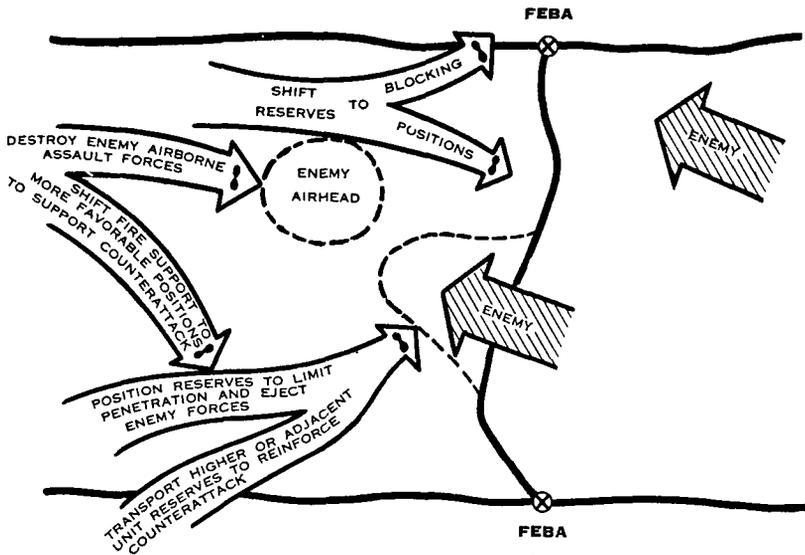


Figure 14. Counterattack.

permits. Counterattacking airmobile forces that make lateral movements should select routes that proceed behind the line of contact to avoid enemy detection and reduce the restriction on friendly fires. Antiairborne counterattack is discussed in paragraph 82.

d. *Relief of Frontline Units* (Fig. 15). Since secrecy is of primary importance in a night relief, the noise of aircraft may make it advisable not to use them farther forward than reserve positions. However, when speed is essential in day or night relief, Army aircraft can transport incoming units to reverse slope positions and withdraw outgoing units on the return trip. The outgoing units should mark landing sites. The fact that outgoing units normally are relieved by similar type units facilitates rapid loading at the forward landing sites. When demonstrations and feints are incorporated with the relief, the incoming and outgoing units should have priority for Army aviation units. The overall ground force headquarters should maintain control of the aircraft to avoid a changeover of control between the incoming and outgoing units.

82. Operations Common to Offense and Defense

a. *Defense Against Airborne Attack* (Fig. 14).

- (1) Airmobile forces may be employed effectively to counter an enemy airborne attack since they possess the same characteristics of speed and flexibility in choice of objectives as the enemy airborne force. However, airmobile forces lack armor and organic heavy fire support which are two effective means for combating airborne forces.

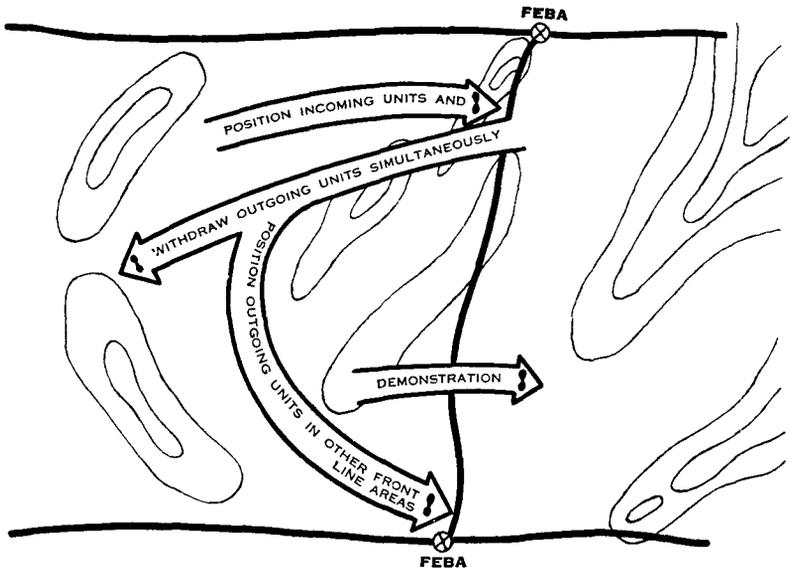


Figure 15. Relief of frontline units.

Consequently, mobile striking forces and mobile reserves employed against enemy airborne forces include armor and heavy fire support in addition to airmobile forces.

- (2) Airmobile forces may be employed in all phases of the anti-airborne defense. Initially, they conduct patrols and establish observation posts to locate the enemy and set up roadblocks to delay his movement. As part of the mobile reserves, they are committed when the enemy main landing is located. To prevent the loss of critical terrain they may land directly on the enemy airhead. This type of counterattack achieves the greatest surprise and most immediate disruption of enemy plans.

b. Operations Against Infiltration and Guerrilla Action (Figs. 7 and 12).

- (1) Airmobile forces are particularly suited to operations against enemy infiltrators and guerrillas. In daytime, reconnaissance aircraft are employed to locate infiltrators from the air and airmobile patrols follow up by investigating suspicious localities on the ground and destroying or capturing any enemy infiltrators discovered. Airmobile forces can be used with economy in operations against guerrillas. Small numbers of troops and aircraft can patrol extensive areas, and centrally located reserves can surprise guerrilla bands in their hideouts or they can

be employed to reinforce installations and columns under attack. Guerrilla tactics of blocking routes or reinforcement when attacking installations or ambushing columns are readily combated by airmobile forces.

- (2) Airmobile forces exploit their mobility by attacking guerrilla bases of operations which usually are located in mountains, jungles, swamps, or other difficult terrain. During encircling operations against guerrilla forces, airmobile forces may be employed to simultaneously block all avenues of escape. The considerations for using airmobile forces against enemy infiltration and small guerrilla bands are generally the same as for their employment with security forces.

c. Night Operations.

- (1) Airmobile forces may be employed effectively at night in any of the types of operations described in this chapter. They are less vulnerable to enemy ground and air fires and the enemy has greater difficulty in determining the location of the main landing than in daylight operations. Small airmobile units landing simultaneously at widely separated points may block movement, disrupt communications, and create general confusion while other ground or airmobile operations are conducted.
- (2) Night operations present certain disadvantages and special problems in comparison to daylight operations. Airmobile forces require a higher state of training than for daylight operations. In selecting landing zones, greater stress is given to characteristics that assist landing than to placing units on or adjacent to objectives. Ground units normally assemble after landing before proceeding on their missions, so assembly aids may be necessary. Pathfinders at landing zones and sites and special aids to navigation are more necessary for movement and landing than in daytime. Time and distance are increased between flight serials that use the same landing zones. The distance between aircraft in a formation is increased for flight safety. Landing sites need to be larger or flight units smaller than those used in daylight operations. Routes are more direct to facilitate navigation. The possibility of friendly and enemy use of artificial illumination, including infrared devices, is considered when planning for night operations.

d. Operations Under Conditions of Nuclear Warfare (fig. 16).

- (1) *General.* Airmobile forces can rapidly concentrate after

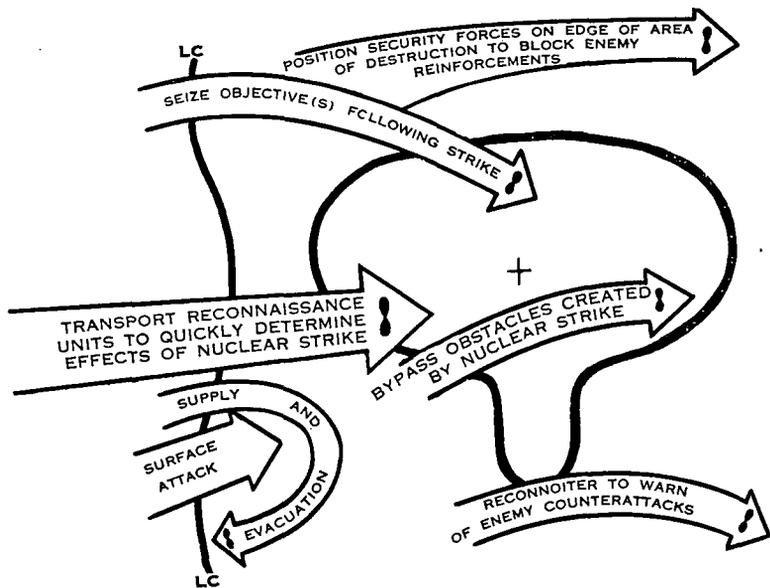


Figure 16. Exploitation of nuclear strike.

having been dispersed for protection from the effects of friendly or enemy nuclear weapons. Airmobile patrols can investigate a nuclear target immediately after the explosion to measure radiation hazards, the numbers and condition of survivors, and other results.

- (2) *Exploitation of friendly use.* Exploiting airmobile forces can bypass obstacles created by a nuclear strike, whether their objective is within or beyond the target area.
- (3) *Defense against enemy use.* In the event of enemy nuclear attack, airmobile forces move into the target area after the explosion to forestall enemy exploitation of its effect. They can also promptly remove casualties from the target area direct to rear area medical installations.
- (4) *Special considerations.* Plans for timing airmobile operations with nuclear explosions must take into account the effect of the intense light on the pilots' eyes, the distance from ground zero for safety from primary effects, and the length of time residual radiation will be at dangerous levels. The danger of fallout in the case of a surface burst is considered when selecting approach routes and landing zones. Some landing zones can be made unusable by fallen trees and other debris resulting from a nuclear explosion. When a landing zone is contaminated, dust stirred up by propellers or rotors may be hazardous.

Alternate plans are prepared in case it is found that residual radiation dose rates are unacceptably high in primary routes and landing zones.

e. Raid (Fig. 17). The planning for a raid is similar to that outlined in chapter 3. It should provide for the transportation of prisoners and captured materiel. If the aircraft are to be used for the withdrawal, this must be planned for. The aircraft may remain in the objective area to facilitate transportation during the raid or to wait for the withdrawal. The decision to have the aircraft remain in the objective area is based on the concealment available, the duration of the operation, enemy air capabilities, and the radius of action for the aircraft (figuring full loads for delivery and return). The withdrawal sites may be close to the objectives because the security units may withdraw on foot toward the objectives after the assault units have accomplished their mission. Or, the raiding force may break into small groups to rendezvous with the aircraft at a predesignated point some distance from the objectives.

f. Patrolling (fig. 18). The considerations involving the use of airmobile reconnaissance and security forces are applicable to patrolling. For airmobile reconnaissance patrols deep behind enemy lines, additional factors must be considered. High per-

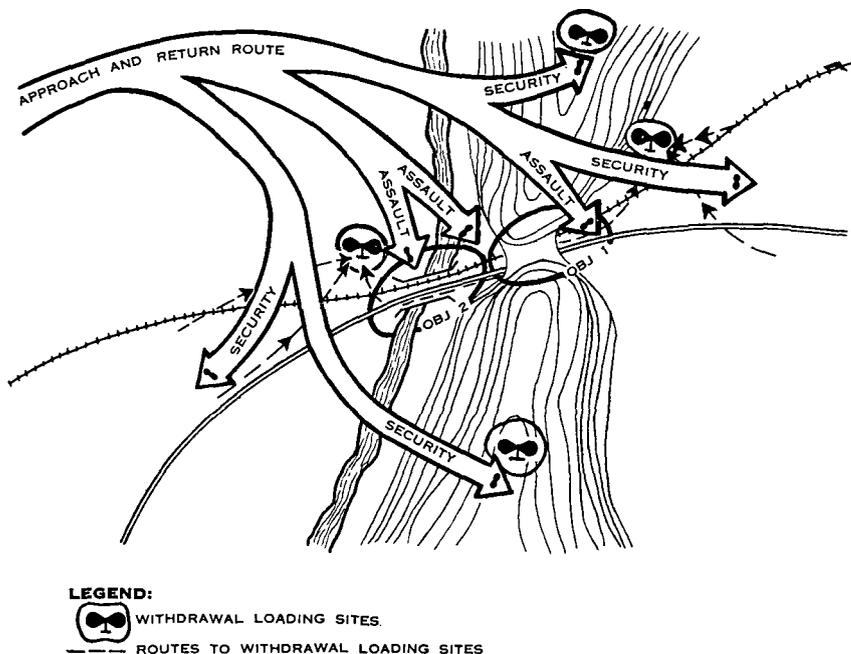


Figure 17. Raid.

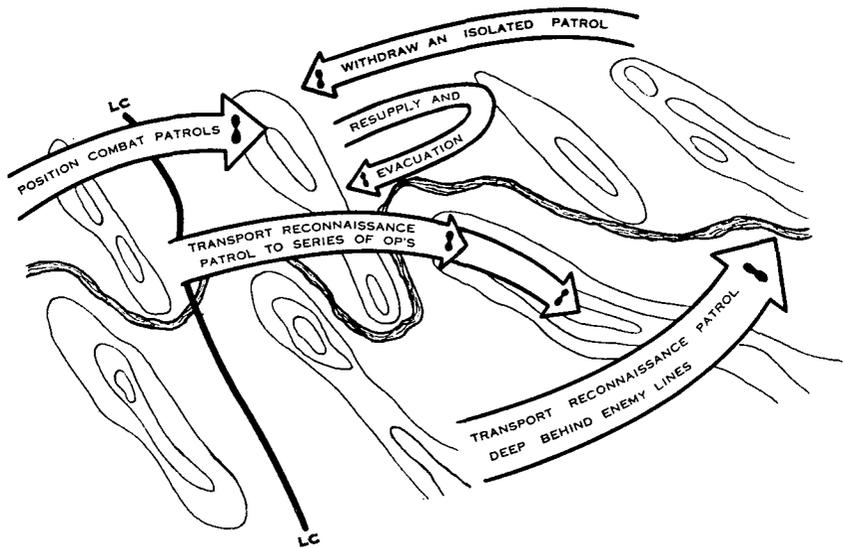


Figure 18. Patrolling.

formance reconnaissance aircraft may be used to gain information of the enemy and terrain in the vicinity of the objective for planning purposes. A decision must be made as to whether or not the aircraft that fly the patrol are to remain in the objective area. It may be necessary to use the aircraft to move the patrol from point to point when the area to be reconnoitered is large and the patrol is small. This use must be weighed with the problem of concealing aircraft movements within the objective area during daylight and darkness, and with the problem of refueling. When the patrol is to be left in the objective area, plans are made for the aircraft to return to a designated place at a designated time to withdraw it. When the patrol or some elements of it are to be delivered in the objective area at night or during other periods of limited visibility, the pilot must be able to navigate, hover, and land without the aid of pathfinders. When deep reconnaissance patrols are planned, secrecy should be insured by moving to the objective area during periods of limited visibility, if suitable navigational aids are available.

83. Retrograde

a. Withdrawal From Action (fig. 19). Army aviation units can be used to make a withdrawal from action partially or completely an airmobile operation. This speeds up the operation and gives the withdrawing units more time to organize their rearward positions. Covering forces can also be extricated more easily by an

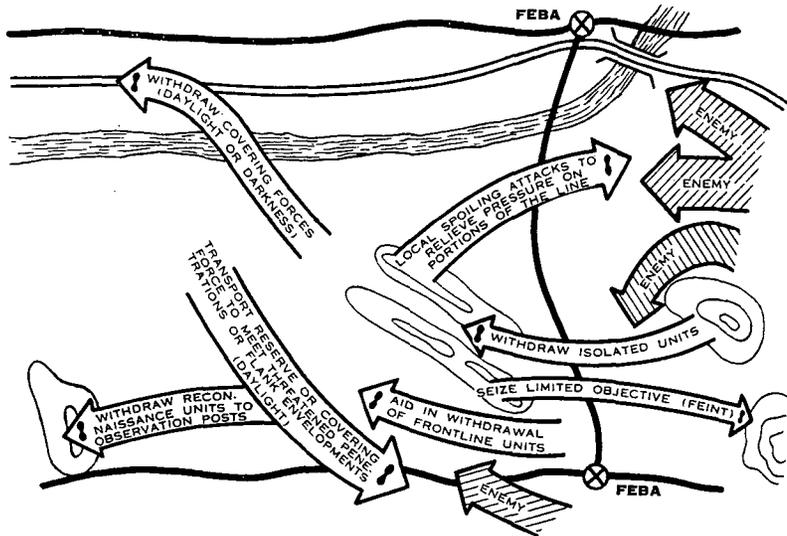


Figure 19. Withdrawal from action.

airmobile operation. In daylight withdrawals, aircraft may be used to move frontline units from their assembly area behind the local covering forces. In night withdrawals where secrecy is required, the use of aircraft may be limited to withdrawing the detachments left in contact after the main force has successfully broken contact and moved to the rear. The elements of the covering force that cannot be withdrawn by aircraft are withdrawn simultaneously on the ground. Some fire support elements remain in position long enough to cover the withdrawal unless it can be covered by fire from the next position to the rear. This type of operation requires detailed plans, thorough daylight reconnaissance, and careful timing. Considerations for withdrawing elements in close contact with the enemy are similar to those for withdrawing isolated units.

b. Delaying Action (fig. 20). An airmobile force conducting a delaying action can use terrain and time to maximum advantage. A strong delaying position may be held in spite of enemy envelopment, thus forcing the enemy to deploy and attack. Since the withdrawal of airmobile forces is independent of the road net, they can be employed in flanking positions adjacent to the enemy route of advance, forcing him to pause, turn, and deploy before continuing his advance. Such a maneuver may be integrated with an action on a delaying position astride the enemy route of advance or with a covering force action between positions. Obstacles may be placed in front of successive positions without interfering with airmobile forces on delaying positions to the front. As in other

operations on wide frontages, airmobile forces are effective as security elements and mobile reserves. Small airmobile units are ideally suited for harassing action between successive positions.

c. *Retirement* (fig. 21). Airmobile forces are used with a retiring force much as they are used in a movement to contact. When

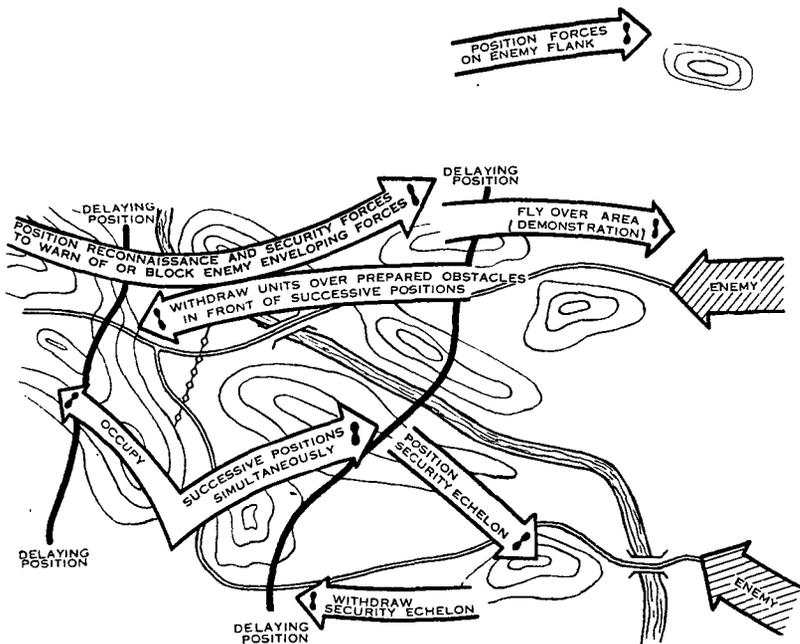


Figure 20. Delaying action.

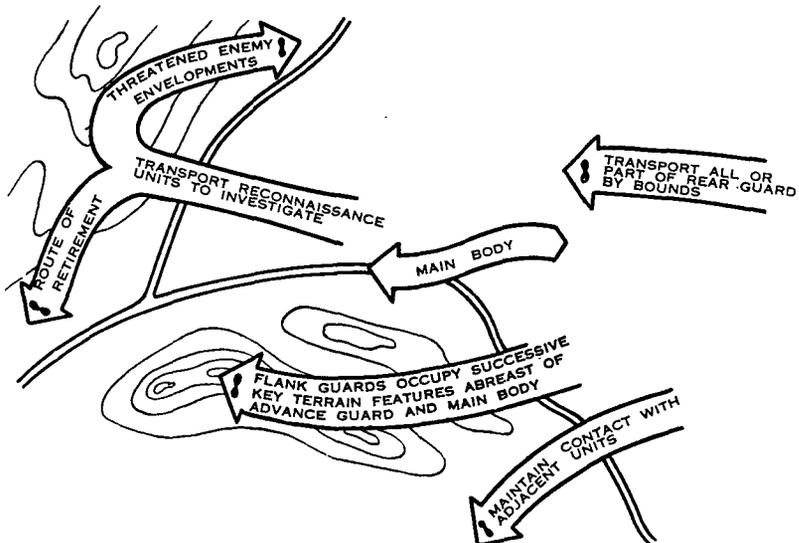


Figure 21. Retirement.

the retiring force moves to the rear in multiple columns, air-mobile patrols maintain contact between the columns. Airmobile security forces are employed close to the enemy, and as rear and flank guards.

Section III. EMPLOYMENT WITH AMPHIBIOUS OPERATIONS

84. General

Airmobile operations may be employed in the assault and general unloading phases of ship-to-shore movement, as well as within the beachhead. In the assault phase, plans are developed as outlined in chapters 3 and 4 for seizing an objective area behind enemy lines. The use of Army aircraft within the beachhead closely resembles their employment in joint airborne operations. Consideration must be given to timing airmobile assaults with waterborne assaults, naval gunfire, and fighter strikes. Special navigational aids, such as buoys, control ships, and electronic equipment aboard ship are required for controlling movement over water. Army aircraft for the airmobile forces are carried in aircraft carriers. Therefore, the airmobile units must be well rehearsed in aircraft carrier loading and takeoff procedures. Coordination among all services and units that participate in this joint operation is of the utmost importance.

85. Considerations

a. Airmobile operations are generally conducted as a phase of the overall amphibious operation. The instructions in this section should therefore be used in conjunction with 31 series field manuals.

b. Army aviation units may be employed in two basic types of amphibious operations: one involves the landing of forces on a hostile shore and the other involves the withdrawal of forces from land.

c. The discussion in this section is limited to the factors and procedures that are different from those that are applicable to land employment of airmobile forces.

86. Responsibilities

a. The amphibious task force commander is responsible for the overall ship-to-shore movement and its planning. This includes the allocation of ship space to the helicopter unit and the airmobile force.

b. The Army landing force commander prepares the landing plan of the Army landing forces and he determines and presents his requirements to the amphibious task force commander.

87. Liaison

a. A joint operation requires close and continued liaison between Army and Navy elements. Immediately upon receipt of a warning order for an amphibious airmobile operation, the commander of the Army unit involved must establish liaison with appropriate Naval agencies.

b. Liaison officers must be prepared to brief appropriate Navy personnel on Army aircraft characteristics, dimensions, and capabilities, and other information which will assist ship personnel in preparing to operate with the airmobile unit.

c. Aviation liaison officers must obtain from the ship's Air Department appropriate information as to communication frequencies, call signs, navigational aids, training requirements, ship characteristics, and other data which might affect the operations of the helicopter unit.

88. Characteristics of Aircraft Carrier

a. Description.

- (1) At the present time, the Essex-class carrier is the standard platform used for amphibious airmobile operations. It is described here as a guide. When another type floating platform is to be used, the airmobile force commander must obtain detailed information on its characteristics early enough to make his plans accordingly.
- (2) The flight deck of the Essex-class carrier is about 880 feet long, varying slightly with individual ships, and 80 to 120 feet wide, depending upon whether it has an axial or angled deck.
- (3) The hangar deck is about 600 feet long and 50 feet wide. It is divided into three hangar bays, numbered 1, 2, and 3 from forward aft. The bays are separated by fire curtains.
- (4) There are three aircraft elevators, one for each hangar bay. Numbers 1 and 3 are centerline elevators, number 2 is deck edge.

b. *Aircraft Capacity.* The number of helicopters that can be operated effectively depends on the size of the flight deck and flight turnaround time. The maximum number of helicopters that can be operated efficiently are 26 to 28 single rotor light helicopters and 9 medium helicopters. The hangar deck storage capacity varies between 36 and 40 helicopters, depending upon the types of helicopters embarked. Twelve helicopters may be launched simultaneously, 9 light and 3 medium transport, in 3

waves when the radius of operation is approximately 25 miles. The ratio of 1 medium to 3 light helicopters per wave is used to maintain unit integrity.

89. Embarkation Procedure

a. At least 24 hours prior to embarkation, a party of liaison officers from the embarkation team board the transport ship to arrange for troop quartering, cargo stowage, and mess and sanitation facilities. They perform all administrative functions for the embarkation team. They remain aboard through the assault phase of the operation.

b. Essex-class carriers do not have enough quartering space to accommodate a large number of troops. Some 1,500 to 1,800 combat loaded troops can be accommodated on the hangar deck on a short term basis. Hangar bay 1 has been found to be the best place for quartering them, as in this location they interfere the least with aircraft operations. Troops must be prepared to secure their bedrolls during the day to make room for aircraft handling.

c. Normally, hangar bay 2 is assigned for helicopter stowage.

d. An aircraft carrier provides little cargo space below decks. Therefore, cargo for the embarkation team must be stowed on the hangar deck. Experience has shown that hangar bay 3 provides the most satisfactory stowage area. Stowage must be so planned that cargo is accessible to the No. 3 elevator for lifting to the flight deck in the desired unloading sequence. The cargo should be palletized for ease in handling. Cargo of the aviation unit and airmobile force must be kept separate. The hangar deck cargo control officer (par. 91*d*) prepares a cargo stowage diagram for himself and the flight deck control officer.

e. Sixty to seventy vehicles that are transportable in helicopters ($\frac{3}{4}$ -ton trucks, jeeps, mules, water trailers, generators, etc.) can be embarked. These vehicles are lashed to the flight deck alongside and aft of the island, and in hangar deck bay 3.

f. The sequence of embarkation has a great influence on the ease and efficiency of subsequent operations. Cargo and vehicles must be embarked first and stowed as described above. During this period, necessary liaison and cargo handling personnel from the embarkation team and aviation unit must be aboard. Helicopters should embark next. Once hangar bay 2 is full of aircraft, further movement of cargo is greatly restricted. The embarkation team does not come aboard until all cargo and helicopters are secured and hangar bay 1 is ready for occupancy.

90. Preparation for Air Movement

a. Preparation of Cargo.

- (1) It is not always possible to predict the model helicopter in which a particular item of cargo will be carried. Therefore, loads are not prepared for a particular type of helicopter unless the physical characteristics of the helicopter demand it. This principle is also applicable to serialization of personnel.
- (2) All cargo adaptable to palletization should be so prepared for ease of handling aboard ship. Pallets should be banded with steel strapping. Items characterized by small cubic dimensions and heavy weight should be made up as standard helicopter pallets. Class I and Class V supplies are well suited to this treatment.
- (3) A standard helicopter pallet measures 40" x 48" and is loaded to a height of 38", including the pallet. The dimensions are governed by the size restrictions for medium transport monorail employment. The weight of the pallet and load is limited to 1,000 pounds. Pallets may be lifted by net or fabricated slings.
- (4) Loose cargo should not be planned as internal loads, but should be lifted in nets slung under the helicopters. A minimum of fifty nets should be made available for a battle group lift. Cargo that is not suited to either pallets or nets must be fitted with lifting eyes and slings.
- (5) Vehicles may be carried as external loads or carried internally in medium transport helicopters. In both cases, drivers must accompany their vehicles.
- (6) To reduce the number of slings, nets, and pallets required, an effective plan must be prepared to collect this equipment in the landing zone and return it to the aircraft carrier.

b. Organization of Helicopter Personnel Loads. It may be necessary to employ two or more types of helicopters in the same lift. Personnel loads must be adaptable to all types. This can be accomplished by dividing personnel loads into heli-teams, each team consisting of the largest number of men that can be lifted in the smallest helicopter. For example, if utility, light, and medium transport helicopters are used, each team should contain five men. One team can be carried in a utility helicopter and multiple teams can be carried in the other types. Unit integrity is maintained to the extent possible.

c. Serialization.

- (1) Serial numbers are reference numbers and do not indicate a priority or sequence for landing. They are used to—
 - (a) Identify units or cargo for control purposes.
 - (b) Provide for brevity and security in communication.
 - (c) Prepare checklists to insure that all elements are ordered to land and are landed.
- (2) A serial number is assigned to each unit, subunit, or group which is to be—
 - (a) Embarked on one ship.
 - (b) Landed as a unit at one landing zone.
 - (c) Landed at one time.
- (3) Cargo, except for loose items, is also assigned a serial number.
- (4) Serial numbers identify each load on the helicopter employment and landing table (fig. 22).

d. Wave Organization.

- (1) The fastest way of moving a number of troops from one point to another is by individual helicopter shuttle, with each helicopter working at its maximum rate, unimpeded by any delay of the others. This, however, is permissible only in administrative situations or tactical operations of limited size. Wave organization is therefore considered to be most adaptable to tactical ship-to-shore operations.
- (2) If the tactical situation calls for a maximum effort to be made in the landing zone initially, a massive formation must be preplanned for the first wave. Such a massive wave means that a long time interval will elapse before buildup can start. A maximum initial effort also creates a refueling bottleneck, thus offering a lucrative helicopter target.
- (3) The landing plan of the airmobile force should not presume a fixed wave organization throughout the lift. Losses due to enemy action and mechanical difficulties must be anticipated.
- (4) A wave interval is the time interval in minutes between two successive waves. The optimum interval is that which permits one wave to land at a site immediately after the takeoff of the wave ahead. The wave interval is, therefore, controlled primarily by the ground time at the site. Nothing is gained by decreasing the interval to the point where a wave must orbit awaiting its turn to land.
- (5) Under a given set of conditions, there is a maximum num-

ber of waves that can be usefully employed in a lift. The number is computed by dividing the wave interval into turnaround time. This figure represents the number of waves that will saturate the pattern. Any increase in this number only results in aircraft waiting for their turn at the landing site or at the aircraft carrier.

e. Preparation of Helicopters for Overwater Movement. The following preparations are for overwater helicopter flights:

- (1) Utility and light transport troop compartment doors are left open. The right cargo door on the medium transport helicopter is removed.
- (2) The lift emergency escape hatch is removed from the utility, light, and medium helicopters.
- (3) Troop seat back-support tubes which obstruct emergency exits are removed.
- (4) Life preservers and life rafts are installed in each aircraft.

91. Debarkation Procedure

a. Debarkation Control. The term "debarkation control" refers to the planning for and supervision of all the activities involved in moving helicopters, airmobile troops, and their equipment from their assigned locations in the ship to the flight deck; in seeing that the helicopters are loaded in an orderly manner, that they take off on schedule, and that they are received systematically on deck when they return to repeat the procedure.

- (1) The term "debarkation control" is used in ship-to-shore movements to indicate the same function as "landing control" ashore. The specialized nature of the loading site requires certain modifications; however, the control organization, procedures, and responsibilities remain the same as for normal land airmobile operations.
- (2) The purpose of debarkation control is to have the right personnel and equipment at the right place and time to insure the rapidity required of successful airmobile operations.

b. Debarkation Control Personnel.

- (1) The air officer (Navy) is responsible for the handling, takeoff, and return landing of helicopters and for overall control of activities on the flight deck.
- (2) The air operations officer (Navy) is responsible for the coordination of helicopter flight operations from a ship.

- (3) The debarkation officer (Navy) is responsible for the movement of personnel and equipment to the proper helicopters, and for the coordination of debarkation activities.
- (4) The embarkation team commander and the air unit commander assign debarkation directors, controllers (including a hangar deck control officer), and loading supervisors to the ship's debarkation officer to assist in debarkation operations.

c. Debarkation of Personnel.

- (1) The assembly area for the embarkation team is hangar bay No. 1.
- (2) The debarkation control point is hangar bay No. 2, alongside elevator No. 2.
- (3) An assistant to the debarkation officer stations himself at the debarkation control point with a copy of the helicopter employment and landing table (fig. 22). One wave load of heli-teams is kept in readiness to move to the No. 2 elevator immediately upon call from the air operations officer.
- (4) The debarkation officer is stationed on the flight deck with telephone communication to the control point on the hangar deck. He orders heli-teams to be brought up, coordinating their use of the elevator with the flight deck officer. He holds one wave load of heli-teams in readiness in the staging area on the flight deck. The staging area is the space between the forward end of the island and the 5-inch gun turret.
- (5) A flight deck guide is assigned to each helicopter takeoff/landing point. He takes charge of each heli-team as it reaches the flight deck and guides it to the staging area. When a helicopter arrives at his takeoff/landing point, he leads the team to it and helps it to emplane.

d. Debarkation of Cargo.

- (1) Since the cargo lift is a separate operation from the personnel lift, the cargo debarkation control system must also be separate. Of the two, cargo control is more demanding.
- (2) It is the responsibility of the hangar deck cargo officer (*b* above) to keep a steady flow of cargo moving up the No. 3 elevator in the proper amounts and in the sequence shown on the landing table (fig. 22), or as directed by the cargo control officer on the flight deck. Both officers

must have a hangar deck stowage diagram showing the location of all cargo serials.

- (3) The flight deck cargo officer coordinates the flow of cargo from the hangar deck to the flight deck and is responsible for placing it aboard aircraft and informing the pilots of their destination.

e. Helicopter Control.

- (1) During ship-to-shore movement, helicopter units are directed by the amphibious task force commander who exercises his control through the tactical air control center (TACC). In the assault of a hostile shore, the TACC delegates control to the tactical air direction center (TADC) for coordination of the overall air effort. The TADC further decentralizes specific control of individual helicopters to the helicopter direction center (HDC), a subordinate control agency of the TADC located in the flagship of the helicopter carriers.
- (2) Helicopter operations on the flight deck and in the vicinity of the ship are controlled by Primary Flight Control (PriFly), which is located in the carrier island. Its function is identical to that of an airfield control tower.
- (3) The shuttle system of movement from an aircraft to a landing zone ashore requires additional helicopter control from within the landing zone. This control is normally exercised by pathfinders or a Navy landing control party.

f. Communications. The debarkation control organization cannot function effectively without wire communications. The ship's sound power system is not adequate for debarkation control; therefore, additional wire circuits are installed between the flight and hangar decks at the No. 2 and No. 3 elevators. An additional field telephone circuit is installed in PriFly and connected by direct wire to the two flight deck stations. The helicopter unit representative in PriFly can thus coordinate flight and debarkation operations.

CHAPTER 6 TRAINING

Section I. RESPONSIBILITIES

92. General

The training of aviation and ground combat units for airmobile operations is the responsibility of commanders at all echelons. It is aimed at familiarizing the units with all aspects of the operations and at enabling them to develop, test, and implement standing operating procedure that will insure they are conducted with maximum speed, flexibility, and timeliness.

93. Major Commanders

Major commanders are responsible for transport aviation unit training and their training with ground combat forces. They insure that the following requirements are fulfilled:

- a.* Training of corps and army staffs in planning for and conducting airmobile operations.
- b.* Training of technical service units and nondivisional aviation units in appropriate subjects listed in paragraph 98.
- c.* Training of technical service units in the conduct of support for airmobile operations.
- d.* Training of nondivisional combat and combat support units in the conduct of airmobile operations.
- e.* Support of airmobile training by nondivisional aviation units.
- f.* Support of airmobile training by technical service units.
- g.* Support of airmobile training by nondivisional combat and combat support units.

94. Ground Force Commanders

Commanders at all echelons insure that troop training includes familiarization with Army aircraft; flight safety procedures; preparation of equipment for internal and external loading; familiarization with aerial suppressive fire weapons; techniques of assembly and reorganization; troop movements; and conduct of airmobile operations.

95. Army Aviation Unit Commanders

Army aviation unit commanders are responsible for individual proficiency within their organizations and for training their units in teamwork with the supported arms and services, the employment of aerial weapon systems, low level navigation (including formation flying at night and under other conditions of reduced visibility), camouflage and security of aircraft, unit control of aircraft, air traffic control, and confined area operations with maximum loads.

Section II. CONDUCT OF TRAINING

96. General

a. Airmobile training is integrated into current unit training programs. The purpose of this training is to develop the capability of conducting airmobile operations at each level from squad to battle group (armored cavalry regiment). Individual and unit airmobile training is given concurrently with other training when feasible. Combined unit training is integrated into the normal tactical training of successively larger units.

b. Airmobile training begins by training personnel of small units in the techniques and procedures peculiar to airmobile operations. Proficiency in these techniques and procedures provides a foundation for the combined training of small ground combat units and their support. Aircraft organic to division is used in support of squad, platoon, and company training. Larger unit combined training logically follows. The necessary additional Army aircraft support is provided by the transport battalions assigned to field army. Field exercises and maneuvers should include airmobile operations.

97. Ground Force Training, General

Ground combat forces that are to participate in airmobile operations must be proficient in the conduct of ground tactical operations and must obtain maximum combat efficiency. With the special training outlined in paragraphs 98–103 they should be capable of planning and executing day and night airmobile operations.

98. Individual and Unit Training

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

a. Ground Combat Units.

- (1) Attainment of maximum proficiency in ground combat skills.

- (2) Psychological preparedness.
 - (3) Familiarization with Army aircraft and flight safety.
 - (4) Methods and techniques for the preparation of organic equipment for internal and external loading of Army aircraft.
 - (5) Familiarization with Army aircraft aerial weapon systems.
 - (6) Methods and techniques of assembly and reorganization.
 - (7) Training in defense against nuclear weapon employment.
- b. Aviation Units.*
- (1) Familiarization with operational planning.
 - (2) Employment of aerial weapon systems.
 - (3) Low level navigation.
 - (4) Formation flying at night and under other conditions of reduced visibility.
 - (5) Camouflage and security of aircraft.
 - (6) Unit control of aircraft.
 - (7) Air traffic control.
 - (8) Confined area operations with maximum loads.
- c. Subjects Common to Aviation and Ground Combat Units.*
- (1) Conduct of liaison and coordination.
 - (2) Selection, organization, and operation of loading areas and sites.
 - (3) Forward area refueling techniques.
 - (4) Air/ground communications.
 - (5) Air movement control.
 - (6) Special measures for antitank defense.
 - (7) Fire support planning to include aerial suppressive fire support.
 - (8) Familiarization with pathfinder techniques.
 - (9) Aerial supply techniques.
 - (10) Techniques of loading, lashing, and unloading internal and external loads.

99. Staff Training

Staffs of both ground and aviation elements must be trained in planning and conducting airmobile operations with emphasis on the following:

- a.* Backward planning sequence (ch. 3).
- b.* Fire support planning (ch. 3).

- c. Aerial supply and evacuation procedures.
- d. Development of detailed SOP's (app. VII).
- e. Command and staff relationships (ch. 1).

100. Combined Training

The combined training of ground combat units and their support elements is emphasized at all levels of command to insure that all units involved develop the capability for the skillful application of airmobile concepts. The program of progressive integrated combined airmobile training, starting with the squad and continuing to the battle group or larger unit, is directed toward acquiring the capability to execute airmobile operations in the minimum time and on the briefest of orders.

101. Sequence of Training

The following is the best training sequence for airmobile operations:

- a. Orientation of commanders and senior staff officers on airmobile operations as opposed to ground operations.
- b. Individual troop instruction and drill in loading and unloading personnel and equipment; instruction in assembly techniques and troop safety.
- c. Unit practice in loading and unloading heavy equipment, and in assembling.
- d. Specialist training of selected personnel in air traffic control in loading areas and landing sites, and in palletizing and preparing bulk supplies and equipment.

Section III. REHEARSALS

102. General

Rehearsals are desirably an integral part of the preparations for an airmobile operation. They should be staged under conditions paralleling those to be encountered in the operation. Rehearsals are held from platoon to battle group level as time and facilities permit. Best results are obtained when ground units are rehearsed with the Army aviation crews and equipment that will participate in the airmobile operations.

103. Specific Instruction

Security considerations and lack of equipment and practice areas may limit the size of a rehearsal or necessitate acceptance of

artificial conditions. Ideally, each rehearsal includes practice in the following:

- a.* Occupying assembly areas.
- b.* Moving to and loading aircraft at loading sites.
- c.* Unloading aircraft.
- d.* Communication procedures.
- e.* Assembly and control procedures after landing.
- f.* Executing the tactical plan.
- g.* Supply and evacuation procedures.

APPENDIX I

REFERENCES

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AR 220-70	Companies—General Provisions.
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AR 345-5	Personnel Management, Personnel Records.
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APPENDIX II

PATHFINDERS

1. General

a. Missions. Pathfinders are especially selected and trained Army personnel, whose mission is to aid in the terminal navigation and control of Army aircraft. Pathfinders are trained and equipped to—

- (1) Establish and operate electronic and visual navigation aids to assist aircraft in locating a designated facility (drop zone, helicopter landing site, or landing strip) within a landing area.
- (2) Furnish ground-to-air voice radio communication to aircraft for the purpose of providing information, guidance, and control.
- (3) Reconnoiter for and recommend suitable drop or landing zones.
- (4) Assist in the assembly of air-landed forces.
- (5) Conduct radiological monitoring or survey of areas subjected to nuclear attack and report conditions which would influence military operations.

b. Employment of Pathfinders.

- (1) It should be recognized that with the use of pathfinders in advance of the assault echelon, the element of surprise may be reduced.
- (2) Pathfinders may be employed in teams, reinforced as required for a particular mission.
- (3) In airmobile operations, teams may precede or accompany the assault echelon.
 - (a) When they precede the assault echelon, 10 to 30 minutes are required to establish navigation and assembly aids and pathfinder communication nets.
 - (b) When they accompany airmobile forces, they move as a part of the first element of the assault echelon and assist in the control of subsequent deliveries of personnel and equipment.
- (4) In air supply operations, pathfinders may be employed with advanced, isolated, or inaccessible units to insure and facilitate accurate air delivery.

- (5) Communication equipment organic to the team enables pathfinders to provide coordinated control in landing and drop zones over widely dispersed areas (up to 10 miles in diameter).
- (6) Pathfinders are trained and equipped to determine the extent of residual radiation and assess damage in areas subjected to nuclear explosions. They may be employed to determine the reaction of the enemy forces to this type weapon.

2. Organization and Equipment

a. General. A team is the basic TOE pathfinder unit and consists of two officers and ten enlisted men. These teams are assigned to the field Army. One or more pathfinder teams may be employed for the same operation. One team may be divided to form the nucleus for two teams that are completed by attaching personnel from the supported unit. Pathfinder support is also available within the supported unit as outlined in paragraph 6.

b. Equipment. Equipment used by pathfinders for aircraft terminal guidance consists of—

- (1) Navigation devices to guide aircraft to the general landing area, including visual and electronic beacons.
- (2) Visual aids to assist in the landing of aircraft and assembly of troops. They include panels, lights, flags, smoke grenades, and pyrotechnic signals.
- (3) Communication equipment, including portable radio sets to provide ground-to-air and ground-to-ground communication.

3. Transportation

The pathfinder team may be air delivered or air landed in an objective area, it may go by ground or water vehicle, or it may infiltrate on foot. (It may be practical for the team to move to the objective area on foot in a short-range operation because pathfinder equipment is designed for lightness and portability and can be hand-carried for considerable distances.)

4. Visual Signaling Procedures

The pathfinder team uses the standard visual signaling procedures as described in ACP's 129, 136, 168 (A), and FM 1-100.

5. Conduct of Operations

a. General. A pathfinder team assists in the navigation and control of Army aircraft in three basic types of operation: helicopter landings, airplane landings, and air delivery. Usually, a

landing zone consists of one or more helicopter landing sites or airplane landing strips, but it may have a combination of both. A drop zone may be included in the landing area. Normally, the 12-man pathfinder team is capable of handling one landing zone with the following installations: four helicopter landing sites; one airplane landing strip; or two drop zones. The pathfinder team is usually reinforced by the supported unit with communication and local security personnel. Such personnel should be attached to, and under the command of, the pathfinder team leader. The attachments increase the number of facilities which the pathfinder team can operate.

b. For each of the three basic types of operation or combination of types, the pathfinder team usually is organized into three different parties: the release point party, a landing zone control center party, and a landing site, landing strip, or drop zone party.

- (1) Release point (RP) party. This party is responsible for marking with visual and electronic navigational aids a predesignated point on the approach flight route from which aircraft flights proceed directly to their assigned landing site, landing strip, or drop zone within the landing zone. During daylight operations, a prominent terrain feature may be picked as the release point, in which case the release point party may not be necessary.
- (2) Landing zone control center (LZCC) party. This party can be considered the nerve center of the landing zone. The pathfinder team leader normally is at the control center, which usually is located on prominent terrain in the center of the landing area. The control center provides visual and electronic navigational assistance to incoming aircraft. Both ground-to-air and ground-to-ground radio communication nets are operated at the control center. The landing zone control center monitors all air operations within the landing zone and controls air deliveries, landings, and departures.
- (3) Landing site, landing strip, and drop zone parties. These parties, one for each landing site, landing strip, and drop zone within the landing zone, provide final visual guidance and landing/drop information to individual aircraft. They supervise the parking of aircraft and assist in the assembly of the airmobile force. Personnel from the supported unit are usually attached to these parties. The attached personnel assist in preparing the landing site or strip, assembling the airmobile force, and providing local security.

6. Terminal Guidance by Supported Unit

a. There will be many requirements to assist aircraft in landing in strange areas where TOE pathfinders are not available or are not required. This type of terminal guidance is furnished by personnel of the supported unit or by personnel of the unit in whose area landings are to be conducted. This type of guidance is performed as an additional duty by personnel already in the area, using equipment which is either already available or is improvised.

b. These individuals are trained to—

- (1) Operate electronic and visual navigation aids to assist aircraft in locating drop or landing zones.
- (2) Provide limited guidance and control of Army aircraft through ground-to-air radio.
- (3) Reconnoiter for and recommend suitable drop or landing zones.
- (4) Determine and recommend necessary pioneer work to prepare drop or landing zones.

c. These individuals are capable of—

- (1) Indicating with electronic and visual navigational aids the identity of drop or landing zones, the presence of obstacles, direction of landing, boundary of runways, taxiways, and parking areas for fixed-wing aircraft; and the presence of obstacles and landing points for helicopters.
- (2) Furnishing by ground-to-air communication information relative to weather, elevation and condition of landing zones, and magnetic headings for aircraft guidance.
- (3) Furnishing by ground-to-air radio communication information relative to traffic patterns, formations, landing and parking instructions, and other information in keeping with the tactical situation.

APPENDIX III

SELECTION, PREPARATION, AND OPERATION OF LANDING AND DROP ZONES

1. General

It is seldom possible to prepare landing and drop zones extensively for airmobile operations. Hasty preparation or no preparation at all is normal, but as many of the following considerations and techniques are applied as time and the tactical situation permit.

2. Day Landing Zones

a. In selecting a day landing zone, a major technical consideration involves finding enough level, firm terrain for the landing sites and strips needed to handle the volume of air traffic, including taxiways and parking areas, when required. Landing sites and strips are prepared by removing any obstacles that will interfere with air navigation above a minimum altitude and that normally would be invisible to the pilot. If such obstacles are too difficult to remove, they are suitably marked.

b. The landing zone is marked with panels, smoke, electronic navigation aids, or a combination of these means. A prearranged code identification letter made from panels is used to identify the landing zone.

3. Day Landing Sites, Landing Strips, and Drop Zones

a. Selection. The following factors are considered when selecting day landing sites and strips, and drop zones:

- (1) The ground must have less than a 15° slope from the horizontal if the helicopter is required to touch down to unload and less than a 10° slope for landing airplanes.
- (2) The standing should be firm enough to keep the aircraft from sinking and becoming mired on landing, taxiing, or parking.
- (3) The area must be clear of obstructions such as large rocks and holes that prohibit taxiing or unloading, and debris that may be sucked up into rotor blades or propellers.

- (4) Depending on the air density, altitude, and the aircraft load, approaches to and exits from the landing sites and strips should be free of obstructions.
- (5) Each landing site and strip must be easily identifiable from the air. Landing sites should be large enough to accommodate the helicopters of a single flight in simultaneous landings and takeoffs.
- (6) Care is taken to select sites and strips that are not in a portion of the terrain where wind effects will complicate stability and flight control. For example, in mountains, sites and strips are not selected at the head of a valley where a downdraft is created by winds coming off the top of a hill.
- (7) Considerations for selecting drop zones are generally the same as those for selecting landing sites. There is less emphasis on obstacles, slope, and soil trafficability, since the aircraft do not land.

b. Preparation.

- (1) Only nominal preparation of landing sites is required for daylight operations. When personnel and facilities are available and the tactical situation permits, sites are reconnoitered to locate and mark obstructions or to remove them.
- (2) Panels may be used to outline a landing strip and form a wind indicator arrow or smoke may be used to identify the strip and indicate wind direction and velocity. Obstacles on the ground are marked if they are likely to endanger the aircraft while taxiing.

c. Operation.

- (1) Flight serial and unit leaders establish communication with the landing zone control center at a predesignated point and receive information on the weather, enemy, and terrain. When the information indicates that an alternate plan must be used, the control center advises the flight serial and unit leaders of the heading and distance to alternate sites or strips. All flight leaders fly within visual range of the release point before taking up the heading to their landing sites or strips.
- (2) Flight units land, unload, take off, and move without further orders to the return routes unless otherwise directed by the landing zone control center. The use of emergency "Do not Land" signals must be prearranged

(ACP's 136 and 168(A)). The following standard procedures may be used:

(a) *Helicopter landing site.*

1. A landing point for the flight leader may be marked or indicated. The flight leader occupies that particular location, and the rest of the flight lands immediately behind him.
2. Each helicopter landing point may be marked by a panel.
3. Pathfinders may guide each helicopter individually, guiding it to its landing point by use of panels, arm-and-hand signals, or flags.

(b) *Airplane landing strip.*

1. Parking party personnel use arm-and-hand signals to control aircraft parking. They transmit instructions from the control center to pilots, and assist in unloading the aircraft.
2. The pathfinder at the approach end of the runway clears aircraft for takeoff or delays the takeoff according to the instructions received from the control center.

(c) *Drop zone.* In drop zone operations, an aircraft releases its bundles or troops as, flying up the stem of the net, it passes over the junction of the stem and crossbar.

4. Night Landing Zones

a. Night landing zones are identical to those for day landings, except that more emphasis is placed on selecting zones with a minimum of obstacles and on providing more room between aircraft. A formation of aircraft cannot maneuver as easily at night as during daylight and control is more difficult.

b. Night landing zones are laid out like day landing zones except that light sources must be used as visual aids.

5. Night Landing Sites, Landing Strips, and Drop Zones

a. *Selection.* The considerations applying to the selection of day landing sites, landing strips, and drop zones are equally applicable for night operations. Increased emphasis is placed on avoiding obstacles and selecting glide paths free of obstacles. Landing sites must be easily identifiable and provide added maneuver room for helicopter formations in flight and during landing and takeoff.

b. *Preparation.* Night landing sites and strips are prepared by indicating the exact landing or parking points for each aircraft

with a visible light source. Increased emphasis is placed on marking or clearing obstacles to navigation or landing.

c. Operation. The operation of night landing sites, landing strips, or drop zones is essentially the same as for day operations, but more control is exercised over the aircraft formations. Flight leaders establish communication with the landing zone control center at a prearranged point or time while approaching the objective area. Flashlights or other lights may be used to transmit signals. The use of emergency "Do Not Land" signals must be prearranged (ACP 168(A)).

6. Special Landing Sites and Strips

a. In difficult terrain, landing sites and strips may be unusually hard to prepare. Much work will have to be done to remove obstacles and level the ground. Additional personnel may be required for this purpose.

b. In swampy areas it may be necessary to build mats of brush, small trees, or other material upon which helicopters may land and unload.

c. In mountainous terrain, landing sites may be prepared by cutting into a hill or ridge and building up a level area. This leveled area must allow enough room for the helicopters to land and provide a clearance between the rotor blades and the cutout uphill slope, (fig. 23).

d. In desert areas, efforts must be made to reduce the amount of dust created by landings and takeoffs, particularly at landing sites. Not only does dust interfere with a pilot's vision but it creates special aircraft maintenance problems. Oil or kerosene may be sprayed on the ground to minimize dust.

e. In arctic areas, powdered snow creates the same general problems created by dust in the desert. When time and the situation permit, the powdered snow should be scraped away until a firm surface is reached, or the snow should be firmly packed.

f. Because of the warm air in tropical areas, loaded helicopters are often not able to land or take off vertically but require a short ground roll. In jungle operations, considerable time and effort may be required to provide adequate landing and takeoff space. If landing sites cannot be cleared, personnel can unload from hovering helicopters by climbing down rope ladders, or by jumping if the helicopters can touch one wheel down.

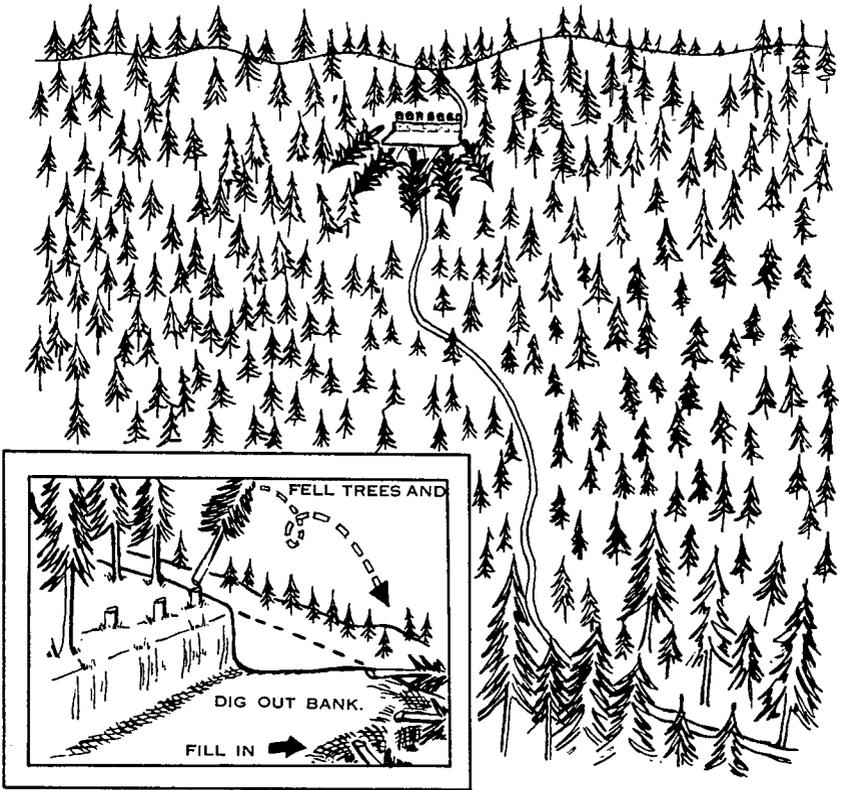


Figure 23. Mountain landing site.

APPENDIX IV

ASSEMBLY TECHNIQUES

1. General

This appendix outlines the techniques and aids suitable for conducting an assembly when necessary.

2. Assembly Techniques and Aids

a. Assembly plans are based on the use of one of the following techniques:

- (1) Assembly by a subordinate unit independent of other subordinate units (fig. 24).
- (2) Assembly by subordinate units in conjunction with other units (fig. 25).

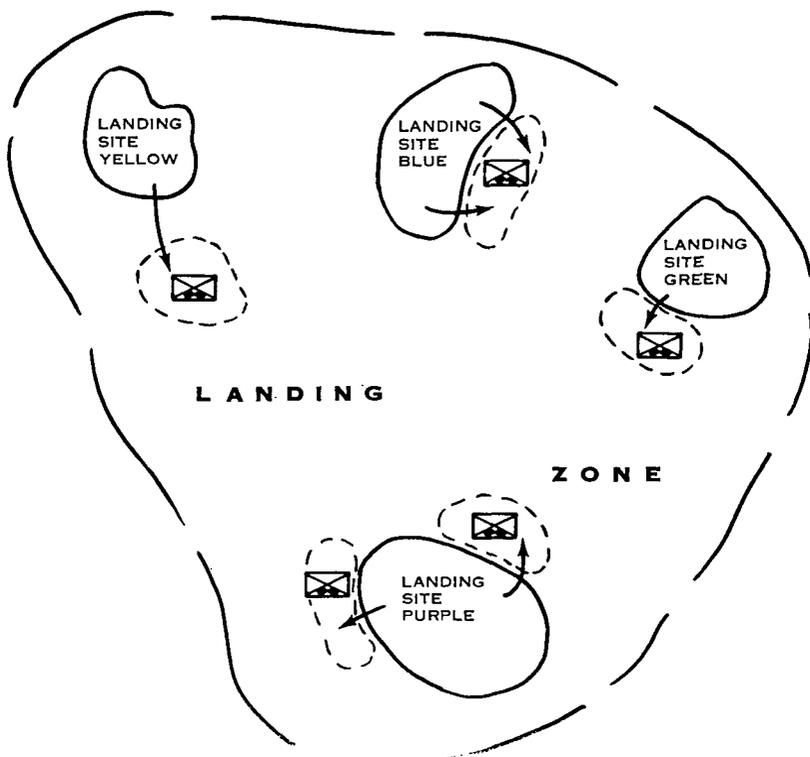


Figure 24. Independent assembly of subordinate units (schematic diagram).

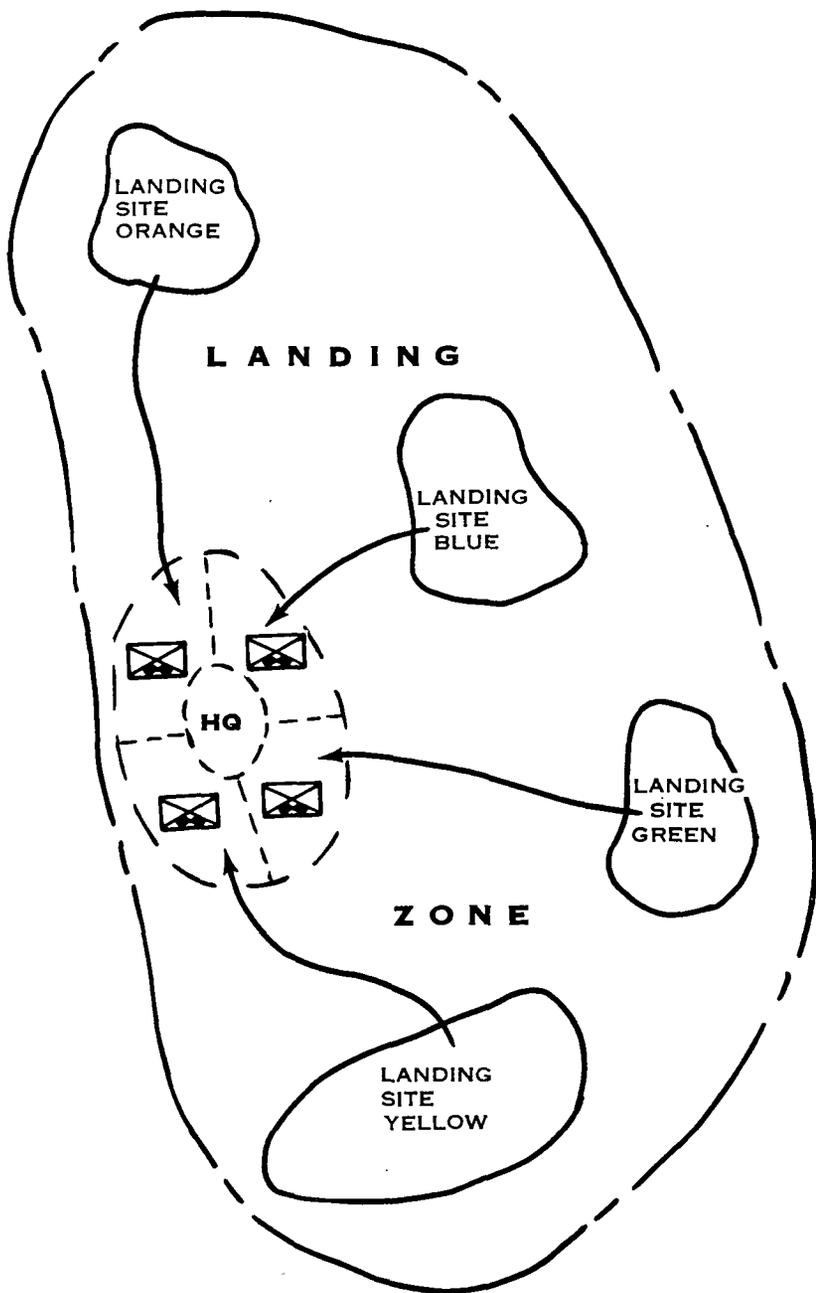


Figure 25. Assembly in conjunction with other subordinate units (schematic diagram).

b. A thorough briefing on the assembly plan is conducted by all units. As time and facilities permit, maps, charts, aerial photographs, and sand tables should be used.

c. Assembly aids used at landing sites and strips are of three classifications: visual, audible, and electronic.

- (1) *Visual assembly aids.* Panels, flags, smoke, and pyrotechnics are used in a variety of colors. The arrangement and color of a given aid on the periphery of the landing zone indicates the location of subordinate unit assembly areas. Additional visual aids may be used in the form of distinctive markings on the helmets of the troops of each subordinate unit or a bright strip of cloth (a different color for each unit) attached at a designated place on the men.
- (2) *Audible assembly aids.* Audible aids include whistles, crickets, cowbells, bugles, and other devices that make a distinctive sound that can be heard above the sound of battle. Subordinate units can be briefed to assemble at the source of a specific sound. Consideration must be given, however, to the fact that aircraft noise may overpower these audible aids.
- (3) *Electronic assembly aids.* Electronic aids include radio and radio homing devices. The organizational ground radio can assist in guiding troops to a given location when properly modified with the standard directional homing antenna.

d. Generally, the same considerations apply to night and day assembly. Briefings, particularly on the aids used to support night assembly plans, are more detailed. Aircraft landing direction is emphasized for directional orientation in the landing zone. Emphasis is placed on the use of infrared and visible light sources. Codes are arranged at each light source to differentiate it from others and indicate subordinate unit assembly areas. Visible light sources are used in conjunction with a color scheme, but they must be carefully shielded. More time is needed to establish night assembly aids and this will increase the assembly time.

APPENDIX V

AIRCRAFT LOADING DATA

1. General

a. In order to efficiently load an airmobile force aboard aircraft, commanders and staffs must be familiar with the exact composition of the airmobile force, the essential characteristics of the aircraft to be used for the operation, and the methods of computing aircraft requirements.

b. This appendix discusses these factors insofar as they apply to the organization of a rifle company as an airmobile force using the H-34A helicopter.

2. References

TM 57-210 provides detailed characteristics of Army aircraft and technical data and guidance for computing aircraft requirements and examples of detailed air loading and movement forms.

3. Organization of an Airmobile Force

a. References:

- (1) TOE 7-17D (Rifle Company, Infantry Division Battle Group).
- (2) TOE 7-19D (Combat Support Company, Infantry Division Battle Group).

b. Nonessential Personnel/Equipment. For the purposes of this discussion, certain personnel and equipment organic to the rifle company will be considered as nonessential for the initial success of an airmobile operation. The overall weight of the nonessential element is 6,943 pounds and includes the following:

Executive Officer -----	240 pounds
First Sergeant -----	240 pounds
Mess Steward -----	240 pounds
Supply Sergeant -----	240 pounds
First Cooks (2) -----	480 pounds
Armorer -----	240 pounds
Company Clerk -----	240 pounds
Cooks (2) -----	480 pounds
Bag, Water, Sterilizing (2) -----	32 pounds
Tent, Kitchen, Flyproof -----	76 pounds

Desk, Field, Plywood -----	37 pounds
Food, Container, Insulated (8) -----	144 pounds
Heater, Immersion Type (9) -----	648 pounds
Range, Outfit, Field (3) -----	282 pounds
Screen, Latrine (2) -----	94 pounds
Trailer, Amphibious, ¼-T -----	565 pounds
Truck, Utility, ¼-T, 4x4 -----	2,665 pounds

c. Nontransportable Equipment. Due to its weight, the truck, cargo, ¾-T, 4x4, cannot be transported by any aircraft currently in the Army inventory except the H-37 helicopter. Consequently, for airmobile operations involving all other types of aircraft, the truck, cargo, ¾-T, 4x4, must be omitted. Because it is not practical to separate the trailer, cargo, ¾-T, from its prime mover, this item is usually omitted also.

d. Essential Elements. For the purposes of this discussion, the following elements of the rifle company are considered essential for the initial success of an airmobile operation :

(1) Company Headquarters

Company Commander -----	240 pounds
Communication Chief -----	240 pounds
Radio/Telephone Operator (2)* -----	480 pounds
Wireman (2) -----	480 pounds
Trailer, Amphibious, ¼-T -----	565 pounds
Truck, Utility, ¼-T, 4x4, w/AN/VRQ3 -----	<u>2,895 pounds</u>
Total -----	4,900 pounds

(2) Rifle Platoon

Platoon Leader -----	240 pounds
Platoon Sergeant -----	240 pounds
Squad Leader (3) -----	720 pounds
Team Leader (6) -----	1,440 pounds
Automatic Rifleman (6) -----	1,440 pounds
Senior Rifleman (6) -----	1,440 pounds
Rifleman (12) -----	2,880 pounds
Weapons Squad Leader -----	240 pounds
Machine Gunner (2) -----	480 pounds
Rocket Gunner -----	240 pounds
Ammunition Bearer (2) -----	480 pounds
Assistant Machine Gunner (2) -----	480 pounds
Assistant Rocket Gunner -----	<u>240 pounds</u>
Total weight one platoon -----	10,560 pounds
Total weight three platoons -----	31,680 pounds

* One radio/telephone operator from the company headquarters and one radio/telephone operator from the mortar section headquarters are assigned as vehicle operators. Because control and radio communications are critical during an airmobile operation, these individuals accompany the airmobile force; personnel of the nonessential element may be detailed to operate their vehicles. Only three ammunition bearers are indicated in the organization of the weapons platoon. The three remaining ammunition bearers, assigned as drivers of the trucks, ¾-T, 4x4, remain behind with these vehicles.

(3) Weapons Platoon

Platoon Leader -----	240 pounds
Platoon Sergeant -----	240 pounds
Radio/Telephone Operator -----	240 pounds
81-mm Mortar Section Leader -----	240 pounds
81-mm Mortar Forward Observer (3) -----	720 pounds
81-mm Mortar Fire Direction Computer (2) -----	480 pounds
Radio/Telephone Operator (4)* -----	960 pounds
81-mm Mortar Squad Leader (3) -----	720 pounds
81-mm Mortar Gunner (3) -----	720 pounds
81-mm Mortar Ammunition Bearer (3)* -----	720 pounds
81-mm Mortar Assistant Gunner (3) -----	720 pounds
Antitank Squad Leader (2) -----	480 pounds
Antitank Gunner (2) -----	480 pounds
Light Truck Driver (2) -----	480 pounds
Loader (2) -----	480 pounds
Trailer, Amphibious, ¼-T -----	565 pounds
Truck, Utility, ¼-T, 4x4 -----	2,665 pounds
Truck, Utility, ¼-T, Carrier, 106-mm R (2) -----	6,296 pounds
Ammunition, 81-mm Mortar (144 rounds) -----	2,160 pounds
Ammunition, 106-mm R (12 rounds) -----	720 pounds
Total weight -----	20,326 pounds

(4) Normal Attachments

Senior Medical Aidman -----	240 pounds
Heavy Mortar Forward Observer -----	240 pounds
Assistant Heavy Mortar Forward Observer -----	240 pounds
Trailer, Amphibious, ¼-T (FO's) -----	565 pounds
Truck, Utility, ¼-T w/AN/VRC9 (FO's) -----	2,780 pounds
Total weight -----	4,065 pounds

(5) Essential Weight

Company Headquarters -----	4,900 pounds
Rifle Platoon (3) -----	31,680 pounds
Weapons Platoon -----	20,326 pounds
Normal Attachments -----	4,065 pounds
Total weight -----	60,971 pounds

4. Essential Characteristics of Transport Helicopters

Type Aircraft	Allowable Payload for 25 Nautical Mile Radius Mission	External Sling Capacity	Number of Troop Seats *
H-21	5,000 pounds	3,000 pounds	19
H-34	4,240 pounds	4,000 pounds	17
H-37	7,660 pounds	10,000 pounds	23

* Figures do not include the seat normally occupied by the helicopter crew chief.

5. Methods for Computing Aircraft Requirements

a. Weight Method.

- (1) The weight method is used when the total weight to be transported is the determining factor. However, this

method is not accurate enough to compute requirements for units that must transport major items of equipment and also maintain tactical integrity. Aircraft requirements are determined by dividing the allowable cargo load (payload) of each aircraft into the total weight of the force to be transported.

- (2) Example of using the weight method :

Weight to be transported = 60,971 pounds
 Allowable cargo load H-34 = 4,240 pounds
 $60,971 \div 4,240 = 14.3$ or 15 helicopters required.

b. Space Method.

- (1) The space method is the most desirable method for computing aircraft requirements since the number of spaces required for personnel, weapons, ammunition, and vehicles will not change for each operation or with every change in allowable cargo load. Thus, the majority of the computations remain constant and overall planning time is decreased.
- (2) A space is defined as the weight of a fully combat equipped soldier and is used as a denominator to convert the weight of major items of equipment and accompanying supplies into a common factor. A space is considered to be 240 pounds and is derived as follows :
- (a) Average weight of each individual = 155.00 pounds.
 in the Army
- (b) Weight of normal combat clothing = 49.89 pounds.
 and equipment
- (c) Average weight of each combat = 204.89 pounds.
 equipped individual
- (d) Average weight of all weapons and hand-carried Class V basic load in a rifle company, to include the 81-mm mortar (but not the 81-mm mortar ammunition, the 106-mm rifles, or 106-mm rifle ammunition) = 36.41 pounds.
- (e) Grand Total = 241.30 pounds (or rounding off) = 240 pounds.
- (3) In converting *weights to spaces*, consider only whole or half spaces by carrying fractions to the *next higher* half or whole space; for example, $10.1 = 10.5$; $11.6 = 12.0$.
- (4) Convert major items of equipment such as vehicles, trailers, or heavy weapons into spaces by dividing the weight of each item by 240. If two or more items of the same type are to be transported, multiply the spaces re-

quired for a single item by the number of items. Convert additional assault supplies not carried by the individual soldier into spaces by dividing their total weight by 240.

- (5) To determine the number of spaces that each aircraft can provide, divide the allowable cargo load by 240. In converting *allowable cargo load to spaces*, consider only half or whole spaces. Fractions will be *reduced* to the *next lower* half or whole space; for example, $22.8 = 22.5$; $24.3 = 24$.

- (6) Example of using the space method:

Number of personnel = 174 spaces.

Three $\frac{1}{4}$ -T trucks, 4 x 4, each 2,665 pounds = $\frac{2665}{240}$
 $\times 3 = 11.1 \times 3 = 11.5 \times 3 = 34.5$ spaces.

Three $\frac{1}{4}$ -T trailers, 4x4, each 565 pounds = $\frac{565}{240}$
 $\times 3 = 2.3 \times 3 = 2.5 \times 3 = 7.5$ spaces.

Two $\frac{1}{4}$ -T trucks, w/106-mm Rifle, each 3,148 pounds = $\frac{3148}{240}$
 $\times 2 = 13.1 \times 2 = 13.5 \times 2 = 27.0$ spaces.

144 rounds 81-mm ammunition, each 15 pounds = $\frac{2160}{240}$
 = 9 spaces.

12 rounds 106-mm Rifle ammunition, each 60 pounds = $\frac{720}{240}$
 = 3 spaces.

Total spaces required: 255 spaces.

Spaces/H-34A = $\frac{4240}{240} = 17.6 = 17.5$ spaces.

H-34's required = $\frac{255}{17.5} = 14.6 = 15$ aircraft required.

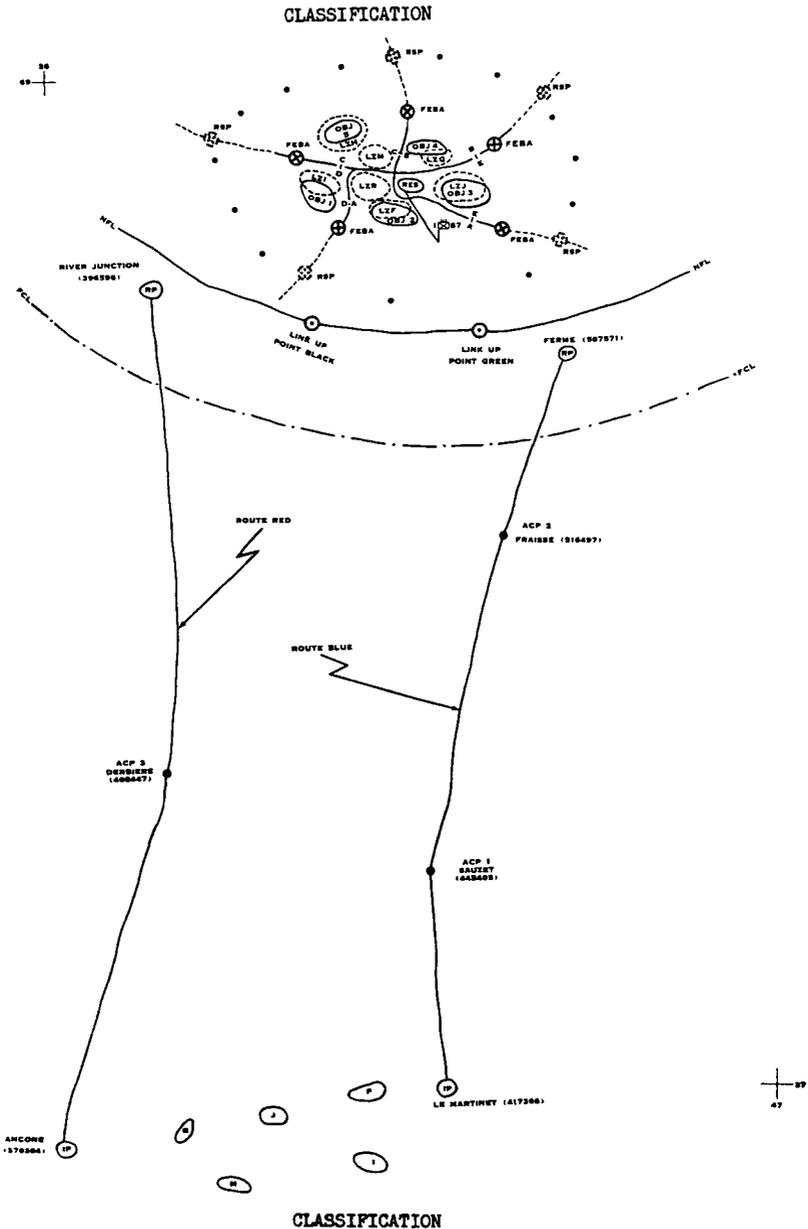
6. Rifle Company Loading Plan Using Fifteen H-34 Helicopters

CHALK	#1.	Platoon Leader, 1st Platoon -----	240 pounds
		1st Squad, 1st Platoon -----	2,640 pounds
		"A" Fire Team, 2d Squad, 1st Platoon ----	1,200 pounds
			4,080 pounds
CHALK	#2.	2d Squad (— "A" Fire Team), 1st Platoon _	1,440 pounds
		Weapons Squad, 1st Platoon -----	2,160 pounds
		81-mm Mortar Forward Observer Team ----	480 pounds
			4,080 pounds
CHALK	#3.	Platoon Sergeant, 1st Platoon -----	240 pounds
		3d Squad, 1st Platoon -----	2,640 pounds
		"A" Fire Team, 1st Squad 2d Platoon -----	1,200 pounds
			4,080 pounds

CHALK #4.	Platoon Leader, 2d Platoon -----	240 pounds
	2d Squad, 2d Platoon -----	2,640 pounds
	Machinegun Team, 2d Platoon -----	720 pounds
	81-mm Mortar Forward Observer Team -----	480 pounds
		4,080 pounds
CHALK #5.	Company Commander -----	240 pounds
	Radio/Telephone Operator -----	240 pounds
	3d Squad, 2d Platoon -----	2,640 pounds
	Weapons Squad Leader, 2d Platoon -----	240 pounds
	Rocket Launcher Team, 2d Platoon -----	480 pounds
	Platoon Sergeant, 2d Platoon -----	240 pounds
		4,080 pounds
CHALK #6.	Heavy Mortar Forward Observer -----	240 pounds
	Communication Chief -----	240 pounds
	Radio/Telephone Operator -----	240 pounds
	Truck, ¼-T, w/AN/VRC10 -----	2,895 pounds
		3,615 pounds
CHALK #7.	Assistant Heavy Mortar Forward Observer --	240 pounds
	Weapons Platoon Leader -----	240 pounds
	Senior Medical Aidman -----	240 pounds
	Truck, ¼-T, w/AN/PRC10 & Trailer ¼-T (on sling) -----	3,345 pounds
		4,065 pounds
CHALK #8.	Machinegun Team, 2d Platoon -----	720 pounds
	Weapons Platoon Radio/Telephone Operator --	240 pounds
	Truck, ¼-T, Utility, w/Trailer ¼-T (on sling) -----	3,230 pounds
		4,190 pounds
CHALK #9.	81-mm Mortar Section Leader -----	240 pounds
	Mortar Section Radio/Telephone Operator --	240 pounds
	81-mm Mortar Fire Direction Computer ----	240 pounds
	1st Squad (— "A" Fire Team), 2d Platoon --	1,440 pounds
	1st 81-mm Mortar Squad (— 1 Ammunition Bearer) -----	960 pounds
	48 rounds 81-mm Mortar Ammunition (on sling) -----	720 pounds
		3,840 pounds
CHALK #10.	Weapons Platoon Sergeant -----	240 pounds
	2d Squad (— "A" Fire Team), 3d Platoon --	1,440 pounds
	Wireman -----	240 pounds
	2d 81-mm Mortar Squad (— 1 Ammunition Bearer) -----	960 pounds
	48 rounds 81-mm Mortar ammunition (on sling) -----	720 pounds
		3,600 pounds

CHALK	#11.	Platoon Leader, 3d Platoon -----	240 pounds
		3d Squad (— “A” Fire Team), 3d Platoon --	1,440 pounds
		81-mm Mortar Fire Direction Computer ----	240 pounds
		Wireman -----	240 pounds
		Loader, 1st Antitank Squad -----	240 pounds
		3d 81-mm Mortar Squad (— 1 Ammunition Bearer) -----	960 pounds
		48 rounds 81-mm Mortar ammunition (on sling) -----	<u>720 pounds</u>
			4,080 pounds
CHALK	#12.	1st Antitank Squad (— Loader) -----	720 pounds
		Truck, ¼-T, w/106-mm Rifle and 6 rounds Ammunition (on sling) -----	<u>3,508 pounds</u>
			4,228 pounds
CHALK	#13.	“A” Fire Team, 2d Squad, 3d Platoon -----	1,200 pounds
		Weapons Squad, 3d Platoon -----	2,160 pounds
		Loader, 2d Antitank Squad -----	240 pounds
		81-mm Mortar Forward Observer Team ----	<u>480 pounds</u>
			4,080 pounds
CHALK	#14.	2d Antitank Squad -----	720 pounds
		Truck, ¼-T, w/106-mm Rifle and 6 rounds 106-mm Ammunition (on sling) -----	<u>3,508 pounds</u>
			4,228 pounds
CHALK	#15.	Platoon Sergeant, 3d Platoon -----	240 pounds
		1st Squad, 3d Platoon -----	2,640 pounds
		“A” Fire Team, 3d Squad, 3d Platoon -----	<u>1,200 pounds</u>
			4,080 pounds

APPENDIX VI
(OVERLAY TYPE OPERATION ORDER)



CLASSIFICATION

Copy No 3
 1st BG, 87th Inf
 LE PAVILLON (395365)
 011800 Oct 1965
 SU531

Operation Order 42

Reference: Map, FRANCE, 1:50,000, CREST 1&2, 3&4, 5&6, 7&8 MONTE LIMAR 1&2, 3&4 Sheets.

1. SITUATION

- a. Enemy forces: Annex A, Intelligence.
- b. Friendly forces:
 - (1) 10th Inf Div (-1st BG, 87th Inf) attacks 030500 Oct, penetrates enemy defenses, follows and supports 2d Armd Div when passed through.
 - (2) 2d Armd Div passes through 10th Inf Div(-) on corps order, links up with 1st BG, 87th Inf by 031900 Oct and expands bridgehead over DROME River.
 - (3) 1st How Bn (105mm/155mm)(Towed)(-Btry A), 7th Arty in direct support 1st BG, 87th Inf.
 - (4) 2d How Bn (155mm)(SP), 650th Arty reinforces fires 1st How Bn (105mm/155mm) (towed)(-Btry A), 7th Arty.
 - (5) 1st TAF supports 1st (US) Corps with priority to 10th Inf Div.
 - (6) Annex C, Fire Support Plan.
- c. Attachments and detachments:
 - (1) Btry A (105mm), 1st How Bn (105mm/155mm) (Towed), 7th Arty attached 020600 Oct.
 - (2) 101st Tac Trans Avn Gp (-134th Tac Trans Avn Bn) attached for operational control 020800 Oct.
 - (3) 5th Cmbt Spt Sec (augmented with two observation helicopters and two fixed-wing aircraft), 10th Avn Co attached 011800 Oct.
 - (4) 5th Area Spt Plat, Co B (Fwd Comm), 10th Sig Bn attached 011800 Oct.
 - (5) Rear Echelon, 1st BG, 87th Inf attached 10th Inf Div 021800 Oct.

2. MISSION

1st BG, 87th Inf executes airmobile assault beginning 030600 Oct to seize railroad and highway

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bridges vicinity LIVRON-SUR-DROME (4659); seizes, organizes and defends objective area astride DROME River until linkup with 2d Armd Div; passes to control CG, 2d Armd Div upon linkup, reverts control CG, 10th Inf Div on order.

3. EXECUTION

- a. Concept of operation: 1st BG, 87th Inf conducts airmobile assault with all companies to seize Obj 1, 2, 3, 4 and 5; clear objective area and defend FEBA until linkup with 2d Armd Div. Priority of fires initially to air corridor; upon landing to Co A.
- b. Co A:
Attached: Two short range team, Radar Sec
 - (1) Seize Obj 2; defend in zone.
 - (2) Upon seizure of bridge (453596), secure with minimum of one reinforced rifle plat.
- c. Co B:
Attached: Aslt Wpn Plat
 - One short range team, Radar Sec
 - (1) Seize Obj 4; defend in zone.
 - (2) Block enemy movement toward bridges vicinity LIVRON-SUR-DROME.
- d. Co C:
Attached: One short range team, Radar Sec
 - (1) Seize Obj 5; defend in zone.
 - (2) Block enemy movement toward bridges vicinity LIVRON-SUR-DROME.
- e. Co D:
Attached: One short range team, Radar Sec
 - (1) Seize Obj I; defend in zone.
 - (2) Prepare railroad bridge 445592 for demolition; destroy only on order.
- f. Co E:
 - (1) 1st Plat revert to BG reserve upon landing.
 - (2) Co(-):
 - (a) Seize Obj 3; defend in zone.
 - (b) Block enemy movement toward bridges vicinity LIVRON-SUR-DROME.
- g. Hv Mort Plat: GS; priority to Co A.
- h. Aslt Wpn Plat: Attached to Co B.
- i. Engr Plat:
 - (1) Attached to Recon Plat.
 - (2) On order revert to GS.
 - (3) Be prepared to clear approaches to bridges located in Obj 2.

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- j. Radar Sec:
 - (1) Attach two short range teams to Co A.
 - (2) Attach one short range team to Co B, C and D.
 - (3) Sec(-): Establish one medium range site each on Obj 3 and 4.
- k. Recon Plat:
 - Attached: Engr Plat.
 - (1) Establish RSP.
 - (2) Establish linkup points BLACK and GREEN on order.
- l. Btry A (105mm), 1st How Bn (105mm/155mm) (towed), 7th Arty.
 - (1) GS.
 - (2) Revert to parent organization on order.
- m. 101st Tac Trans Avn Gp (-one bn): Provide aircraft to support air movement.
- n. 5th Cmbt Spt Sec, 10th Div Avn Co:
 - (1) GS.
 - (2) Provide fixed wing aircraft to support R&S force.
- o. 5th Area Spt Plat: GS.
- p. BG reserve: 1st Plat, Co E:
 - (1) Prepare to assist in seizure of Obj 2 and 3 in that priority.
 - (2) Prepare to attack South to seize linkup points BLACK and GREEN.
 - (3) Prepare to assist passage of 2d Armd Div.
- q. Coordinating instructions:
 - (1) Attachments effective 020800 Oct.
 - (2) Assault time 030600 (landing time 1st Serial).
 - (3) Linkup target time 031900 Oct.
 - (4) All units prepare to furnish guides to 2d Armd Div.
 - (5) Priority of roads to 2d Armd Div.
 - (6) RSP to revert to co control on order.
 - (7) All units prepare to move two-thirds of force to RSP.
 - (8) Movement data:
 - (a) Primary Route RED, approach and return; alternate BLUE.
 - (b) Formation: Vee's in trail.
 - (c) Altitude: 25-100 feet.
 - (d) Speed: 90 knots.
 - (e) Time table:

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Serial	Trans Avn Unit	Trans Avn Unit	Transported Unit	No Hel	Load Area	Take Off Time	IP Time	Land- ing Time Zone
1	131st Tac Trans Avn Bn	Co A Hv Mort Plat	Co A Hv Mort Plat	26	F 0540	0542	0547	0559 F
2	131st Tac Trans Avn Bn	Co D Engr Plat	Co D Engr Plat	19	I 0545	0547	0552	0604 I
3	132d Tac Trans Avn Bn	Co B Aslt Wpn Plat	Co B Aslt Wpn Plat	19	G 0550	0552	0557	0609 G
4	132d Tac Trans Avn Bn	Co C Recon Plat	Co C Recon Plat	25	H 0555	0557	0602	0614 H
5	132d Tac Trans Avn Bn	Co E Comd Gp	Co E Comd Gp	17	J 0600	0602	0607	0619 J
6	133d Tac Trans Avn Bn	Btry A(105mm), 1st How Bn, 7th Arty	Btry A(105mm), 1st How Bn, 7th Arty	14	J 0605	0607	0613	0625 M
7	133d Tac Trans Avn Bn	Hq & Hq Co(-)	Hq & Hq Co(-)	12	J 0610	0612	0617	0629 R
8	133d Tac Trans Avn Bn	Cmbt Spt Co(-)	Cmbt Spt Co(-)	15	J 0615	0617	0622	0634 R

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4. ADMINISTRATION AND LOGISTICS
Annex C, Administrative Order 41.
5. COMMAND AND SIGNAL
 - a. Signal:
 - (1) Index 1-12, SOI.
 - (2) Emergency daylight recognition signal:
Yellow smoke.
 - (3) Emergency night recognition signal: Flash-
light swung in overhead arc.
 - (4) 1st BG, 87th Inf maintains minimum one CW
and one voice radio link with Hq, 2d Armd
Div and with combat commands.
 - (5) Subordinate units communicate with units,
2d Armd Div by AN/PRC-10 radio.
 - b. Command:
 - (1) BG CP opening to be announced by radio.
 - (2) BG CO to accompany 1st Serial.

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Annexes: A--Intelligence*
B--Fire Support Plan*
C--Administrative Order 41*

Distribution: A
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*This annex is not illustrated in this order.

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APPENDIX VII
STANDING OPERATING PROCEDURE

CLASSIFICATION

87th Inf
APO #10
c/o PM
1 Jan 1959

Annex F (Airmobile Operations) to 1st BG, 87th Inf SOP.

1. GENERAL

a. Purpose. This annex prescribes the organization and procedures to be followed in preparing and executing airmobile operations to facilitate planning, coordination, and control. Only the procedures peculiar to this type operation are included; otherwise, basic SOP applies.

b. Unit Procedures. Subordinate units issue SOP to conform.

2. PERSONNEL

a. Strengths, Records, and Reports.

- (1) As soon as practicable after receiving warning order units submit report, by company, of number of men in the assault echelon and in the followup echelon.
- (2) Strength message is submitted as soon as practicable after landing.

b. Discipline, Law, and Order.

- (1) Straggler control is the responsibility of subordinate units of the assault echelon initially on landing.
- (2) Personnel landed in other than assigned zones within the objective area join the first friendly unit encountered. Rejoin parent unit when ordered by this headquarters.
- (3) Stragglers integrated from other units are reported as soon as practicable to this headquarters by name and organization.

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c. Prisoners of War. Only prisoners designated by intelligence officer are evacuated from objective area by air prior to linkup.

d. Graves Registration. Deceased personnel are not evacuated from objective area until linkup.

e. Interior Management. Personnel at old command post, upon closing, join rear echelon.

f. Civilian Personnel. Indigenous personnel in objective area are utilized upon approval this headquarters.

3. INTELLIGENCE

a. Enemy.

- (1) Location.
- (2) Strength and disposition.
- (3) Equipment-armor, air mobility.
- (4) Antiair defense.

b. Weather.

- (1) Long-range forecast immediately after receipt of mission.
- (2) Short-range forecasts up to takeoff time.
- (3) Weather minimums established by this headquarters. Operations will not be executed if weather exceeds weather minimums unless specific instructions are issued by this headquarters.

c. Terrain.

- (1) Maps and air photos will be obtained and disseminated to company level in this priority:
 - (a) Large-scale map coverage of objective area.
 - (b) Large-scale, low-oblique air photos of objective area with emphasis on landing zones and objectives.
 - (c) Appropriate scale map coverage of terrain in flight corridors.
- (2) Maximum use of terrain models (sandtables) for briefings.

d. Counterintelligence.

- (1) All planning conducted in area with maximum security.
- (2) No marked maps, photos, sketches, or combat orders carried into objective area with assault echelon.

e. Escape and Evasion.

- (1) Personnel in aircraft forced to land in ter-

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- rain between current line of contact and objective area will take the following action:
- (a) If practicable, move overland immediately to join friendly units.
 - (b) If not practicable to move overland to join friendly units, mark a suitable landing site in the vicinity of downed aircraft for evacuation by aircraft, if the enemy situation and terrain permit.
 - (c) If (a) and (b) above are precluded by pursuing enemy, evade capture and attempt to join friendly units by infiltration. If the situation demands that casualties be abandoned, provide them with available supplies and conceal them. Continuous attempts will be made to locate suitable sites for evacuation by aircraft.

4. OPERATIONS

a. Planning.

- (1) Planning for an airmobile mission will be initiated immediately on receipt of a warning order and will continue until the operation is executed or canceled.
- (2) Insofar as practicable, planning at all levels concerned will be conducted concurrently.
- (3) Operational planning will be completed in the following sequence:
 - (a) Scheme of maneuver.
 - (b) Landing.
 - (c) Air movement.
 - (d) Loading.
- (4) Planning involving the battle group will be centralized at this headquarters. Plans for operations involving a smaller force will be coordinated and approved by this headquarters.
- (5) Except when accomplished by higher headquarters, this headquarters will accomplish the following planning for all airmobile operations (subordinate units participate in planning):
 - (a) Determine the size and composition of the force required to execute the scheme of maneuver.

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- (b) Allocate transport aircraft for the operation and notify subordinate units of allowable cargo load.
 - (c) Approve approach, return, and alternate routes and route corridors.
 - (d) Approve altitudes and formations to be flown.
 - (e) Approve loading areas to be used by participating units.
- (6) Transport aviation unit commanders will assist transported units in planning movement.

b. Training and Rehearsals.

- (1) Training in airmobile operations will be integrated into appropriate training phases. Request for transport aircraft to this headquarters one week in advance. (See current master training program.)
- (2) Prior to executing an airmobile operation, participating personnel will receive instruction in the following:
 - (a) Conduct of airmobile operations.
 - (b) Indoctrination in psychological problems inherent in airmobile operations.
 - (c) Familiarization with loading, lashing, and unloading of type aircraft to be employed. (Aircraft requested by this headquarters.)
 - (d) Safety procedures during loading, flight, and unloading.
 - (e) Assembly techniques.
 - (f) Escape and evasion tactics.
- (3) Situation permitting, rehearsals will be conducted by participating units on terrain similar to proposed objective area. Maximum use will be made of sandtables and terrain models in conjunction with large-scale oblique photos and maps of the objective area.

c. Loading.

- (1) Loading areas will be approved by this headquarters.
- (2) Serials will be broken down into flights as required by the movement, landing, and scheme of maneuver.
- (3) Aircraft will arrive at approved loading sites, by flights, at the latest possible

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time. Individual aircraft within flights will be marked according to prior agreement before arrival. Marking is the responsibility of the transport aviation unit.

- (4) Supporting transport aviation units will assist in the planning for and execution of loading by providing technical advice and supervision.
- (5) It is the pilot's responsibility to see that the aircraft is safe for flight. The troop commander will supervise its loading.
- (6) Cargo or equipment to be transported externally will be secured in cargo nets or slung in pallets for transit by use of the cargo sling on the helicopter, or rigged for attachment to bomb shackles on fixed-wing aircraft. Attachment of these loads to the aircraft will be accomplished by personnel other than those listed as passengers.
- (7) When loading personnel or cargo into an aircraft, the troop commander will insure that:
 - (a) All of the safety measures prescribed for movement in and about the particular type aircraft are observed.
 - (b) In loading helicopters all personnel will approach the helicopter from the direction of the nose so that the pilot can see them approaching.
 - (c) In loading helicopters no persons will go near the tail rotor.
 - (d) In loading helicopters all personnel and equipment will be kept well below the arc of the main rotor.
 - (e) In loading fixed-wing aircraft, personnel will approach from the rear.
- (8) When loading, a designated individual will board the aircraft prior to placing any equipment in it, to assist in receiving equipment into the cargo compartment.
- (9) After all equipment and personnel have been loaded, the troop commander will determine that:
 - (a) The equipment and cargo are in their proper place.
 - (b) The cargo or equipment required to be lashed is properly secured.

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- (c) Each man is seated and has his safety belt fastened.
 - (d) Cargo compartment door is closed and locked, or safety strap across door is properly fastened, as directed for the operation.
- (10) Briefing on emergency signals will be conducted by aviation unit representative prior to loading.
 - (11) When the troop commander has checked to insure that all cargo and personnel are secured, he will notify the pilot verbally.
 - (12) During flight the pilot is in command of the aircraft. During flight the troop commander will insure that:
 - (a) Cargo lashings (if applicable) are checked frequently to determine that cargo is properly secured.
 - (b) The troops keep their safety belts secured and do not smoke unless authorized.
 - (c) The troops stay seated and do not move around in the cargo compartment without proper authorization.

d. Air Movement.

- (1) When available, pathfinder teams may be employed to assist in movement control along flight routes and within landing zones.
- (2) Air control points (minimum of an IP and RP) will be designated to assist in control of the air movement.
- (3) Time of takeoff, arrival at air control points, and landing, will be as specified in air movement plan, insofar as possible. Inability to comply with specified control times to be reported by serial commanders.

e. Unloading.

- (1) The pilot will notify the troop commander when the aircraft is four minutes out from the landing site. The troop commander will then alert members of the unit to be prepared to unload.
- (2) In airmobile operations, no movement will be made in the cargo compartment until clearance has been obtained from the pilot. After the pilot gives the clearance signal with the alarm bell, the commander of the troops

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has the troops release their safety belts and has the cargo unlashd if applicable. He will then open the cargo door and have the troops and equipment unloaded in reverse order from that in which the aircraft was loaded. The first one or more men to unload will assist in unloading the supplies as required by the troop commander.

- (3) After all troops and cargo have been unloaded from the aircraft, a man designated by the troop commander will close the cargo compartment door and will signal the pilot that the cargo compartment is empty.
- (4) The troop commander will insure that members of his unit will clear the unloading site in a safe, expeditious manner to prevent exposing personnel to unnecessary danger and to prevent any delay in other takeoff or landing procedures.

5. LOGISTICS

a. Supply.

- (1) Assault supplies (all classes). Prescribed load announced by this headquarters for each operation.
- (2) Salvage.
 - (a) Expedite recovery of aerial delivery containers, parachutes, cargo nets, and pallets. Commanders insure against damage or destruction.
 - (b) Units in objective area establish salvage collecting points when appropriate and practicable.
 - (c) Salvage reported to this headquarters for disposition instructions.
- (3) Captured materiel. Captured materiel may be used by capturing units. Captured munitions and fuel may be used on approval this headquarters.

b. Evacuation and Hospitalization. Evacuation by air until linkup or withdrawal.

c. Transportation.

- (1) Motor:
 - (a) Allocation of accompanying organic transport by this headquarters.

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(b) Maximum use of captured vehicles to meet motor transportation requirements.

(2) Aircraft: allocation of supporting transport aircraft by this headquarters.

d. Service.

(1) When required, technical service teams will be provided participating units on request.

(2) On linkup, nearest supporting units provide necessary services.

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By Order of *Wilber M. Brucker*, Secretary of the Army:

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General, United States Army,
Chief of Staff.

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Major General, United States Army,
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For explanation of abbreviations used, see AR 320-50.

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