

U
A08.3
A1
FM 57-35
Reference

S/S Oct 67

Reference

FM 57-35

DEPARTMENT OF THE ARMY FIELD MANUAL

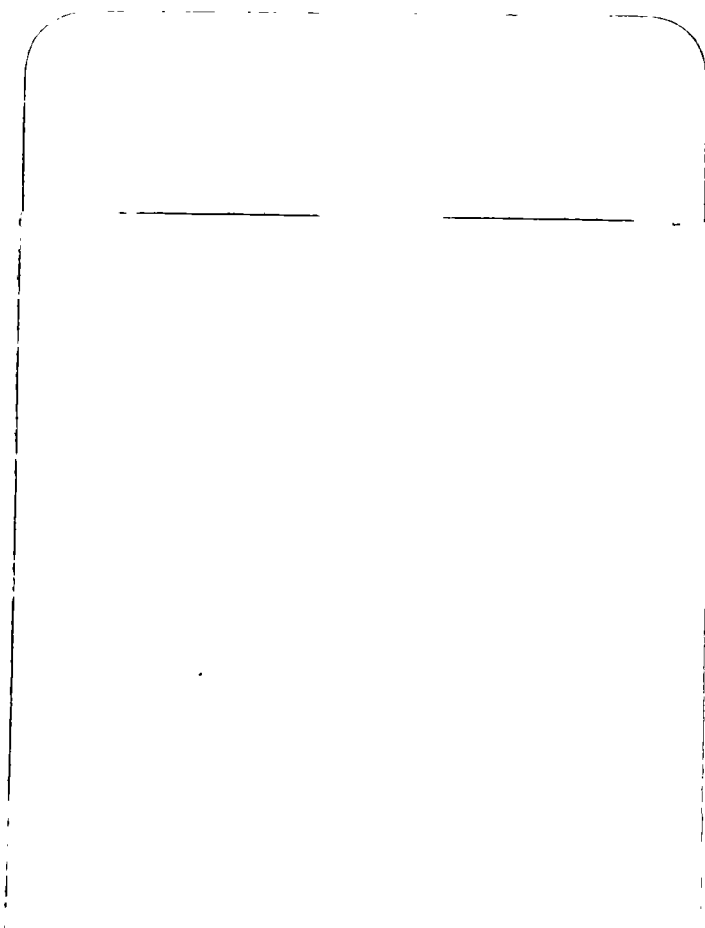
AIRMOBILE OPERATIONS

Pentagon Library (ANR-PL)
ATTN: Military Documents Section
Room 1A518, Pentagon
Washington, DC 20310-6050



Pentagon Library (ANR-PL)
ATTN: Military Documents Section
Room 1A518, Pentagon
Washington, DC 20310-6050

**HEADQUARTERS, DEPARTMENT OF THE ARMY
SEPTEMBER 1963**



FIELD MANUAL }
No. 57-35

HEADQUARTERS,
DEPARTMENT OF THE ARMY
WASHINGTON, D.C., 17 September 1963

AIRMOBILE OPERATIONS

	Paragraphs	Page
CHAPTER 1. GENERAL		
Section I. Introduction	1- 5	3
Section II. Composition, command, and responsibilities	6- 9	4
CHAPTER 2. ARMY TRANSPORT AVIATION SUPPORT	10-19	6
3. AIRMOBILE OPERATIONS		
Section I. General	20, 21	11
Section II. Support requirements	22-27	11
Section III. Planning	28-32	13
Section IV. Intelligence	33-36	15
Section V. Ground tactical plan	37-45	16
Section VI. Landing plan	46, 47	21
Section VII. Air movement plan	48, 49	23
Section VIII. Loading plan	50-54	24
CHAPTER 4. TYPES OF AIRMOBILE OPERATIONS		
Section I. General	55, 56	26
Section II. Offensive operations	57-64	26
Section III. Defensive operations	65-68	32
Section IV. Employment with amphibious operations	69-73	33
Section V. Special operations	74-79	34
CHAPTER 5. TRAINING		
Section I. Responsibilities	80-83	39
Section II. Conduct of training	84-89	39

✓ This manual supersedes FM 57-35, 2 November 1960.

Pentagon Library (ANR-PL)
ATTN: Military Documents Section
Room 1A518, Pentagon
Washington, DC 20310-6050

	Paragraphs	Page
Section III. Rehearsals	90, 91	41
APPENDIX I. REFERENCES		42
II. PATHFINDERS		44
III. SELECTION, PREPARATION, AND OPERATION OF LANDING AND DROP ZONES		47
IV. ASSEMBLY TECHNIQUES		51
V. AIRCRAFT LOADING DATA		55
VI. OPERATIONS ORDER		64
VII. STANDING OPERATING PROCEDURE		69
INDEX		74

CHAPTER 1

GENERAL

Section I. INTRODUCTION

1. Purpose and Scope

a. This manual provides guidance for commanders, staff officers, and other interested personnel in planning and executing airmobile operations. The material presented is applicable to nuclear warfare; where needed, appropriate modifying guidance for nonnuclear warfare is integrated throughout the manual. The provisions in this manual do not rescind or change the existing doctrine, procedures, or 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. It provides basic information concerning the planning and conduct of airmobile operations for all combat echelons, from small patrols to a battalion-size airmobile force. The principles and techniques are applicable to the infantry division battalion, airborne division battalion, air assault division battalion, armored cavalry regiment, and suitable elements of armored and mechanized divisions.

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 the Commanding Officer, U.S. Army Infantry Combat Developments Command, Infantry Agency, Fort Benning, Ga.

2. Definitions

a. Airmobile Operations. An operation in which combat forces and their equipment move about the battlefield in aircraft under the control of a ground force commander to engage in ground combat.

b. Airmobile Force. A force composed of ground combat elements 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 the following 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 conduct operations readily in otherwise inaccessible areas.

f. Airmobile forces are particularly vulnerable.

able to enemy armor due to their limited ground mobility and firepower in the objective area.

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

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

4. Concept of Employment

a. Airmobile forces are employed in the 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 do the following:

- (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 key terrain.
- (2) Overcome distances and 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.

(5) Gain a favorable tactical mobility differential over enemy ground forces.

b. The capability of ground combat units and Army aviation units to airmobile operations must be highly developed through the conduct of frequent airmobile unit training and the development of pertinent unit standing operating procedures (SOP). Unit SOP are based on those prepared by the highest headquarters having control over both the ground combat and Army aviation units.

5. Missions

The missions of airmobile forces include—

- a.* Economy of force missions.
- b.* Raids.
- c.* Antiairborne and antiguerrilla operations.
- d.* Overobstacle assault operations.
- e.* Exploitation of the effects of nuclear weapons.
- f.* Seizure and limited retention of key terrain.
- g.* Feints and demonstrations.
- h.* Reconnaissance and security missions designed to block or screen enemy avenues of approach.
- i.* Counterattack of enemy penetrations.
- j.* Ship-to-shore operations.

Section II. COMPOSITION, COMMAND, AND RESPONSIBILITIES

6. General

The composition of an airmobile force is dictated by specific mission requirements. The force must contain a ground combat element and an aviation element; 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, placed in direct support of, or under the operational control of the supported unit. Airmobile forces must be versatile. The achievement of versatility requires im-

agination plus experimentation with the correct balance of elements necessary for various operations.

7. Army Aviation

Army aviation units for support of airmobile operations are assigned to division, 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 levels 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, transport aviation elements will normally 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, and army air traffic with other users of the airspace over the area of operations, and coordination of 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 SOP (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 following examples illustrate how the foregoing factors influence command relationships:

- (1) A transport aviation company is attached to an infantry division to support a company size airmobile operation in one of the battalions. The division commander further places the aviation company under operational control of the division aviation battalion. The aviation company is not placed under operational control of the brigade or lower echelons because the means are not available for coordinating all aspects of the operation, such as artillery, air defense, air traffic control, and air support. If the mission is of short duration and the aviation company is to be employed with other units upon completion of the first mission, the aviation battalion may assign the aviation company a series of support missions.
- (2) A platoon of helicopters is attached to a battalion 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 battalion 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 c above.

9. Responsibilities

The responsibilities of the commanders of the various elements of the airmobile force with respect to the planning and execution 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 for details of aviation organizations.

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 the commander in all matters pertaining to the aviation unit organization and employment. Aviation command and staff responsibilities are as follows:

a. Assist the airmobile force commander and his staff in the planning and coordination of the airmobile operation in the areas pertaining to Army aviation.

b. Compute maximum allowable cargo load for the specific type aircraft on the day of operation. This is especially important in case of helicopters, since their load-carrying capability is influenced by density altitude.

c. Establish and operate an air movement control facility. Normally, transport aviation units perform this function employing organic personnel and equipment. The purpose of the air movement control facility is to control aircraft involved in the airmobile operation. Brigade and division aviation units may be required to man and operate air movement control facilities to permit rapid employment of Army transport aviation elements.

d. Form transport aircraft into flights and serials in light of the serial composition of the airmobile force. These are formed as soon as the airmobile force commander announces the

serial composition of the airmobile force. To the extent possible, the aviation portion of the aerial composition attempts to maintain its own unit integrity.

e. A detailed briefing of the participating personnel. This includes the aviation technical aspects of the operation, as well as the time schedule for the operation; from aircraft station time in the aircraft ready area to the completion of the operation.

f. Refueling and aircraft maintenance. Airmobile operations emphasize maximum initial airlift into the objective area. Normally, resupply airlifts are planned. Aircraft returning from initial airlift will require refueling. Aircraft maintenance support must be planned to provide on-site maintenance (normally limited) and to insure maximum continuous aircraft availability.

g. Coordinate timely and orderly movement of transport aircraft into loading area. Here, timely departure of aircraft from their ready area(s) must be considered.

h. Coordinate division aviation activities and operations with those of the transport aircraft unit. The division aviation elements assist the transport aircraft unit in the selection of sites for its support facilities, if sites other than those within the loading area are necessary.

i. Plan for air column control and artillery adjustment. This is a normal mission for the division aviation elements in support of airmobile operations. A detailed planning and coordination with the transport aircraft unit minimizes the chances for any last minute misinformation. When a friendly nuclear preparation is fired in support of the airmobile

operation, the division aviation elements should plan for a timely poststrike survey. This relieves the transport aircraft unit to do its primary job.

j. Plan for continuous aviation support of the airmobile force in the objective area. This normally consists of a limited number of transport and observation aircraft to be employed in support of command and control of the operation and to increase the capabilities of the reconnaissance and security force.

k. Coordinate the employment of air cavalry troop (ACT). The ACT is ideally suited for the escort of the airmobile force into the objective area. Once there, the ACT can rapidly and effectively occupy the reconnaissance and security positions. This is especially desirable during the seizure of assigned objectives by the elements of the airmobile force.

l. Arrange for the most current aviation weather forecasts. Flight weather information is available from the Air Force weather detachment at corps.

12. Aviation Support Unit Plans

a. As soon as possible in the planning sequence (pars. 28-32), 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 airlift or support requirement, he can analyze the mission to—

- (1) Determine the special equipment required by his unit.
- (2) Obtain weather forecast and 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.
- (5) Determine the responsibilities and requirements of the command relationship specified.
- (6) Establish appropriate liaison.

b. See paragraphs 31 and 32 for further planning used 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 planning aircraft refueling facilities and 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 briefed on the location of, routes to, and arrival time at the landing sites.

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

16. Loading

a. 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 within capability of the aircraft and that they are properly loaded and lashed so as not to create a hazard in flight.

b. It must be recognized that loading is not always accomplished under ideal conditions. Many situations will require loading without preconceived plans and necessitate the making up of loads on site, based upon the number and type of aircraft that are actually committed to the specific operation. The sample loading plans in appendix V are idealized plans and will serve as a focal point to assist the inexperienced. For

all situations, the following minimum basic principles apply:

- (1) Unit commanders strive for tactical loading. All individuals carry their complete combat equipment. Ammunition accompanies each weapon.
- (2) Key personnel and equipment are distributed throughout several aircraft.
- (3) Each load is safely balanced, lashed and manifested.
- (4) So far as possible, items of equipment with all parts or accessories needed to make them operational are loaded in the same aircraft.
- (5) Crews accompany crew-served weapons.

c. Principles affecting the commander's decision to load supplies and equipment externally are as follows:

- (1) Short distance hauls.
- (2) Out-sized equipment.
- (3) Equipment not on wheels.
- (4) Landing in the area of operations is not feasible.
- (5) Precise placement is desired.
- (6) Landing areas are under fire.

d. Principles affecting the commander's decision to load supplies and equipment internally are as follows:

- (1) Long distance hauls.
- (2) Fragility of items.
- (3) Protection against adverse weather conditions.
- (4) Light density.
- (5) Electrically actuated ordnance.
- (6) Denial of intelligence.
- (7) Speed en route.

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 three variables is changed (fuel, range, or payload) within existing weather conditions, 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 at relatively steep angles which

enables them to operate from confined and unimproved areas.

- (b) Troops and cargo can be loaded into and unloaded from a hovering helicopter.
- (c) Cargo can be transported as an external load and delivered to areas otherwise inaccessible.
- (d) Normally, helicopters are capable of horizontal flight in any direction: forward, backward, sideward, or obliquely.
- (e) Helicopters possess a wide speed range.
- (f) Due to a wide speed range and high maneuverability at slow speeds, they can fly safely and efficiently at a low altitude, using terrain and vegetation for cover and concealment.
- (g) Their turnaround time is short, making possible rapid shuttle movements.
- (h) They can be landed on 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) Aviator fatigue is an element requiring greater consideration in the operation of rotary wing aircraft than in the operation of 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 land-

ing 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 aviator to see obstacles in time to avoid them when flying at reduced speeds.
- (3) There is enough visibility for the aviator to distinguish prominent landmarks.

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

c. Disadvantages of Night Operations.

- (1) The necessity at night for more elaborate control and for caution on the part of aviators and passengers slows down 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 con-

sideration 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 avia-

tion units generally 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

AIRMOBILE OPERATIONS

Section I. GENERAL

20. General

This chapter contains the necessary guidance for planning, preparing, and executing an airmobile operation.

21. Implementation

Planning for an airmobile operation is characterized by simplicity; however, plans should be as detailed as time permits. Time will

not usually be available nor is it generally necessary to produce elaborate and detailed plans for the movement of a force of company size or less. 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 SOP similar to the one shown in appendix VII. Units should rehearse SOP as often as possible.

Section II. SUPPORT REQUIREMENTS

22. General

In addition to aircraft support, fire support, and the other tactical considerations, airmobile operation planning requires detailed consideration of the following:

- a. Communications.
- b. Supply procedures.
- c. Evacuation and hospitalization.
- d. Transportation requirements.

23. Communications

Communication requirements must be considered at the beginning of the planning phase. Plans and 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 loading and air movement. To avoid enemy detection, communications may

have to be minimized or listening silence may have to be imposed during early stages of the operation.

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:

- (1) The loading area.
- (2) The objective area.
- (3) The Army aviation unit.
- (4) Aircraft in flight.
- (5) The fire support coordinator of the airmobile force.
- (6) The command post of the airmobile force.

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 nets.
 - (b) Communication with supporting artillery, tactical air, and naval forces.
 - (c) Communication with Army aviation units concerned with reconnaissance, buildup, air supply, air evacuation, and airborne fire support.
 - (d) Communication with bases in friendly territory.
 - (e) Communication with other forces (including linkup forces) with common or coordinated mission.
 - (f) Communication with higher headquarters.

24. Supply

a. The quantity and types of supplies and equipment carried are dictated by—

- (1) The initial combat requirements.
- (2) The availability and capacity of aircraft.
- (3) The projected time of linkup, withdrawal, or the time that resupply can be effected.
- (4) The anticipated weather.
- (5) Enemy capabilities.

b. Each soldier and each 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 needed to sustain the force until completion of its assigned mission.

c. Supply by class is shown in (1) through (6) below:

- (1) *Class I.* Under normal conditions the assault echelon carries sufficient rations to last until resupplied.
- (2) *Class II.* The assault echelon carries

only minimum class II items. Additional requirements are included in resupply.

- (3) *Class III.* The fuel tanks of vehicles are filled 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 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 by 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 after the rear echelon has arrived in the objective area.
 - (c) Captured enemy material is used to the maximum extent within the limitations prescribed by unit SOP and policy established by the commander.

25. 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. Aeromedical evacuation is established as early 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.

26. Additional Administrative Considerations

a. Personnel.

(1) *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 SOP is followed in submitting "feeder" type morning reports, the personnel daily summary, and daily strength messages.

(2) *Casualty report.* Casualty reports are prepared as soon as possible and forwarded to the controlling headquarters.

b. Prisoners of War and Captured Documents. Normally, only those prisoners of war and captured documents, 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.

c. Graves Registration. Graves registration

units normally accompany the rear echelon. Disposition of the deceased is usually delayed until the situation in the objective area and availability of return transportation permit.

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

- (1) The time between the assault landing and linkup or displacement.
- (2) The number and type of aircraft available for supply purposes.
- (3) The construction and demolition tasks to be performed in the objective area.
- (4) The tactical loading requirements for personnel and equipment.

27. Transportation

a. Before linkup, airmobile forces are primarily dependent upon air lines of communication for the majority of transportation. 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. Available motor transport is normally pooled along with usable enemy military and civilian motor vehicles found within the objective area.

Section III. PLANNING

28. General

a. 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 includes a constant and continuing assessment of the tactical situation by the commander and staff. They determine of the employment of airmobile forces is within the capability of the unit and will, if employed, materially influence the ground battle. The following factors are considered in preliminary planning:

- (1) Mission.
- (2) Current tactical situation.

- (3) Forces and aircraft available.
- (4) Enemy situation and capabilities.
- (5) Terrain and weather.
- (6) Combat support available.
- (7) Logistical support required.
- (8) Air defense support available.

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.

29. Echelonment

Combat elements of a force which is to participate in an airmobile operation are normally organized into echelons:

a. *Assault Echelon.* This element consists of those 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. *Rcsupply or Followup Echelon.* This element consists of combat support supplies and equipment to sustain the assault echelon until linkup or evacuation occurs. It may continue beyond the linkup phase between the assault and rear echelons.

c. *Rear Echelon.* This element consists of the remainder of the force, that is, those not immediately needed in the objective area such as administrative personnel and equipment and items that cannot be transported in available aircraft. This element accompanies the ground linkup force.

30. General Considerations

Plans for an airmobile operation must be simple and flexible. All leaders must be prepared to overcome unforeseen difficulties and to exploit opportunities that may arise during the conduct of the operation. To attain flexibility, the planner—

a. Insures that the success of the operation does not depend on the arrival of any one air serial or tactical unit.

b. Develops simple landing and assembly SOP.

c. Uses landmarks that are easy to locate and identify from the air.

d. Prepares alternate plans.

e. Makes allowance for operational delays in takeoffs and landings.

f. Maintains tactical integrity of units in loading plans whenever possible.

g. Prepares a simple plan for the disposition of troops and equipment at departure areas.

h. Incorporates the capability of phase-back in the event of a shortage of aircraft or sudden insertion of a high priority unit in the air movement plan.

i. Insures that all plans are coordinated with appropriate air defense agencies.

j. Considers use of screening smoke and toxic chemical agents to include riot control agents in appropriate situations in support of landing

operations. The weather and tactical situation must be favorable to their employment.

31. Reconnaissance

a. In planning for an airmobile operation, commanders and staffs conduct as much reconnaissance as time permits. Key personnel should participate in aerial reconnaissance of the planned flight routes and the objective area if the situation allows. Information obtained on the aerial reconnaissance is similar to that obtained during ground reconnaissance; however, stress is placed on the following:

(1) Suitability of landing zones.

(2) Location of assembly areas (if required).

(3) Obstacles in the objective area.

(4) Flight routes and air corridors for approach and return flights.

b. When helicopters are to be used, particular stress is placed on reconnoitering and selecting flight routes which provide defilade and are easy to navigate. Steep defiles or canyons are avoided, especially when there is an appreciable amount of surface wind, and when momentary loss of aircraft control can occur from downdrafts. Heavily forested and swampy areas generally provide good routes for avoiding ground fire, but it is difficult to accurately navigate over such areas. Use of fixed wing observation aircraft to vector contour-flying-aircraft is recommended, if such use will not compromise operational plans, and if the enemy air defense capability permits.

32. Planning Sequence

a. *Planning* for an airmobile operation is developed by using an inverse planning sequence. The following sequence is normally followed:

(1) Ground tactical plan.

(2) Landing plan, to include timing and phasing of troops and equipment based on the ground tactical plan.

(3) Air movement plan, based on landing plan.

(4) Loading plan, based on the air movement plan.

b. The four plans listed above are normally included in one operations order as annexes. Linkup and withdrawal plans are also included

when applicable. Normally, operations will be conducted by unit SOP. The plans are all closely related and developed concurrently. Combat service support planning is continued throughout the planning sequence.

- c. Plans should be rehearsed when possible.
- d. The normally referred to *marshalling*

plan has been omitted from the planning sequence because details of marshalling are contained in unit SOP, thereby making it only necessary to designate departure areas close to the units to be lifted. For details of marshalling, see FM 7-20.

Section IV. INTELLIGENCE

33. General

a. Since airmobile operations are conducted in furtherance of the ground effort, the current intelligence situation and intelligence estimate are essential to planning. Certain intelligence requirements must be emphasized: terrain analysis must cover a large area; weather is of critical importance; and enemy air defense units must be accurately located. Additional considerations are as follows:

- (1) During the preliminary planning phase, intelligence analysis is primarily concerned with assessing enemy capabilities and vulnerabilities in the general areas under consideration for airmobile attack. Once the objectives have been selected, area surveillance (consistent with the security plan) must be maintained to insure timely detection of any movement or changes which could jeopardize success of the mission.
- (2) As a general rule, responsibility for collection and assessment of intelligence required for overall planning is retained by commanders at echelons above the assault force. For the development of the ground tactical plan, the assault commanders make their intelligence requirements known to higher headquarters and make maximum use of available intelligence in planning fire support and maneuver within the objective area.

b. Counterintelligence measures are essential to successful airmobile operations. This fact should be considered in all phases of planning for an execution of airmobile and/or air-landed

operations. The location, movement, and massing of aircraft, for example, is information always of special interest to the enemy. The intelligence officer at each echelon assists in the development of the unit Tactical Cover and Deception Plan, and insures that unit counterintelligence measures support this plan.

34. Weather and Terrain

a. *Weather.* Weather minimums must be established early in the planning to prescribe the least 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, 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. Obstacles to air landing and tactical movement as well as avenues of approach available for enemy reinforcements or counterattack require special attention in the terrain analysis.

35. Enemy

The intelligence requirements with respect to the enemy, in addition to the normal requirements, include a detailed consideration of his

air defense installations, tactical air capability, armor capability, airmobility, and armed aircraft and air cavalry capability.

36. Intelligence Briefing

Intelligence briefings should be conducted in detail and should include all information on weather, terrain, and the enemy. The intelligence information should be disseminated to the lowest level. When feasible, key personnel

taking 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 thoroughly understand the instructions pertaining to evasion and escape and the methods of marking pickup sites for evacuating personnel from downed aircraft. Security instructions are an important part of these briefings.

Section V. GROUND TACTICAL PLAN

37. General

The ground tactical plan includes the assault plan to seize objectives, and plans for defense, linkup, withdrawal, subsequent offensive operations, and displacement as appropriate. Assault and defense plans are prepared concurrently and include a scheme of maneuver and fire support plan. Alternate plans must also be prepared.

38. Ground Tactical Plan Considerations

The ground tactical plan is developed using the principles of normal offensive, defensive, and retrograde operations. Because of the nature of an airmobile operation, special consideration is accorded the following:

a. Sectors. Sectors assigned should include adequate landing zones. Desirably, the boundaries designated should apply to the assault and defense phase of the operation.

b. Objectives. Objectives include those areas the early seizure of which is required for mission accomplishment.

c. Assembly Areas. Assembly areas may not be required in an airmobile operation. However, if they are used assembled units immediately attack to seize assigned objectives.

d. Security Forces. Due to the greatly expanded area of responsibility found in a perimeter-type formation of an airmobile operation, it is usually necessary to economize on the use of security forces. A single security echelon forward of the objective area defense line is usually all that is practicable. The forces for the security echelon are normally provided

by the forward elements. After the objectives are secured, units along the defense line of the objective area may be given responsibility for the security within their sectors. To enhance early security for the airmobile assault, security forces may land directly on their positions. Air cavalry or other armed aircraft, if available, may be employed to extend the range of security operations.

e. The Reserve. The reserve frequently is brought into the objective area in the assault echelon, but not necessarily on the initial lift, when a shuttle movement is required. The reserve can remain in the loading area with its aircraft prepared for movement to any point in the objective area. The reserve is usually small due primarily to the fact that simultaneous seizure of multiple objectives is normally required. A small reserve is acceptable, as the perimeter defense offers mutual support to units. Additional reserves may become available from other elements of the airmobile force as initial tasks are accomplished.

f. Fire Support. In airmobile operations, elements are expected to seize their initial objectives rapidly by independent action. Centralized control is established as soon as possible. The absence of friendly armor with the assault force places great importance on the use of antitank weapons. The following fire control measures are normally incorporated in the operations order (if published). For detailed discussion of fire support, see FM 7-20.

- (1) *Fire support coordination line.* A line established by the appropriate ground

commander to insure coordination of fire not under his control but which may affect current tactical operations. Where possible, the fire support coordination line should follow well defined terrain features. The establishment of the fire support coordination line is normally coordinated with the appropriate tactical air commander and other supporting elements.

- (2) *Nuclear safety measures.* Various coordinating and limiting measures may be required for troop safety when nuclear weapons are used in support of ground operations. These measures should be related to well defined terrain features based on a careful analysis of the effects of the weapons being used. The FSCoord is the principal adviser to the commander on the establishment of such measures. The designation and significance of all nuclear safety criteria is explained in appropriately distributed coordinating instructions, e.g., in paragraph 3 of the operation order. Some typical nuclear safety measures are—

- (a) Lines of departure used to coordinate the exploitation of the effects of planned nuclear fires.
- (b) Phase lines used to define limits of advance or withdrawal required to avoid unacceptable effects from planned nuclear fires.

- (3) *Fire coordination line.* The fire coordination line is established to coordinate fires between the airmobile forces and linkup forces or between two converging forces. It is used to regulate flat trajectory and high angle fires as well as airstrikes. Units are not to fire beyond this line without coordination with the unit on the other side of the line. The fire coordination line also should be easily identifiable on the ground and the area map.

- (4) *No-fire line (NFL).* The no-fire line is a line short of which no artillery unit may fire without prior clearance

from the direct support artillery which established it. The location of the no-fire line is established by the direct support artillery battalion commander and approved by the supported unit commander. Each artillery echelon is kept informed of the location of and changes to the no-fire line. Division artillery consolidates and distributes this information to subordinate units, to artillery reinforcing the division artillery, to adjacent division artilleries, and to corps artillery headquarters. Corps artillery headquarters consolidates the no-fire lines and sends their locations to corps artillery units, to the artillery of the divisions of the corps, and to adjacent corps artilleries. The direct support artillery may fire short of the no-fire line in its own sector.

g. Objective Area. The commander normally translates his assigned mission into terms of objectives on the ground which must be secured in order to accomplish the mission. The defense line normally circumscribes all the objectives and maneuver space required for their defense. The selection and location of the objective area is influenced by the following:

- (1) Mission.
- (2) Enemy situation.
- (3) Terrain.
- (4) Unit capabilities.
- (5) Landing areas available.
- (6) Nature of subsequent operation possible.

39. Additional Ground Tactical Planning Considerations

In developing the ground tactical plan, the following additional factors characteristic of airmobile operations must be considered:

- a. The possibility of immediate engagement after landing, resulting in control difficulties.
- b. Possible lack of immediately available artillery support.
- c. Greater separation of units, resulting in exposed flanks.
- d. Rapidly changing tactical situation.
- e. Lack of armor support.

f. Limited ground mobility.

g. The requirement for expedient deceptive devices designed to mislead the enemy as to the strength and dispositions of the airmobile force.

h. The possibility of shuttling assault forces to the objective area due to limited numbers of available aircraft, or loss of aircraft from unexpected maintenance deficiencies or as a result of enemy action.

40. Conduct of the Assault

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 initial security positions.

b. 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 is expected to react rapidly. Initial counterattacks are likely to be hasty, uncoordinated thrusts 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 enemy airmobile forces. The enemy will employ armored units in these attacks, if available. The early preparation of a defense against armor is therefore a major consideration. The primary defense against enemy armor in the assault phase is tactical air and armed aircraft.

c. There are two general types of airmobile assaults, which 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; it 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 attacking and 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 of assault 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, assembling, 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 to 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 influence the selection of the type of assault. These include the mission, the state of train-

ing of participating units, the terrain, the strength and disposition of enemy forces, and the capability of either side to employ nuclear weapons. Frequently, it will be advantageous to use both types of assault in one operation.

d. 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.

e. The reduced artillery support is partially overcome by greater reliance on the use of long-range artillery fires from friendly ground forces within range, use of armed air vehicles, 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.

41. Seizure of Initial Objectives

a. Initial combat requires the coordinated action of small units to seize assigned objectives rapidly before the advantage of surprise is lost. 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 to land near the combat outposts (COP) to establish roadblocks, locate enemy forces, disrupt enemy communication facilities, and provide the commander with early warning, security, and information. 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. When communications and the tactical situation permit, centralized control is established.

d. The commander places himself where he can personally influence and control the action by shifting or allocating artillery, air, and other fire support; by redistributing forces, modifying the mission, changing objectives and boundaries; and by employing reserves.

e. After initial objectives have been secured, subordinated units may seize additional objectives that aid in establishing a coordinated defense. Defensive positions are organized, communications are supplemented, reserves are reconstituted, and other measures are taken to prepare the force to repel enemy counterattacks, minimize the effects of attack by nuclear weapons, or resume the offensive.

42. Development of the Objective Area

a. After initial objectives have been secured the major consideration is to organize the objective. This is accomplished initially by seizing key terrain features on the perimeter of the objective.

b. The extent to which the objective is occupied and organized for defense is determined largely by the mission, enemy capabilities, and defensive characteristics of the terrain. The appropriate commander adjusts the preplanned disposition of 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 objective, and if the likelihood of enemy counterattack during the interim is negligible, the objective is only lightly organized. 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 entire area in depth. As additional units are landed in the objective area, positions are reinforced. The forces at the COP are reinforced relatively early in the operation by maximum use of aircraft. Reconnaissance forward of the COP is intensified by air and ground means. Artillery

and mortars, properly protected, may be displaced to positions close behind or ahead of the COP to provide fire support to security forces. Roadblocks, minefields, and similar artificial obstacles are continuously improved along all likely avenues of approach, particularly those suitable for enemy armor.

43. Conduct of the Defense

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 of operation contemplated.

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

c. The mission and requirement for defense may dictate the assignment of wide frontages to combat elements of the force.

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

e. Engineer support is used for obstacle construction, demolition, or special operations required during the conduct of the defense. Effective camouflage, combined with the intelligent use of deceptive devices, can be a valuable asset.

44. Defense Against Armor

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

b. Strong points along the combat outpost line (COPL) use natural obstacles such as rivers, swamps, woods, built-up areas, hills, gullies or ditches, and other terrain features—augmented by minefields, wire entanglements, tank traps, demolitions, and persistent chemical agents—to strengthen their defense. Antitank weapons are located in depth along favorable avenues of approach for armor.

45. Defense Against Nuclear Attack

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

b. The requirements 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. It should be remembered, however, that the enemy will be reluctant to employ nuclear weapons within his own lines until the exact target area has been accurately pinpointed by his reconnaissance elements and exploratory, limited-objective attacks. Having decided to employ such weapons he must first withdraw his own troops to a safe distance. Thus, employment of the bulk of the defensive force in attacks to maintain close contact with the enemy may be more advantageous defensive strategy than an area defense based upon retention of terrain features which may become mere targets for nuclear obliteration.

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

d. Active and passive defensive measures are used with emphasis on the importance of movement and keeping the enemy unsure of the

exact locations, strength, and intentions of the defending force. An aggressive defense based upon attack, counterattack, and the maintenance of close contact with the enemy, though seemingly more costly initially, may prevent the defenders from being formed into a well defined nuclear target.

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, blowdown, and debris. Some terrain features provide shields under certain conditions while under other conditions 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 may order a majority of the force (up to about two-thirds) to occupy the COP. These COP forces may then be used to reconnoiter in the direction of most likely enemy threats or approaching friendly linkup forces. The principles employed in the conduct of a nuclear defense are the same as those for normal ground operations. Effective camouflage, combined with the intelligent use of deceptive devices, can be a valuable asset.

Section VI. LANDING PLAN

46. General

a. The landing plan is based on the ground tactical plan. As a minimum it includes the sequence, time, and place of arrival of troops, equipment, and supplies in the objective area. Landing zones (LZ) are normally selected on objectives or as close to them as the terrain and enemy situation permit. Such selection normally will minimize the requirement for assembly areas. Several units may use the same landing area when available landing areas are insufficient or inadequate. Army pathfinder detachments or trained unit terminal guidance personnel provide terminal guidance into, within, and from objective areas.

b. Based on recommendations from the aviation unit commander, 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 is considered. 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 as-

signed another unit. Additional tactical factors to be considered are—

- (1) Cover and concealment nearby.
- (2) Nearness to dominating terrain.
- (3) Covered routes of approach to the objective.
- (4) Availability of good road nets.
- (5) Adequacy for defense against armor.

47. Timing the Operation

a. The commander will select the time of landing when his unit or its elements conduct an independent operation. In selecting the time for landing he considers the enemy dispositions and capabilities, the influence of predicted weather, availability of fire support, and the plan for supporting fires.

b. Units may land at beginning morning nautical twilight (BMNT) to take advantage of darkness during the airmovement and attack in daylight, or it may land at end, evening nautical twilight (EENT) to facilitate delivery and attack during darkness. Airmobile operations conducted during daylight present fewer command and control problems, can be made more complex in scope, and can be better supported by close air support.

c. The airmobile force may conduct an assault at night or under other conditions of reduced visibility to gain tactical surprise. Opera-

tions under these conditions have the following disadvantages:

- (1) Tactical air and artillery support is less effective.
- (2) Accurate delivery of units to their landing zones is more difficult.
- (3) Reorganization on the ground is more difficult and time consuming.

Note. Proper use of pathfinders can minimize (2) and (3) above.

d. The timing of the airmobile operation in relation to other operations requires consideration of—

- (1) The mission of the airmobile force.
- (2) Depth of the operation.
- (3) Capability and limitation of fire support.
- (4) Nature of subsequent operations.

e. The operation is timed to permit tactical assessment and exploitation of the effects of nuclear weapons. The most critical period of the operation, so far as vulnerability to enemy action is concerned, is between the time the initial landings take place and the assault of the objective(s) occurs. When assault units land on or immediately adjacent to their initial objective(s) they may have to delay reorganization until the objective(s) has been seized. The term reorganization as used here pertains more accurately to assembly of personnel and units. Minimum reorganization takes place in an assembly area or en route to the objective area. After objectives are seized, commanders regain control of their respective elements.

f. Landing operations will be accomplished as follows:

- (1) Troops land in assigned landing zones according to the planned tactical employment.
- (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, it may land in a few minutes. If the assault echelon has to be shuttled, a longer time is required; however, shuttling of the assault echelon should be avoided if possible.
- (3) The initial flights transport the as-

sault elements necessary to seize and secure the landing zone. Reconnaissance units land early. If pathfinders are not already in the objective area, they may land early and assist in assembly. Command groups land early in order to establish control promptly and enable commanders to gain timely information on the progress of the ground action. Forward observers and air control teams land early in order to quickly control supporting fires from within and from 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 reduce the time required for assembly. Additional equipment and supplies may be delivered in later serials. Light command and reconnaissance vehicles and weapons that can be transported in the aircraft are landed with the units.
- (5) Troops and equipment are unloaded from aircraft quickly and cleared from the landing sites (strips). This facilitates aircraft traffic flow, reduces danger of accidents, and minimizes casualties from enemy fires.
- (6) During the planning stage, the airmobile force commander must determine the maximum loss he will accept during the assault landings before changing to an alternate plan. This must be coordinated with the aviation unit commander, and authority for aborting the assault landing will be delegated to the appropriate person who will be "on the spot." This may be a person from either the aviation unit or ground force. The key to selection of this person will be his ability to be in a position to fully analyze the results of enemy fire. It may only be necessary for the airmobile force to make a "go-around" while additional fires are placed on the landing zone or a decision is made

to abort and proceed with an alternate plan. When enemy fire interferes with the landing, prompt countermeasures are taken by all means available. If these countermeasures are ineffective, alternate plans must be followed. It is during this phase that the closest coordination between all units, ground or aviation, must be accomplished.

g. Reorganization (Assembly) upon landing.

- (1) When units land directly on or immediately adjacent to their initial objectives, then 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 the security of the landing zones. Succeeding elements move directly from the landing sites to the predesignated assembly

areas, assisted by unit guides, appropriate assembly aids, or pathfinders. All elements carry 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 commanders to make any changes in missions that are warranted by circumstances.

- (3) Troops may be designated to remain on landing zones to defend 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.

h. See appendix III for additional information on the selection, preparation, and operation of drop and landing zones. See appendix II for information on pathfinders and unit terminal guidance personnel.

Section VII. AIR MOVEMENT PLAN

48. General

The air movement plan (annex to the unit operations order) supports the landing plan and is prepared by the ground unit commander. Technical assistance in preparing the air movement plan is rendered by the aviation unit commander providing the support aircraft and by the pathfinder detachment commander (when a pathfinder unit is used).

49. Air Movement Plan

The air movement plan (if written) includes a flight route diagram and an air movement table. In the absence of written orders, such information is covered in oral briefings.

a. Flight Routes.

- (1) The flight routes to and from the landing zone are selected to avoid known or suspected enemy positions.

It is desirable that flight routes follow terrain which facilitates navigation to the landing zones. Alternate routes are also planned. Specific considerations in the selection of flight routes are—

- (a) Terrain.
 - (b) Weather.
 - (c) Time of movement.
 - (d) Enemy detection capability.
 - (e) Enemy forces (to include air defense weapons).
 - (f) Friendly supporting weapons capability.
 - (g) Distance to the objective area.
 - (h) Air escort forces.
 - (i) Location and number of friendly air defense units.
- (2) The flight routes are defined by air

control points (ACP). The air control points may be established by use of easily recognizable terrain features or by electronic navigational facilities.

b. Flight Corridor. Supporting fires must be controlled in order to insure maximum support without endangering the aircraft of the air-mobile force. Flight corridors which include all flight routes are therefore designated and coordinated with higher headquarters and appropriate air defense (AD) artillery agencies. All fires within these corridors are coordinated or restricted. Ideally, the least possible restrictions are imposed; however, the size (width) of the corridor will vary with each operation and will be determined by—

- (1) Aircraft formation.
- (2) Type of aircraft.
- (3) Terrain.
- (4) Weather and visibility.
- (5) Navigational aids.

c. Flight Formation. The flight formation for any given mission is influenced by technical as well as tactical considerations. Technical considerations govern flight restriction. An important consideration in this portion of the plan is that flight serials are arranged within the formation to best support the landing plan and subsequent tactical operations.

d. Altitude. Low altitude reduces the ene-

my's capability to detect the movement or to effectively utilize long-range, large-caliber weapons fire on the aircraft in flight. Nap-of-the-earth flying will enable aircraft to take maximum advantage of terrain irregularities, thus gaining some protection from small arms fire, enemy acquisition radar, and surface-to-air missiles.

e. Flight Speed. The prescribed speed to be flown depends on the type of aircraft, the formation, and the use of external sling 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.

f. Movement Control. Movement control information includes the designation and location of the flight control elements, emergency procedures, communications, and navigational data. Normally, navigation will be by pilotage. In other instances, manned air control points (ACP) with electronic navigational facilities and terminal guidance in the objective area may be required. Initial points (IP), ACP, and release points (RP) are designated to assist in control of the air movement. These en route navigational facilities as well as terminal guidance in the objective area may be provided by the unit being air lifted and/or by pathfinder detachments.

Section VIII. LOADING PLAN

50. General

a. The loading plan is based on the movement plan. 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.

b. Under nuclear warfare conditions, more emphasis is placed on avoiding concentration of forces than in conventional warfare. Maximum

passive measures are taken to protect personnel, equipment, and supplies. Movements are conducted at night or during periods of reduced visibility, if possible.

51. Briefing

Time and situation permitting, troops are briefed in detail. All available briefing aids are used and common briefings are held where possible.

52. Loading

a. In preparing loading plans, primary consideration is given the mission. Tactical integrity is maintained and key personnel are

distributed throughout the aircraft loads. Spare aircraft should be made available if possible. Loading plans must be consistent with the ground tactical plan and air movement plan on which they are based.

b. The commander designates the sequence for movement of personnel, supplies, and equipment to the loading sites. Maximum security is enforced.

c. Ideally, a simultaneous arrival of troops (by aircraft loads) and aircraft in loading area will insure maximum security and rapidity of movement. Further, timing should include immediate takeoff of aircraft subsequent to the loading of troops and equipment.

53. Loading Zone Control

Control of movement into loading zones is essential in order to prevent congestion and confusion. Loading zone control may be simple when a single, small unit with no accompany-

ing supplies and equipment is lifted. For larger and more complicated lifts, control measures for movement of units and equipment into loading zones may be similar to those outlined in paragraph 6, appendix III, FM 57-10. The objective of any loading zone control should be to prevent either loads or aircraft from having to wait for each other.

54. Manifests

A manifest or record of the load in each aircraft should be kept at the loading zone. This record should be simple and capable of quick preparation in order to avoid a large administrative requirement. For example, it could be a sheet from a squad leader's notebook listing the men and equipment loaded into his aircraft and containing tail number or chalk number. All such lists are left with a unit representative in the rear echelon.

CHAPTER 4

TYPES OF AIRMOBILE OPERATIONS

Section I. GENERAL

55. Introduction

This chapter describes the employment of airmobile forces in various types of operations. The principles discussed in chapters 2 and 3 are applicable unless otherwise stated.

56. Subsequent Operations

After seizing the objective area, an airmobile force may defend, link up with a sur-

face force, conduct retrograde operations, or conduct further offensive operations. Buildup of troops, supplies, and equipment is usually limited to those essential to accomplishment of the mission. Engineer support may be necessary to maintain or improve landing facilities for continued operation of aircraft in the objective area.

Section II. OFFENSIVE OPERATIONS

57. Movement to Contact (fig. 1)

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. Reconnaissance for suitable landing zones is continuous. Patrols

and units are airlanded to perform ground reconnaissance of selected areas or to seize terrain. 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.

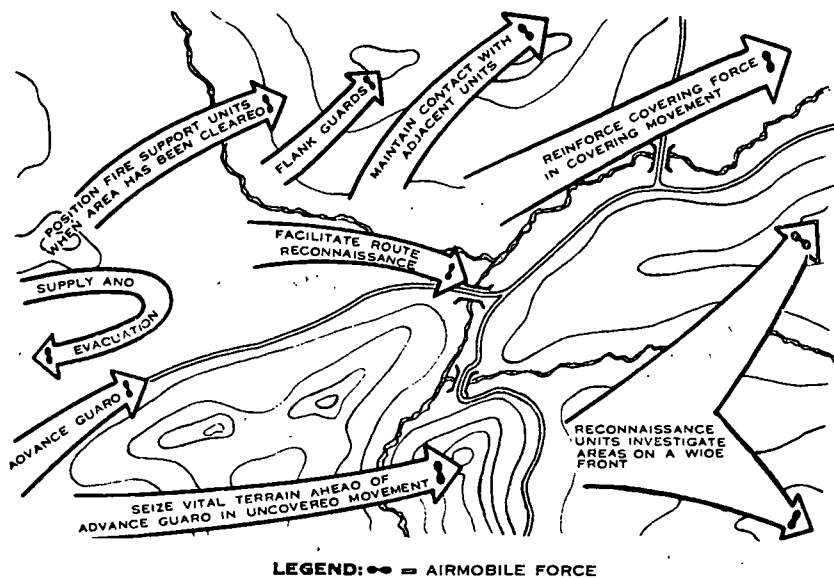


Figure 1. Movement to contact.

58. Meeting Engagement (fig. 2)

In a meeting engagement, the force seizing the initiative has the advantage. The column commander must have control over the supporting Army aviation unit in order to use airmobile forces quickly and effectively in a meeting engagement.

a. He can use airmobile security forces to seize key terrain quickly and to gain knowledge of enemy actions. The size of these forces is based on aircraft availability and the fire sup-

port provided. Armed air vehicles can provide readily available fire support for these missions.

b. As soon as the commander obtains information on the enemy and selects 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. The operation should be launched before the enemy can deploy for an attack.

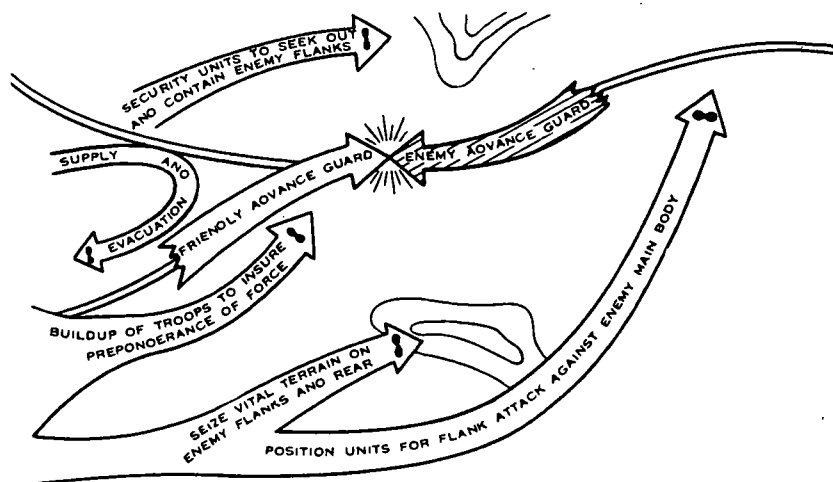


Figure 2. Meeting engagement.

59. Attack Against Delaying Positions (fig. 3)

Airmobile reconnaissance and security forces can determine the depth of enemy delaying positions and note the obstacles prepared or improved by the enemy. Airmobile forces can bypass initial delaying positions and obstacles in order to strike succeeding ones or to seize key terrain in the enemy area. Armed air vehicles can assist friendly ground forces by reducing or eliminating delaying positions with aerial fires.

60. Attack Against Organized Positions (fig. 4)

An airmobile force may overcome the defen-

sive strength of an organized position which a ground force might find difficult to penetrate or outflank. An airmobile force in the enemy's rear may help a ground force make a penetration. Airmobile forces used should be large enough to seize assigned objectives without need for subsequent lifts into the objective area, since they are subject to heavier fires on subsequent lifts. Multiple routes should be used to reduce exposure to enemy fires, and every effort should be made to avoid flying over an organized position. Plans should include provisions for the use of screening smoke and air-to-ground fires to assist the airmobile force. Reserve airmobile forces are held in readiness to reinforce or to exploit a penetration.

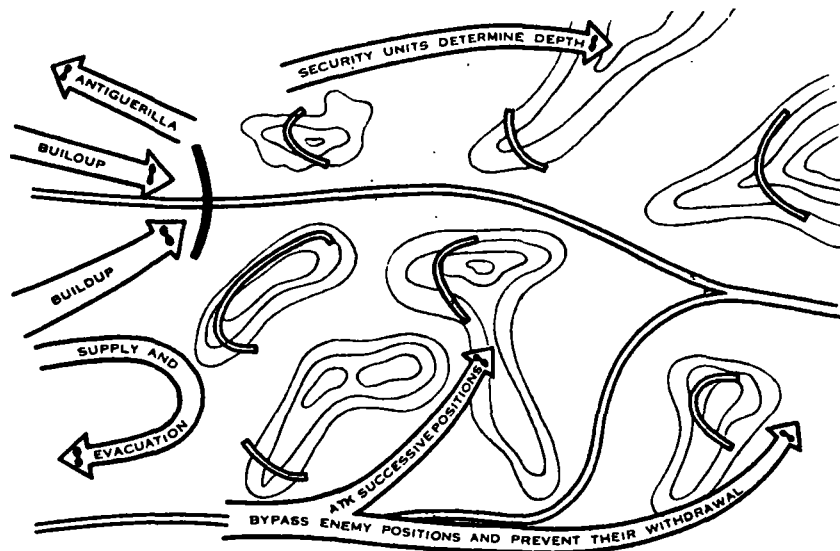


Figure 3. Attack against delaying positions.

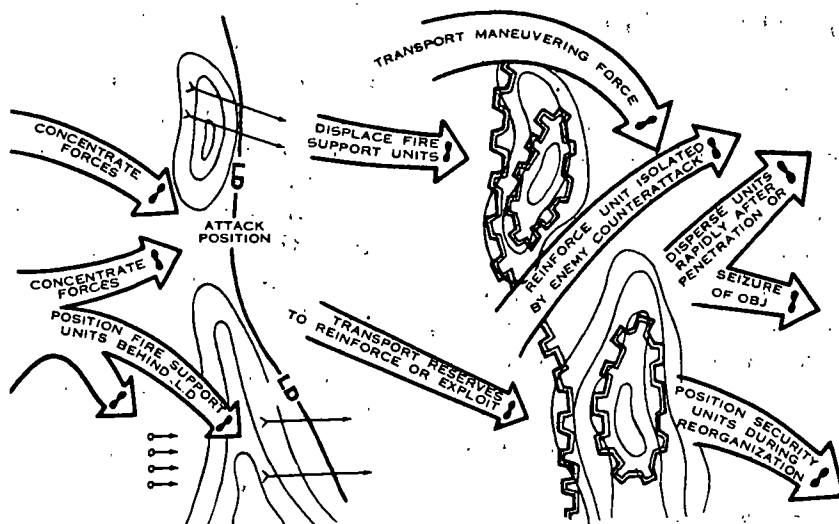


Figure 4. Attack against organized positions.

61. Attack of a River Line (fig. 5)

a. Airmobile reconnaissance forces are used early in the approach to a river to determine enemy strength and dispositions and to locate crossing sites. If possible, airmobile forces seize a bridgehead before the enemy can position his force and prepare his defense. Since a river is not an obstacle to airmobile forces, the

enemy may have to reduce the strength of his river line to protect his rear area.

b. 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 and to prevent interference with the crossing of friendly forces.

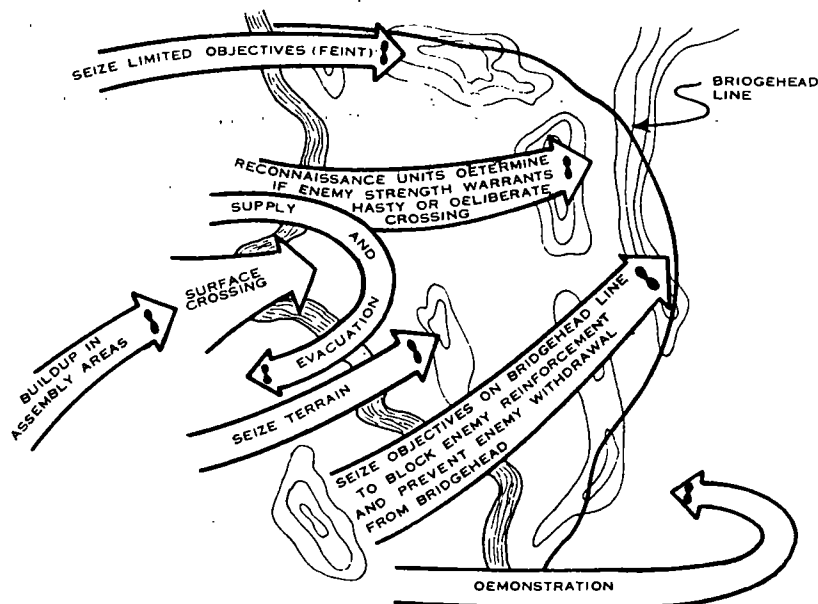


Figure 5. Attack of a river line.

62. Pursuit (fig. 6)

The commander of a pursuit force can maintain or rapidly regain contact with the enemy by using airmobile forces. Airmobile forces can conduct multiple surprise attacks to destroy isolated enemy forces and to disrupt the withdrawal of enemy units. Attacks made in conjunction with ground forces are coordinated to cut off fleeing enemy forces; thus speed and accuracy of movement and landing are more important than secrecy. When operations are conducted over extended distances, communication and logistical support require special consideration.

63. Counterattack (fig. 7)

An airmobile force in reserve gives the commander the capability of rapidly moving forces to block enemy penetrations. Airmobile reserves may be dispersed in 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 can exploit a penetration. Coordination is essential with fire support units and other ground and airmobile units participating in a counterattack. Counterattacks should be rehearsed as time permits. Flight routes for counterattacking airmobile forces should be selected to avoid enemy detection and to interfere least with friendly supporting fires.

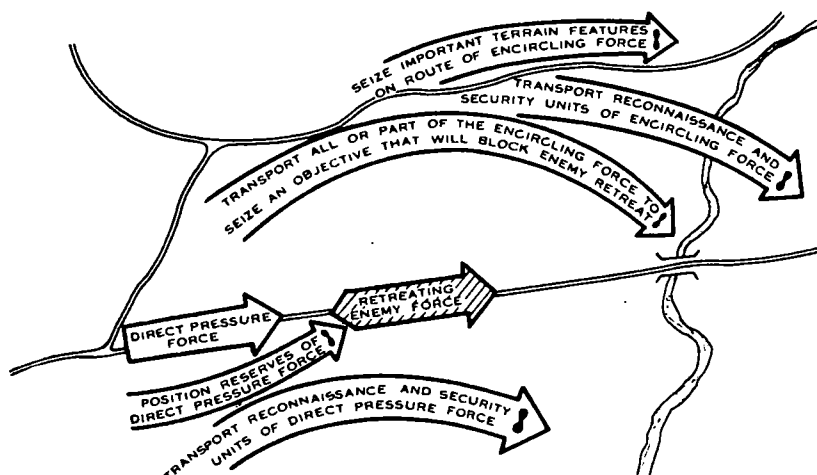


Figure 6. Pursuit.

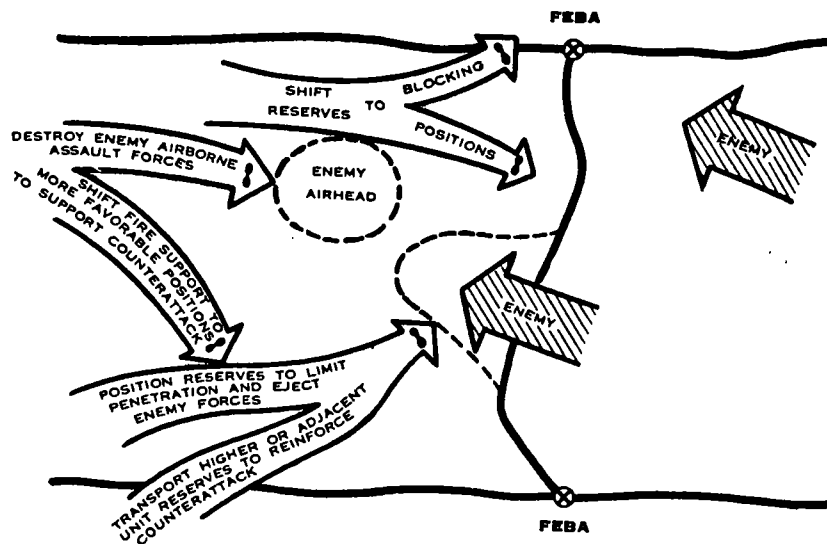


Figure 7. Counterattack.

64. Relief of Frontline Units (fig. 8)

a. 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. When demonstrations and feints are employed in a relief, the incoming and outgoing units should have priority for Army avia-

tion support. The ground force headquarters directing the relief should retain control of the aircraft to avoid a changeover of control between the incoming and outgoing units.

b. In conducting a relief with airmobile forces, coordination must be accomplished with overflow friendly forces. Screening smoke, air-to-ground fires, and deceptive measures are used to assist in accomplishing the relief.

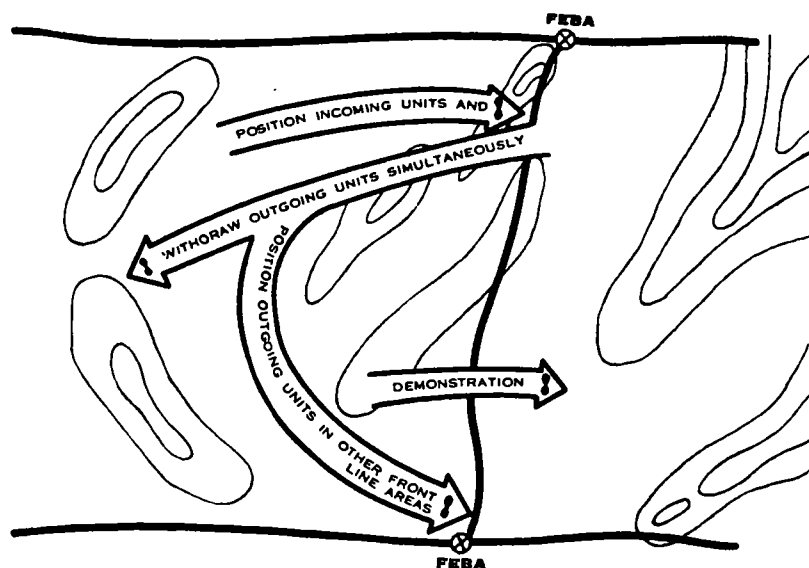


Figure 8. Relief of frontline units.

Section III. DEFENSIVE OPERATIONS

65. Defense Against Airborne Attack

a. 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. Consequently, airmobile striking forces and airmobile reserves employed against enemy airborne forces include armor and heavy fire support.

b. Airmobile forces may be employed in all phases of the antiairborne 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 reserve they are committed when the enemy main landing is determined. They may land directly on the enemy airhead to prevent the loss of key terrain. This type of counterattack achieves the most immediate disruption of enemy plans.

c. Armed air vehicles employed with airmobile forces are effective against airborne forces. The lack of armor and heavy fire support of airborne forces can be exploited by the use of armed air vehicles against them.

66. Delaying Action

An airmobile force conducting a delaying action can use terrain and time to maximum advantage. Reconnaissance elements provide information on the location of enemy attacking units. Since the withdrawal of airmobile forces is independent of the road net, the forces can be employed in flanking positions adjacent to the enemy route of advance, forcing the enemy to

pause 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 delaying positions without interfering with the withdrawal of airmobile forces from 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 and armed air vehicles are suited for harassing actions between successive positions.

67. Withdrawal from Action

(fig. 9)

Withdrawals through friendly forces are conducted by overflying the newly established positions. Coordination must be accomplished with the overflow force, and provisions must be made for concealing smoke, air-to-ground fires, and deceptive measures. In daylight withdrawals, aircraft may be used to move front-line 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. Elements of the detachments left in contact 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. Additional fire support can be gained by the use of armed air vehicles.

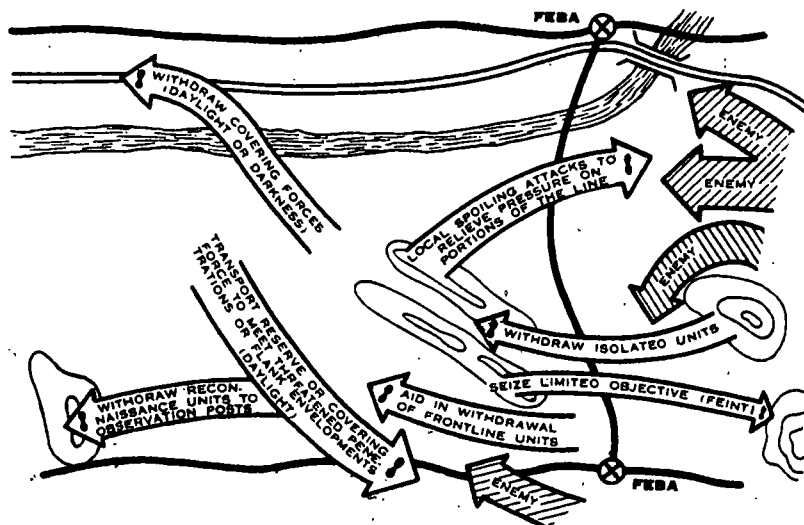


Figure 9. Withdrawal from action.

68. Retirement (fig. 10)

Airmobile forces are used with a retiring force in a manner similar to that used in a movement to contact (par. 57). The retiring

force moves to the rear in multiple columns; airmobile patrols maintain contact between the columns. Airmobile security forces and armed air vehicles are employed close to the enemy and are used as rear and flank guards.

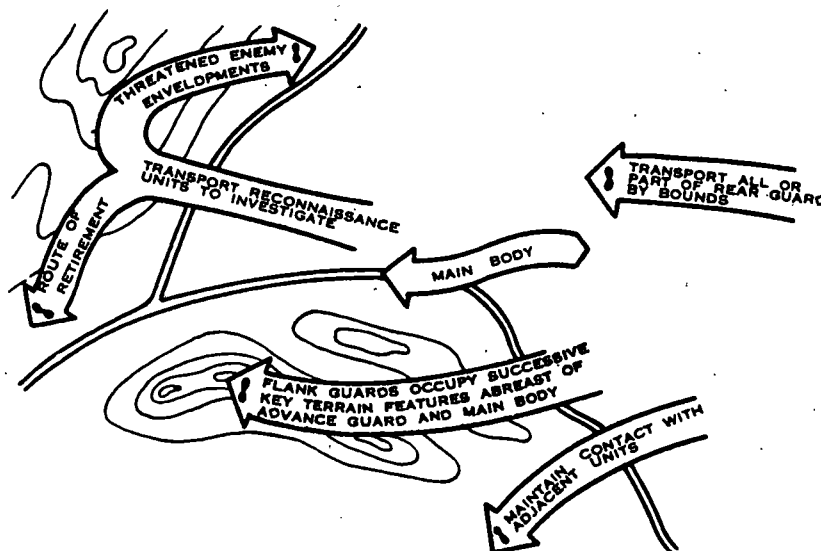


Figure 10. Retirement.

Section IV. EMPLOYMENT WITH AMPHIBIOUS OPERATIONS

69. General

An airmobile unit's capability to seize deep

objectives, unhindered by hydrography, obstacles, and terrain, provides an amphibious

force with formidable offensive combat power. Special requirements for employment are assault ships with helicopter landing and/or takeoff platforms to provide troop, equipment, and supply transport from the embarkation point to the vicinity of the objective area; and training and rehearsals for embarkation, operations aboard, and debarkation from assault ships. Doctrine for amphibious operations is obtained in FM 31-11.

70. Responsibilities

a. The amphibious task force commander is responsible for the entire force and for the conduct of the operation.

b. The landing force commander commands all troop components within the amphibious task force. He is responsible for the landing force's operations ashore and for the security of all personnel and installations located within his area of operations.

71. Planning Considerations

a. Airmobile operations from assault ships are characterized by concurrent, parallel, and detailed planning by all participating forces.

b. Intelligence planning is begun when the mission is received and is conducted in accordance with the basic principles of such planning.

c. Prior to embarkation aboard ship, an advance echelon from each unit goes aboard to make final arrangements. Each advance echelon coordinates its unit embarkation plan with the ship's officers.

d. Embarkation planning covers the orderly assembly of personnel, material, and assigned ships in a sequence designed to meet the requirements of the landing scheme of maneuver. Detailed plans must be made for—

- (1) Flight deck procedures.
- (2) Facilities and space available for aircraft and troops.
- (3) Hangar deck procedures.
- (4) Carrier qualification criteria for aviators.
- (5) Launch and recovery procedures.
- (6) Carrier landing pattern.

72. Liaison

Airmobile and aviation unit commanders, upon receipt of a directive to plan or to participate in an amphibious operation, immediately exchange liaison officers with naval units concerned. The liaison officers act as advisors and coordinators on all matters of common interest.

73. Training

a. Flight operations aboard assault ships require precision and teamwork among all elements involved.

b. Flight personnel of the Army aviation unit are trained in all phases of flight, hangar, and deck operations prior to shipboard operations.

c. Troops from units to be lifted are familiarized with shipboard procedures before going aboard.

Section V. SPECIAL OPERATIONS

74. Raids (fig. 11)

a. General. An airmobile raid is conducted for the same purpose as a ground force raid, namely, to accomplish a specific mission with no intent of holding the area. It can be conducted to harass, deceive, or disrupt the enemy to preclude or deter his concentration of forces in another area. It can also be conducted to obtain information of enemy installations,

units, or activities, and to capture personnel or materiel. Airmobile forces are capable of achieving extensive harassment and destruction in the enemy rear. A raid is characterized by rapid movement to gain surprise, and rapid withdrawal to avoid decisive engagement.

b. Missions and Objectives. Some of the purposes of a raid are listed in *a* above. An airmobile raid force may be assigned an area of operations instead of a specific objective, and

the area or objectives may be located well to the rear of enemy territory or relatively close to the forward edge of the battle area. The force may operate in conjunction with friendly guerrilla forces. Some raid objectives are—

- (1) Command posts.
- (2) Communications centers.
- (3) Airfields and their installations.
- (4) Key enemy personnel.
- (5) Supply installations.
- (6) Nuclear weapons delivery means and storage areas.
- (7) Prisoner of war compounds.
- (8) Intelligence targets.
- (9) Potential transportation system bottlenecks.

c. Planning and Preparation. The steps in planning and preparing for a raid closely parallel those required for the airmobile assault. The following aspects of planning and preparation must be emphasized:

- (1) Detailed intelligence is essential.
- (2) Concept and execution are characterized by boldness.
- (3) Deception and counterintelligence plans are made.
- (4) Technically trained and specially skilled personnel may be needed to assist in accomplishing the mission.
- (5) Special weapons or equipment may also be required.
- (6) Movement should be planned to insure delivery with minimum risk of detection.

(7) Coordination with other services or agencies must be worked out thoroughly.

(8) The raid should, if possible, be carried out under some condition of poor visibility, with Army pathfinders providing positive terminal guidance into, within, and from the objective area. This however, does not preclude a daylight raid.

(9) The raid should be rehearsed.

(10) Elements of the raiding force assemble independently and carry out their assigned tasks. Decentralization of the elements of the force is a requirement.

(11) Provisions should be made for the transport of prisoners and captured materiel.

(12) When possible, withdrawals are made by air. Alternate withdrawal plans must be included within the overall plan.

(13) Normally the raiding force carries the supplies and equipment necessary to accomplish the mission. Resupply, when required, may be made by air-drop directly to the raiding force or through friendly paramilitary forces.

d. For additional information on planning raids in conjunction with friendly guerrilla forces, see FM 31-21.

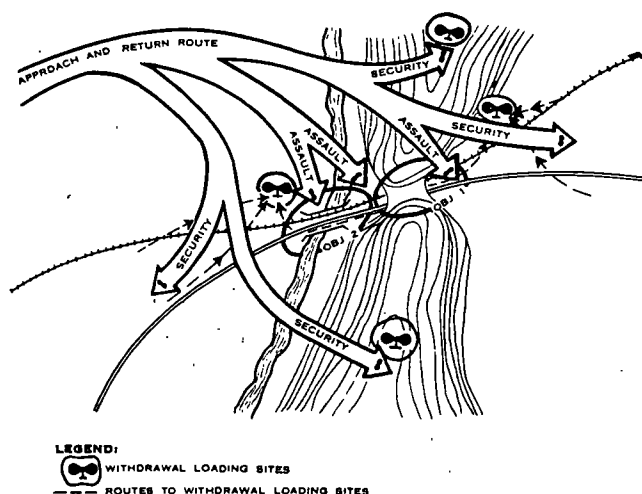


Figure 11. Raid.

75. Infiltration

Infiltration airmobile forces are used in tactical infiltration either as the main or supporting attack forces. For a detailed discussion of planning an airmobile tactical infiltration, see FM 7-20.

76. Linkup

a. General. When withdrawal of an airmobile force from the objective area is not planned or feasible, a linkup operation by a surface force is accomplished. Close coordination and detailed planning between the two forces is essential. Initial coordination may be limited to an exchange of information. As the linkup force approaches the objective area, fires are coordinated by a system of recognition signals or the exchange of no-fire line locations. As the situation develops, objectives and axes or boundaries of the advancing friendly forces are changed to facilitate the linkup. When necessary, elements of the airmobile force take offensive action to break roadblocks and to otherwise disrupt enemy forces delaying the linkup force. Armed air vehicles assist in these actions and can reduce or eliminate enemy formations preventing linkup.

b. Planning for Linkup. Plans for the juncture of the airmobile force and advancing friendly forces are coordinated in advance. This coordination should include—

- (1) Command relationship.
- (2) Command and staff liaison before and during the operation.
- (3) Systems of mutual recognition (panels, armbands, pyrotechnics, vehicle markings).
- (4) Coordination of communications plans (radio nets established, exchange of call signs and frequencies, and issue or loan of compatible radio equipment).
- (5) Coordination of schemes of maneuver (establishment of primary and alternate linkup points, delineation of objectives, and boundaries or axes of advance).
- (6) Fire control measures, with emphasis on the fire coordination line and NFL.
- (7) Plans for air-to-ground fires.

- (8) The airmobile force, when possible, assists the advancing linkup forces by providing guides and removing obstacles.
- (9) Supply and maintenance upon linkup.

77. Operations Against Infiltration and Guerrilla Action

a. Airmobile forces are particularly suited to operations against enemy infiltrators and guerrillas. Reconnaissance aircraft are employed to locate the enemy, and airmobile patrols follow up by investigating suspicious localities on the ground and destroying or capturing any enemy discovered. Small numbers of troops and aircraft can patrol extensive areas, and centrally located reserves can surprise guerrilla bands in their positions, or they can be employed to reinforce installations and columns under attack. Combined armed air vehicle and airmobile teams can be effectively used as convoy protection against guerrilla action. Armed air vehicles can provide column control and a covering force which engages guerrilla forces and maintains contact until airmobile forces are deployed.

b. Airmobile forces exploit their mobility by attacking guerrilla bases of operations located in difficult terrain. During encircling operations against guerrilla forces, airmobile forces may be employed to block simultaneously 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. Items to be considered in operations against infiltration and guerrilla action are as follows:

- (1) Intelligence must be timely and accurate.
- (2) Landing zones selected should be on or close to objectives, and because security may prevent extensive reconnaissance, landing zones may have to be selected by flight commanders upon arrival in the objective area.
- (3) The use of multiple lifts and repeated use of the same approach and departure routes should be avoided.
- (4) The use of a spotter aircraft flying

above an airmobile serial should be considered to vector the serial into its objective area, thereby reducing the possibility of navigational error in difficult terrain and nap-of-the-earth flying.

- (5) Armed air vehicles provide escort en route, and can deliver fires on the flanks and rear of the objective during the critical landing period.
- (6) Spare aircraft should be provided to avoid dissipating the airmobile force due to mechanical failure.
- (7) Nonessential equipment and fixtures should be removed from aircraft, as climate and missions permit, to increase lift.

78. Night Operations

a. Airmobile forces may be employed effectively at night. In night operations, 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 confusion while other ground or airmobile operations are being conducted.

b. Night operations present certain disadvantages and special problems in comparison to daylight operations. Airmobile forces employed in night operations 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. After landing ground units normally assemble before proceeding with their mission. Since disorientation of troops may be greater than in daylight operations, assembly aids will be necessary. Pathfinders with aids to navigation are necessary at landing zones and sites to assist movement and landing. When communications and missions permit, radar tracking by air defense or field artillery units may be used, when directed, to facilitate aircraft navigation between the loading zones and landing zones. 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. In night operations, landing sites need to be larger or flight units smaller than in daylight operations. In selecting routes for night operations, greater emphasis is placed on ease of navigation. The possibility of friendly and enemy use of artificial illumination or infrared devices is considered when planning for night operations.

79. Operations Under Nuclear Warfare Conditions (fig. 12)

a. *General.* Airmobile forces can concentrate rapidly after being dispersed for protection from the effects of nuclear weapons. Airmobile patrols can investigate a nuclear target soon after the explosion to determine the nuclear effects and conduct radiological survey.

b. *Exploitation of Friendly Use.* Airmobile forces can bypass obstacles created by a nuclear strike, whether their objective is within or beyond the target area.

c. *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 surviving casualties from the target area to medical installations.

d. *Special Considerations.* Plans for timing airmobile operations with nuclear explosions must take into account the effect of the intense light on aviator's 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 debris resulting from a nuclear explosion. Where a landing zone is contaminated, dust stirred up by propellers or rotors may be hazardous. Alternate plans are prepared in the event residual radiation dose rates are unacceptably high in primary routes and landing zones. Pathfinders are trained and equipped to conduct radiological surveys from the air, and should be employed to determine the requirement for use of alternate routes and landing zones.

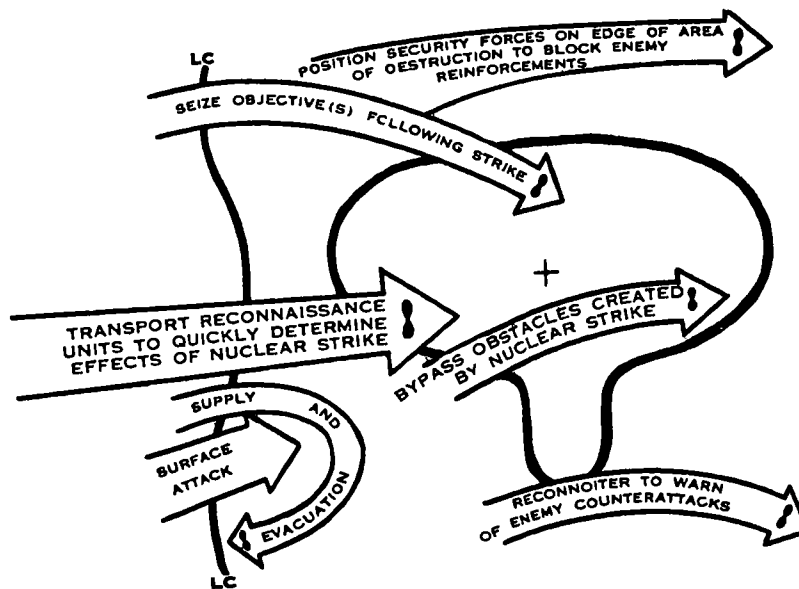


Figure 12. Exploitation of nuclear strike.

CHAPTER 5

TRAINING

Section I. RESPONSIBILITIES

80. General

The training of aviation and ground combat units for airmobile operations is the responsibility of commanders at all echelons. The objective is to familiarize units with all aspects of airmobile operations and enable them to develop and implement a standing operating procedure which will insure that effective airmobile operations are conducted with maximum speed, flexibility, and timeliness.

81. Major Unit Commanders

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

- a. Training of staffs at all levels in planning for and conducting airmobile operations.
- b. Training of technical service units and nondivisional aviation units in appropriate subjects listed in paragraph 86.
- 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.

82. Ground Force Commanders

Commanders at all echelons insure that troop training includes the following: familiarization with Army aircraft, flight safety procedures, preparation of equipment for internal and external transport, familiarization with aerial weapons systems, techniques of assembly and reorganization, air movement, and conduct of airmobile operations.

83. Army Aviation Unit Commanders

Army aviation unit commanders are responsible for individual proficiency within their organizations and for training their units in the following procedures: teamwork with the supporting arms and services, the employment of aerial weapons 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

84. General

- a. Airmobile training is integrated into cur-

rent unit training programs. The purpose of training is to develop the capability of con-

ducting airmobile operations at each level from squad to the brigade. Individual and unit airmobile training is conducted concurrently with other training when feasible. Combined unit training is integrated into 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 are used in support of squad, platoon, and company training. The necessary Army aircraft support is provided by the aviation battalions assigned to field army for field exercises and maneuvers. Field exercises and maneuvers should include airmobile operations.

85. Ground Force Training

Ground combat forces that are to participate in airmobile operations must be proficient in ground tactical operations and must obtain maximum combat efficiency. With the special training outlined in paragraphs 86 through 89, they should be capable of planning and executing effective day or night airmobile operations.

86. 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) Methods and techniques of assembly and reorganization.
- (3) Psychological preparedness.
- (4) Familiarization with Army aircraft and flight safety.
- (5) Familiarization with Army aircraft aerial weapons systems.
- (6) Training in defense against nuclear weapons.
- (7) Training in employment of and defense against chemical and biological weapons.

b. Aviation Units.

- (1) Familiarization with operational planning.
- (2) Low level navigation.
- (3) Formation flying at night and under other conditions of reduced visibility.
- (4) Camouflage and security of aircraft.
- (5) Employment of aerial weapons systems.
- (6) Unit control of aircraft.
- (7) Air traffic control.
- (8) Confined area operations and 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 landing sites.
- (3) Familiarization with pathfinder techniques.
- (4) Techniques of loading, lashing, and unloading internal and external loads.
- (5) Air resupply techniques.
- (6) Forward area refueling techniques.
- (7) Air and/or ground communications.
- (8) Air movement control and coordination with appropriate air defense agencies.
- (9) Special measures for antitank defense.
- (10) Fire support planning to include aerial fire support.

87. Staff Training

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

- a. Inverse planning sequence.
- b. Fire support planning.
- c. Aerial supply and evacuation procedures.
- d. Development of detailed SOP.
- e. Command and staff relationships.

88. 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. A program of progressive, integrated, combined airmobile training, starting with the squad and continu-

ing to the battalion or larger unit, is directed toward acquiring the capability to execute effective airmobile operations in a minimum of time and on brief orders.

89. Sequence of Training

The following training sequence for the conduct of airmobile operations is recommended:

a. Orientation of commanders and senior staff officers.

b. Instruction and practical exercise by troops in loading and unloading personnel and equipment; instruction in assembly techniques and troop safety.

c. Specialist training of selected personnel in air traffic control in loading areas and landing sites, and in the use of pallets and the preparation of bulk supplies and equipment.

Section III. REHEARSALS

90. General

Rehearsals conducted with the Army aviation crews should include troops and equipment to be moved on the airmobile operation. Rehearsals should be staged under conditions paralleling those expected in the planned operation. Platoon to battalion level rehearsals are held as time and facilities permit.

91. Specific Instruction

Security considerations and lack of adequate areas may limit the rehearsals or necessitate

acceptance of some artificial conditions. Ideally, each rehearsal includes the following:

a. Occupying loading areas.

b. Moving to and loading aircraft at loading sites.

c. Unloading aircraft.

d. Assembly and control procedures after landing.

e. Executing the tactical plan.

f. Communication procedures.

g. Supply and evacuation procedures.

APPENDIX I

REFERENCES

AR 95-100	Clarification of Roles and Missions of the Departments of the Army and the Air Force Regarding Use of Aircraft.
AR 320-5	Dictionary of United States Army Terms.
FM 1-5	Army Aviation ; Organizations and Employment.
FM 1-100	Army Aviation.
FM 3-5	Chemical, Biological and Radiological (CBR) Operations.
FM 3-10	Chemical and Biological Weapons Employment.
FM 3-12	Operational Aspects of Radiological Defense.
FM 5-1	Engineer Troop Organizations and Operations.
(S) FM 5-26	Employment of Atomic Demolition Munitions (Adm) (U).
FM 6-20-1	Field Artillery Tactics.
FM 6-20-2	Field Artillery Techniques.
FM 7-10	Rifle Company, Infantry and Airborne Division Battle Groups.
FM 7-11	Rifle Company, Infantry, Airborne Infantry and Mechanized Infantry.
FM 7-15	Infantry, Airborne Infantry, and Mechanized Infantry, Rifle Platoons and Squads.
FM 7-20	Infantry, Airborne Infantry, and Mechanized Infantry Battalions.
FM 7-24	Communication in Infantry and Airborne Division.
FM 7-30	Infantry, Airborne, and Mechanized Division Brigades.
FM 7-100	Infantry Division.
FM 17-1	Armor Operations ; Small Units.
FM 17-36	Armored Cavalry Platoon and Troop, Air Cavalry Troop and Divisional Armored Cavalry Squadron.
FM 17-95	The Armored Cavalry Regiment.
FM 17-100	The Armored Division and Combat Command.
FM 21-5	Military Training.
FM 21-6	Techniques of Military Instruction.
FM 21-26	Map Reading.
FM 21-30	Military Symbols.
FM 21-40	Small Unit Procedures in Nuclear, Biological and Chemical Warfare.
FM 21-41	Soldier's Handbook for Nuclear, Biological and Chemical Warfare.
FM 30-5	Combat Intelligence.
FM 30-7	Combat Intelligence Battle Group, Combat Command and Smaller Units.
FM 31-11	Doctrine of Amphibious Operations.
FM 31-21	Guerrilla Warfare and Special Forces Operations.
FM 57-10	Army Forces in Joint Airborne Operations.
FM 57-38	Pathfinder Guidance for Army Aircraft.
FM 57-100	The Airborne Division.

FM 61-100	The Division
(S) FM 100-1	Doctrinal Guidance (U).
FM 100-5	FSR-Operations.
FM 101-5	Staff Officers' Field Manual; Staff Organization and Procedure.
FM 101-10, Part II	Staff Officers' Field Manual; Organizational, Technical and Logistical Data.
(S) FM 101-31-2	Staff Officers' Field Manual; Nuclear Weapons Employment (U).
TM 1-300	Meteorology for Army Aviation.
TM 3-200	Capabilities and Employment of Toxic Chemicals.
TM 3-210	Fallout Prediction.
TM 5-251	Army Airfields and Heliports.
TM 57-210	Air Movement of Troops and Equipment.
DA Pam 108-1	Index of Army Motion Pictures, Filmstrips, Slides, and Phono-Recordings.
DA Pam 310-3	Military Publications; Index of Training Publications.
DA Pam 310-4	Military Publications; Index of Technical Manuals.
ACP 129	* Communications Instructions, Visual Signaling Procedures (U).
ACP 136	* Communications Instructions, Panel Signaling.
ACP 168(A)	* Communications Instructions, Pyrotechnic Signals.
JCS Pub 1	Dictionary of U.S. Military Terms for Joint Usage.

* These Allied Communications Publications are indexed in JANAP 201(C), (Title Classified).

APPENDIX II

PATHFINDERS

1. General

a. Missions. Pathfinders are specially 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 airlanded forces.
- (5) Conduct CBR monitoring or survey of areas subjected to CBR attack and report conditions which would influence military operations.

b. Employment of Pathfinders.

- (1) It should be recognized that the use of pathfinders in advance of the assault echelon may reduce the element of surprise.
- (2) Pathfinders may be employed as detachments; as such they can be reinforced as required for a particular mission.
- (3) In airmobile operations, pathfinder units may precede or accompany the assault echelon.
 - (a) When they precede the assault echelon, 10 to 30 minutes are re-

quired 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 unit 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 detachment is the basic TOE pathfinder unit and consists of two officers and 13 enlisted men. Detachments are assigned to the field army and may be organized by the division commander to augment the capabilities of the division aviation battalion. One detachment may be divided to form the nucleus for two detachments that are completed by attaching personnel from the supported unit. Pathfinder support is also available within the sup-

ported unit as outlined in paragraph 6 below.

b. Equipment. Equipment used by pathfinders for aircraft terminal guidance consists of the following:

- (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, 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 unit may be delivered by parachute or airlanded in an objective area; it may go in by ground or water vehicle; or it may infiltrate on foot. (It may be practical for the detachment 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 handcarried for considerable distances.)

4. Visual Signaling Procedures

The pathfinder unit uses the standard visual signaling procedures as described in Allied Communication Publications (ACP) 129, 136, and 168(A).

5. Conduct of Operations

a. A pathfinder unit 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 15-man pathfinder detachment is capable of handling one landing zone with the following installations: eight helicopter landing sites and one airplane landing strip, or two drop zones. The pathfinder detachment may be reinforced by the supported unit with communication and local security personnel. Such personnel, when attached to the pathfinder detachment, increase

the number of facilities which the pathfinder unit can operate.

b. For each of the three basic types of operation or combination of types, the pathfinder unit 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 party.* This party is responsible for marking with visual and electronic navigational aids a pre-designated 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 party.* This party can be considered the nerve center of the landing zone. The pathfinder detachment commander 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 and/or drop zone information to individual aircraft. They supervise the parking of aircraft and assist in the assembly of the airmobile force. Personnel from the supported unit usually assist 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 supporting Aviation 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 in the area using equipment which is either available or 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 radio 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 engage in extensive landing and drop zone preparation for air-mobile 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. Landing sites and strips are prepared by removing any obstacles which will interfere with air navigation above a minimum altitude and which normally would be invisible to the aviator. 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. 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 a helicopter is required to touchdown to unload and less than a 10° slope for landing airplanes.

- (2) The area should be firm enough to

keep the aircraft from sinking and becoming mired when landing, taxiing, or parking.

- (3) The area must be clear of obstructions such as large rocks and holes that prohibit taxiing or unloading, and of debris that may be sucked up into rotor blades or propellers.
- (4) Depending on the factors which make up density altitude (i.e., altitude, temperature, humidity), and on 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 terrain where wind effects will complicate stability and flight control. For example, in mountain areas, 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, though less emphasis will be placed 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 opera-

tions. 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 T, 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. For further details, see figure 13, FM 1-100.

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 flights pass over 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.
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 flying up the stem of the T releases its bundles or troops as 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 in daylight; thus, 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 applicable 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 must 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. 13).

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 an aviator'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 a decrease in the air density caused by 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 knotted ropes, by rappelling, or by jumping if the helicopters can touch down one wheel.

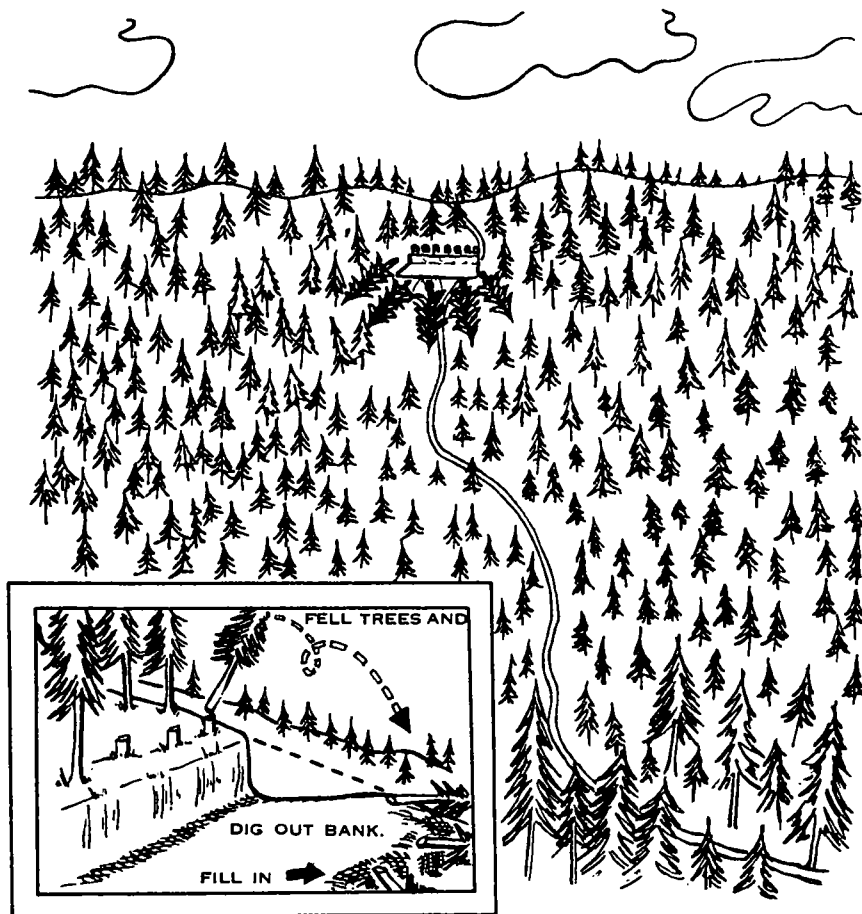


Figure 13. Mountain landing site.

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. 14).
- (2) Assembly by subordinate units in conjunction with other units (fig. 15).

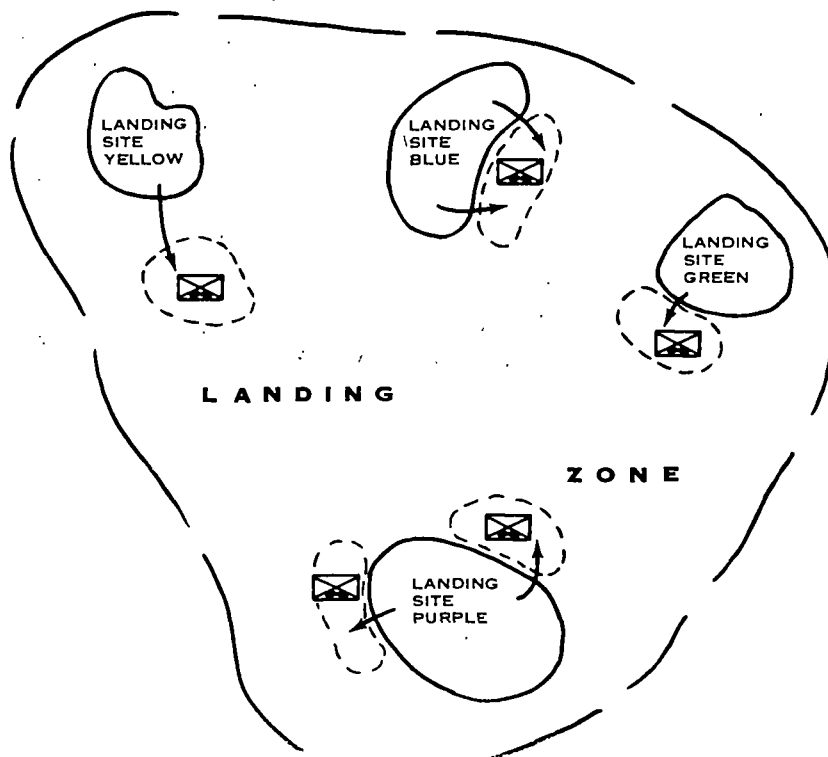


Figure 14. Independent assembly of subordinate units (schematic diagram).

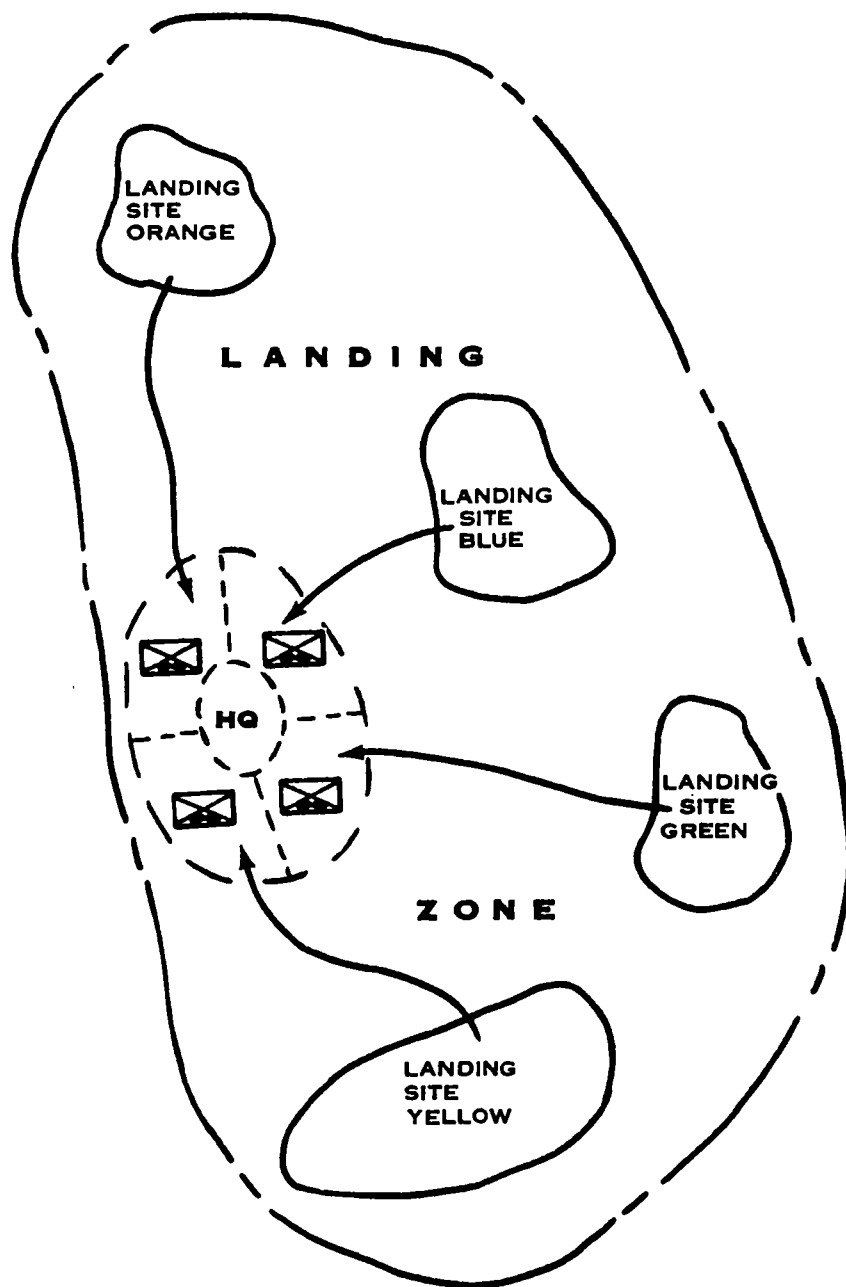


Figure 15. *Assembly in conjunction with other subordinate units (schematic diagram).*

b. A thorough briefing on the assembly plan is conducted by all units. As time and facilities permit, maps, charts, aerial photographs, and sandtables 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, however, must be given, to the fact that aircraft noise may nullify 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. Personnel being transported in aircraft tend to become disoriented. If for any reason the aircraft are unable to land in the objective area on the heading as given in the briefing prior to the conduct of the airmobile operation, some method should be announced that would give the passengers the heading of the aircraft upon landing. The crew chief of the aircraft can draw a sketch of the objective and designate the heading of the aircraft upon landing. This information would come from the aviator flying the aircraft and would be passed on to the senior supported unit member aboard the aircraft. This information should then be given to all personnel aboard the aircraft so that upon landing they will know what direction to take toward the assembly area. SOP of ground combat units should contain a method by which personnel will be informed of the relationships of the aircraft to the objective. Aviators and crew chiefs will receive instructions on the use of this method during briefings (figs. 16 and 17).

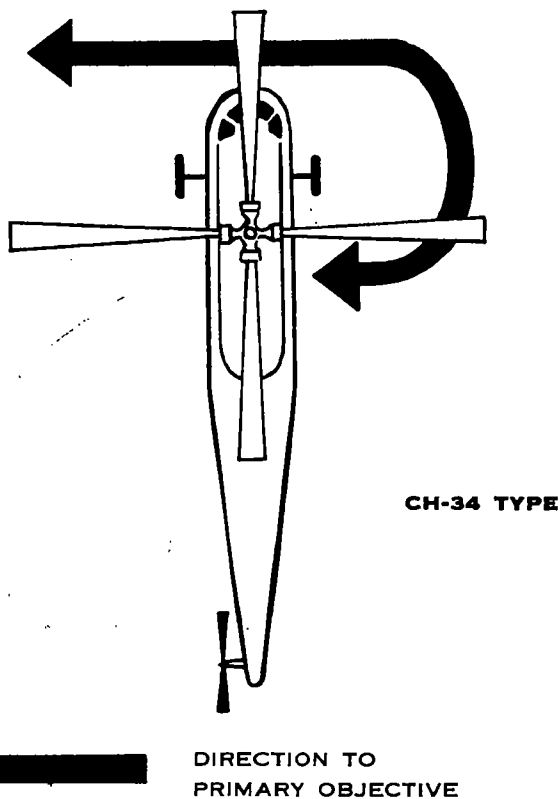


Figure 16. Orientation aid, CH-34 type.

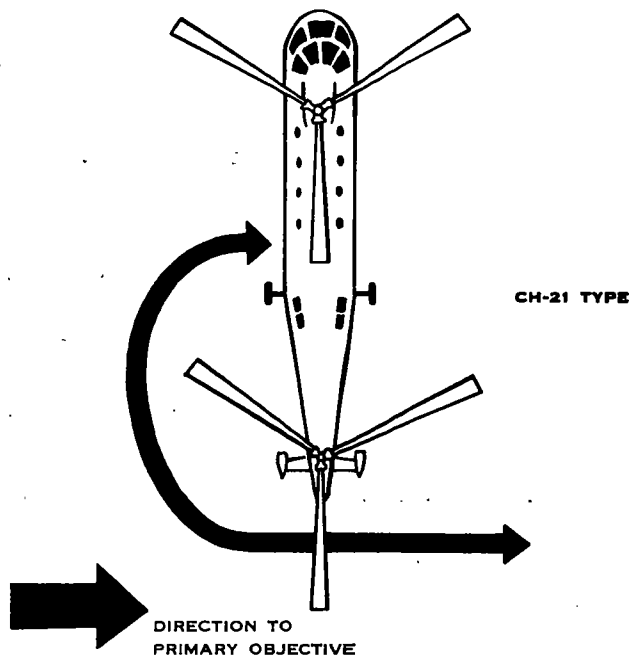


Figure 17. Orientation aid, CH-21 type.

Outline of helicopters may be imprinted on small cards. Pilot informs crew chief or senior supported unit member of direction to the primary objective in reference to the direction of landing using the clock system, e.g., "Objective at 3 o'clock" (fig. 17). The person then informed draws a line on the card indicating the direction the troops are to move from the aircraft to the objective. It also reminds troops of the proper manner of movement around the aircraft if movement is necessary. This information is given to all personnel aboard the aircraft. Similar aids can be made for other rotary wing and fixed wing aircraft.

e. 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; this will increase the required 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 the factors involved in loading Army aircraft.

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. TM 55-405-9 provides aircraft weight and balance data.

Note. When computing requirements for parachutists, 260 pounds represents one space.

3. Essential Characteristics of Transport Helicopters

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:

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

b. Space Method.

- (1) The space method is the most desirable method for computing aircraft requirements for personnel, weapons, ammunition, and vehicles since the process is faster and provides a safety factor. Thus, the 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.
- (3) In converting weights to space, 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 required 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.

- (6) Example of using the space method: Personnel and equipment to be transported.

Personnel 174	174 spaces
Three (3) each 1/4-ton trucks	7,440 pounds
Three (3) each 1/4-ton trailers	1,725 pounds
Two (2) each 1/4-ton trucks with 106mm recoilless rifle	6,230 pounds
144 rounds 81-mm ammunition, each 15 pounds	2,160 pounds
12 rounds 106-mm rifle ammunition, each 60 pounds	720 pounds
Total weight excluding personnel,	18,275 pounds.

$18,275 \div 240 = 76.1 = 76.5$ spaces

$174 \div 76.5 = 250.5$ spaces required

CH-34 required = total spaces to be transported divided by space availability for one helicopter = total aircraft requirement.
 $250.5 \div 14.5 = 17.3 = 18$ aircraft required.

c. Type Load Method.

- (1) The type load method used in joint airborne operations can be used in air-mobile operations. Based on the greater allowable cargo load and cargo space available in troop carrier aircraft, the type load method is the most desirable method of determining aircraft requirements to lift elements of the infantry and airborne division.
- (2) Type loads are an arrangement of personnel, vehicles, equipment and supplies within the allowable cargo load of a particular aircraft.
- (3) Sufficient type loads should be planned to include all types of vehicles and equipment to be airlifted. Starting with the heavier vehicles and cargo, a determination of the number of aircraft required to lift all personnel, vehicles and cargo for the assault echelon can be made. This process is then continued until all aircraft requirements have been determined.
- (4) Preparation of varied type loads will

provide flexibility in planning, loading and supporting an operation.

- (5) For Army aircraft, type loads of ammunition and supplies are normally made up to a maximum weight of 1,500 pounds to insure lifting of such loads and permit maximum distribution of supplies.
- (6) In classifying equipment for type loads, the following principles apply:
- (a) Unitized major items which cannot be disassembled.
 - (b) Unitized major items which can be disassembled.
 - (c) System type items.
 - (d) Bulk.

4. Rifle Company Type Loading Plans

a. Using 25 UH-1D aircraft (aircraft from the division airmobile company (1t), 75 mile radius mission).

			Pounds
CHALK #1.	1st Sqd, 1st Plat.	(10)	2,400
CHALK #2.	2d Sqd, 1st Plat.	(10)	2,400
CHALK #3.	Plat Ldr, 1st Plat.		240
	Rad Op.		240
	Wpn Sqd Ldr.		240
	MG Team.		480
	90-mm Rifle Team.		720
	81-mm FO.		240
	(9)		2,160
CHALK #4.	3d Sqd, 1st Plat.	(10)	2,400
CHALK #5.	Plat Sgt, 1st la		240
	MG Team.		480
	90-mm Rifle Team.		720
	Aidman.		240
	(7)		1,680
CH LK #6.	Company Commander.		240
	First Sgt.		240
	Rad Op Lt Trk Dr.		240
	Comm Chief.		240
	2 Wiremen.		480
	Aidman.		240
	Tlr (on sling).		565
	(7)		2,245
CHALK #7.	1/4T Trk W/AN/VRQ 3 (on sling)		*2,503
CHALK #8.	Antitank Sec L lr.		240
	1st Antitank Sqd (—Asst Gunner)		720

	Pounds
12 Rd 106 Ammo.....	720
106 RR.....	460
(4).....	2,140
CHALK #9. Asst Gunner, 1st Antitank Sqd.....	240
1/4T Trk (on sling).....	2,273
(1).....	2,513
CHALK #10. 1st Sqd, 2d Plat.....	2,400
(10)	
CHALK #11. 2d Sqd, 2d Plat.....	2,400
(10)	
CHALK #12. Plat Ldr, 2d Plat.....	240
Rad Op.....	240
Wpn Sqd Ldr, 2d Plat.....	240
MG Team.....	480
90-mm Rifle Team.....	720
81-mm FO.....	240
(9).....	2,160
CHALK #13. 3d Sqd, 2d Plat.....	2,400
(10)	
CHALK #14. Plat Sgt, 2d Plat.....	240
Radar Set AN/PPS 4 (included in personnel wt)	
MG Team.....	480
90-mm Rifle Team.....	720
Gnd Survl Sec (—two men).....	720
(9).....	2,160
CHALK #15. Wpn Plat Ldr.....	240
Rad/Tel Op.....	240
Aidman.....	240
1/4T Trl (on sling).....	565
(3).....	1,285
CHALK #16. Wpn Plat Sgt.....	240
1/4T Trk (on sling).....	2,273
(1).....	2,513
CHALK #17. Asst Gunner, 2d Antitank Sqd.....	240
1/4T Trk (on sling).....	2,273
(1).....	2,513
CHALK #18. 2d Antitank Sqd (—Asst Gunner).....	720
12 Rd 106 Ammo.....	720
106 RR.....	460
(3).....	1,900
CHALK #19. 1st Sqd, 3d Plat.....	2,400
(10)	
CHALK #20. 2d Sqd, 3d Plat.....	2,400
(10)	

	Pounds
CHALK #21. Plat Ldr, 3d Plat.....	240
Rad Op.....	240
Wpn Sqd Ldr.....	240
MG Team.....	480
90-mm Rifle Team.....	720
81-mm FO.....	240
(9).....	2,160
CHALK #22. 3d Sqd, 3d Plat.....	2,400
(10)	
CHALK #23. Plat Sgt, 1st Plat.....	240
MG Team.....	480
90-mm Rifle Team.....	720
1st 81-mm Sqd (4).....	960
(10).....	2,400
CHALK #24. 81-mm Sec Ldr.....	240
2 Fire Dir Cmpt.....	480
2d 81-mm Sqd.....	960
48 Rd 81-mm Mortar Ammo.....	720
(7).....	2,400
CHALK #25. 3d 81-mm Sqd.....	960
48 Rd 81-mm Mortar Ammo.....	1,440
(4).....	2,400

Notes.

1. Chalk Numbers 5, 8, 12, 14, 15, 18 and 21 would be loaded with bulk supplies required for mission not to exceed 2,500 pounds aircraft payload limitation.

* 2. The 75 mile radius mission is determined by the maximum distance a ¼ ton truck with VRQ-3 radio (2,508 pounds), or item of similar weight, can be externally transported by UH-1D aircraft.

3. The following number of personnel and equipment of the rifle company are included in the rear echelon; 11 personnel; 1-1½T trk w 1½T trl; 1-¼T trk (VRQ-3) w ¼T trl; 2¼T trk w ¼T trl; 6¾T trk w ¾T trl; 1 radar set, AN/PPS4.

b. Using 9CH-47 (Chinook) aircraft (100 mile radius mission):

	Pounds
CHALK #1. 1st Plat (—3d Sqd and 2 Additional Personnel).....	7,680
81-mm FO.....	240
(33).....	7,920
CHALK #2. 2d Plat (—3d Sqd and 2 Additional Personnel).....	7,680
81-mm FO.....	240
(33).....	7,920
CHALK #3. Company Commander.....	240
Comm Chief.....	240
Rad Op Lt Trk Dr.....	240
2 Wiremen.....	480
3d Sqd, 1st Plat, and 2 Additional Personnel from 1st Plat.....	2,880
Plat Sgt, Wpn Plat.....	240

		Pounds
	2 Aidmen.....	480
	1/4T Trk W/AN/VRQ 3.....	2,503
	1/4T Tlr.....	565
	(20).....	7,868
CHALK #4.	2d Sqd, 2d Plat, and 2 Additional Personnel from 2d Plat.....	2,880
	81-mm Mortar Sqd.....	960
	Antitank Sqd.....	960
	1/4T Trk w/106 RR and 6 Rd Ammo.....	3,093
	(20).....	7,893
CHALK #5.	3d Plat (—3d Sqd and 2 Additional Personnel).....	7,680
	81-mm FO.....	240
	(33).....	7,920
CHALK #6.	Plat Ldr, Wpn Plat.....	240
	First Sgt.....	240
	Rad Op.....	240
	Aidman.....	240
	3d Sqd, 3d Plat, and 2 Additional Personnel from 3d Plat.....	2,880
	Sec Ldr, 81-mm Mortar Sec.....	240
	2 Fire Dir Cmpt.....	480
	Sr Radar Op.....	240
	Radar Op.....	240
	Radar Set AN/PPS 4 (Included in Personnel Weight)	
	1/4T Trk.....	2,273
	1/4T Tlr.....	565
	(21).....	7,878
CHALK #7.	Sec Ldr, Gnd Survl Sec.....	240
	Sr Radar Op.....	240
	Radar Set AN/PPS 4 (included in personnel weight):	
	1/4T Trk.....	2,273
	1/4T Tlr.....	565
	81-mm Mortar Sqd.....	960
	96 Rd 81-mm Mortar Ammo.....	1,440
	6 Rd 106 RR Ammo.....	360
	(6).....	6,078
CHALK #8.	Sec Ldr, Antitank Sec.....	240
	Antitank Sqd.....	960
	1/4T Trk w/106 RR and 6 Rd Ammo.....	3,093
	6 Rd 106 RR Ammo.....	360
	48 Rd 81-mm Mortar Ammo.....	720
	81-mm Mortar Sqd.....	960
	(9).....	6,343
CHALK #9.	3 Personnel from 81-mm Mortar Sec Hq.....	720
	*3/4T Trk.....	5,917

	Pounds
*3/4T Tlr.....	1,340
(3).....	7,977

* For 106 RR and 81-mm Mortar Ammo.

Notes.

1. Chalk Numbers 3, 7 and 8 would be loaded with bulk supplies required for mission not to exceed 4 ton aircraft payload weight limitation.

2. The following number of personnel and equipment of the rifle company are included in the rear echelon; 9 personnel; 1-2½T trk w/ 1½T tlr; 1-¼T trk (VRQ 3) 2¼T tlr; 1-¼T trk w ¼T tlr; 5¾T trk w ¾T tlr.

c. Using 9 CV-2 (Caribou) aircraft (100 mile radius mission) :

		Pounds
CHALK #1.	Plat Ldr, 1st Plat.....	240
	Rad Tel Op.....	240
	1st Rifle Sqd, 1st Plat.....	2,400
	Wpn Sqd, 1st Plat.....	2,640
	81-mm FO.....	240
	Plat Sgt, 1st Plat.....	240
	1st Mortar Sqd.....	960
	Aidman.....	240
	(30).....	7,200
CHALK #2.	2d & 3d Rifle Sqd, 1st Plat.....	4,800
	1st Rifle Sqd, 2d Plat.....	2,400
	(30).....	7,200
CHALK #3.	CO.....	240
	Rad Tel Op.....	240
	Rad Tel Dr.....	240
	Wpn Plat Ldr.....	240
	1st Sgt.....	240
	Comm Chief.....	240
	Wireman.....	240
	Aidman.....	240
	1/4T Trk w/VRQ 3.....	2,503
	1/4T Tlr.....	565
	(8).....	4,988
CHALK #4.	Plat Ldr, 2d Plat.....	240
	Rad Tel Op.....	240
	2d Rifle Sqd, 2d Plat.....	2,400
	Wpn Sqd, 2d Plat.....	2,640
	2d Mortar Sqd.....	960
	81-mm FO.....	240
	Plat Sgt, 2d Plat.....	240
	Wpn Plat Sgt.....	240
	(30).....	7,200
CHALK #5.	3d Sqd, 2d Plat.....	2,400
	1st & 2d Sqd, 3d Plat.....	4,800
	(30).....	7,200

	<i>Pounds</i>		<i>Pounds</i>
CHALK #6.		1/4T Trk.....	2,273
1st Antitank Sqd.....	960	1/4T Tlr.....	565
Plat Ldr, 3d Plat.....	240	60 Rds 81-mm Ammo.....	900
Rad Tel Op.....	240		
3d Rifle Sqd, 3d Plat.....	2,400	(8).....	5,658
Aidman.....	240		
1/4T Trk w/106 RR.....	3,093		
(16).....	7,173	CHALK #9.	
		Gnd Survl Sec.....	960
CHALK #7.		81-mm FO.....	240
2d Antitank Sqd.....	960	1/4T Trk.....	2,273
Wpn Sqd, 3d Plat.....	2,640	1/4T Tlr.....	565
Plat Sgt, 3d Plat.....	240	84 Rds 81-mm Ammo.....	1,260
1/4T Trk w/106 RR.....	3,093	12 Rds 106 Ammo.....	720
(16).....	6,933	(5).....	6,018
CHALK #8.			
Wpn Plat, Rad Tel Op/Dr.....	240		
81-mm Sec Ldr.....	240		
Fire Dir Cmpt.....	480		
3d Mortar Sqd.....	960		

Notes.

1. Chalk Numbers 8, 6, 7 and 8 would be loaded with bulk supplies required for mission not to exceed 8½ ton payload limitation.
2. The following number of personnel and equipment of the rifle company are included in the rear echelon; 11 personnel; 1-2½T trk w 1½T tlr; 1-¼T trk (VRQ 8) w ¼T tlr; 1-¼T trk w ¼T tlr; 6¾T trk w ¾T tlr.

5. Infantry Battalion Type Loading Plans

- The rifle company elements may be loaded as indicated in the preceding type loads.
- Headquarters and Headquarters Company elements that can be airlifted using 25UH-1D and 9CH-47 aircraft, by section, assault and rear echelon:

<i>Section</i>	<i>Assault echelon</i>	<i>* Rear echelon</i>
BN HQ.....	3—PERSONNEL..... BN CO S3 S2	7—PERSONNEL
CO HQ.....		6—PERSONNEL 1—2½T TRK 1—1½T TLR, TANK WATER 1—3/4T TRK W/VRC-18 1—3/4T TLR
GND SURVL SEC.....	4—PERSONNEL..... 1 SEC SGT..... 1 SR RADAR OP..... 2 RADAR OP..... 1—RADAR SET, AN/TPS-33..... 1—3/4T TRK W/VRQ-3.....	4—PERSONNEL 1—RADAR SET, AN/TPS-33 1—3/4T TRK W/VRC-10 2—3/4T TLR
BN HQ SEC.....	9—PERSONNEL..... S3 AIR..... INTEL SGT..... OPN SGT..... 1 EA IS RAD TT OP..... 2 RAD TT OP..... 3 LT TRK DR..... 1—3/4T TRK W/GRC-46..... 1—3/4T TRK W/VRC-18 GRR-5, VRC-24..... 2—1/4T TRK W/2 EA VRC-10..... 1—1/4T TRK W/VRC-18.....	23—PERSONNEL 1—2½T TRK, VAN W/VRQ-3 1—1½T TLR 1—3/4T TRK W/GRC-46 1—3/4T TRK 1—3/4T TRK W/GRC-19 GRR-5 3—3/4T TLR 1—1/4T TRK W/2 EA VRC-10

* Note Other Staff Specialists could be taken as needed.

Section

Assault echelon

* Rear echelon

3—1/4T TRK W/VRC-18
1—1/4T TRK
8—1/4T TLR

BN MORTAR AND DAVY

CROCKETT PLAT HQ.....	10—PERSONNEL.....	4—PERSONNEL
	PLAT LDR.....	
	PLAT SGT.....	1—3/4T TRK W/GRR-5
	CH FIRE DIR CMPT.....	VRC-9, VRQ-3
	3 FORWARD OBS.....	
	(1 ATCH EA RIFLE CO).....	1—3/4T TLR
	2 FIRE DIR CMPT.....	
	2 LT TRK DR.....	3—1/4T TRK W/VRC-18
	2—1/4T TRK W/2 EA VRC-10..	3—1/4T TLR
	2—1/4T TLR.....	
	1—3/4T TRK W/GRR-5	
	VRC-9, VRQ-3.....	
	1—3/4T TLR.....	

DAVY CROCKETT SECTION(3)...

9—PERSONNEL
3 SQD LDR
3 GUNNER
3 ASST GUNNER
3—1/4T TRK W/DAVY
CROCKETT AND VRC-10

MORTAR SQD(4).....

24—PERSONNEL.....	4—PERSONNEL
4 SQD LDR	
4 MORTAR GUNNER.....	4—3/4T TRK
4 ASST MORTAR GUNNER	
12 AMMO BEARER.....	4—3/4T TLR
4—4.2 MORTAR	

RECON PLAT HQ.....

6—PERSONNEL
PLAT LDR
PLAT SGT
SCOUT OBSERVER
RAD TEL OP
2 LT TRK DR
1—1/4T TRK W/VRQ-3
1—1/4T TRK W/VRC-18

SCOUT SECTION.....

18—PERSONNEL
3 SQD LDR
3 ASST SQD LDR
6 SCOUT DR
6 SCOUT OBSERVER
3—1/4T TRK W/VRC-10
3—1/4T TRK

TANK SEC.....

8—PERSONNEL
1 SEC LDR

* Note Other Staff Specialists could be taken as needed.

Section

Assault echelon

** Rear echelon*

1 SQD LDR
2 GUNNER
2 LT TRK DR
2 LOADER

2—1/4T TRK W/106 RR, VRC-10

SUPPORT SQD..... 5—PERSONNEL
1—81-MM MORTAR
1—3/4T TRK W/VRC-10
1—3/4T TLR

ANTITANK PLAT HQ..... 3—PERSONNEL
PLAT LDR
PLAT SGT
1 RAD TEL OP
1—1/4T TRK W/VRC-18
1—1/4T TLR

3 ANTITANK SQD..... 12—PERSONNEL..... 3—PERSONNEL
3 SQD LDR
3 GUNNER
3 AMMO BEARER
3 ASST GUNNER
3—1/4T TRK W/ENTAC..... 3—3/4T TRK

COMM PLAT..... 3—PERSONNEL..... 24—PERSONNEL
2 IS RAD OP
1 FORWARD AIR
CONTROLLER (ATCH)..... 1—3/4T TRK W/VRQ-3
3—3/4T TRK
1—3/4T TRK W/VRC-35
1—3/4T TLR
4—3/4T TLR
1—1/4T TRK W/VRQ-3
5—1/4T TRK
6—1/4T TLR

BN MED SEC..... 12—PERSONNEL..... 23—PERSONNEL
(3 AIDMEN PER RIFLE CO).... 1—3/4T TRK
(3 AIDMEN HQ & HQ CO)..... 1—3/4T TLR
1—1/4T TRK W/VRC-18
1—1/4T TLR
6—1/4T AMB

SUPPORT PLAT HQ..... 2—PERSONNEL
1—1/4T TRK W/VRC-18
1—1/4T TLR

SUPPLY SEC..... 7—PERSONNEL
1—3/4T TRK W/VRC-18
1—3/4T TLR

TRANSPORTATION SEC..... 11—PERSONNEL
2—TRK, TANK, FUEL 21/2T
6—2½T TRK
4—1½T TLR, WATER TANK
2—1½T TLR

* Note Other Staff Specialists could be taken as needed.

<i>Section</i>	<i>Assault echelon</i>	<i>* Rear echelon</i>
BN MESS SEC.....		25—PERSONNEL 4—2½T TRK 4—1½T TLR
BN MAINTENANCE PLAT.....	2—PERSONNEL..... 1 SR WHEEL VEH MECH 1 WHEEL VEH MECH..... 1—3/4T TRK..... 1—3/4T TLR.....	17—PERSONNEL 1—5T TRK, WTR 3—2½T TRK 3—1½T TLR 1—3/4T TRK 1—3/4T TLR 1—1/4T TRK W/VRC-10 1—1/4T TLR

c. Type Loads.

(1) UH-1D.

		<i>Pounds</i>			<i>Pounds</i>
CHALK #1.	Bn CO.....	240	CHALK #14.	(1).....	2,513
	Bn S3.....	240		1/4T Trk w/VRC-10 (on sling).....	2,473
	Bn S2.....	240	CHALK #15.	3d Scout Dr.....	240
	Lt Trk Dr.....	720		1/4T Trk (on sling).....	2,273
	(6).....	1,440		(1).....	2,513
CHALK #2.	1/4T Trk w/2 each VRC-10 (on sling).....	2,503	CHALK #16.	1/4T Trk w/VRC-10 (on sling).....	2,423
CHALK #3.	1/4T Trk w/2 each VRC-10 (on sling).....	2,503			
CHALK #4.	1/4T Trk w/VRC-18 (on sling).....	2,423	CHALK #17.	Tank Sec Dr.....	240
CHALK #5.	Mortar Plat Ldr.....	240		1/4T Trk (on sling).....	2,273
	Mortar Plat Sgt.....	240		(1).....	2,513
	Lt Trk Dr.....	240	CHALK #18.	Recon Plat Sgt.....	240
	1/4T Tlr (on sling).....	565		Tank Sec Ldr.....	240
	Cargo.....	500		1st Tank Sqd (—Driver).....	720
	(3).....	1,785		106 RR.....	460
CHALK #6.	1/4 Trk w/2 each VRC-10 (on sling).....	2,503		12 Rds 106 RR Ammo.....	720
CHALK #7.	Recon Plat Ldr.....	240		(5).....	2,380
	Lt. Trk Dr.....	240	CHALK #19.	2d Tank Sqd (—Driver).....	720
	Scout Dr.....	240		106 RR.....	460
	Scout Observer.....	240		12 Rds 106 RR Ammo.....	720
	Rad Tel Op.....	240		(3).....	1,900
	1st Scout Sqd (—Driver).....	1,200	CHALK #20.	Antitank Plat Ldr.....	240
	(10).....	2,400		Antitank Plat Sgt.....	240
CHALK #8.	1/4T Trk w/VRQ-3 (on sling).....	2,503		Rad Tel Op/Dr.....	240
CHALK #9.	1/4T Trk w/VRC-18 (on sling).....	2,473		1/4T Tlr.....	565
CHALK #10.	Scout Dr.....	240		Cargo.....	500
	1/2T Trk (on sling).....	2,273		(3).....	1,785
	(1).....	2,513	CHALK #21.	1/4T Trk w/VRC-18 (on sling).....	2,473
CHALK #11.	2d Scout Sqd (—Driver).....	1,200	CHALK #22.	1st 4.2 Mortar Sqd.....	1,440
	3d Scout Sqd (—Driver).....	1,200		4.2 Mortar.....	640
	(10).....	2,400		4.2 Ammo.....	420
CHALK #12.	1/4T Trk w/VRC-10 (on sling).....	2,423		(6).....	2,500
CHALK #13.	2d Scout Dr.....	240			

* Note Other Staff Specialists could be taken as needed.

	Pounds
CHALK #23. 2d 4.2 Mortar Sqd.	1,440
4.2 Mortar.	640
4.2 Ammo.	420
(6)	2,500
CHALK #24. 3d 4.2 Mortar Sqd.	1,440
4.2 Mortar	640
4.2 Ammo.	420
(6)	2,500
CHALK #25. 4th Mortar Sqd.	1,440
4.2 Mortar	640
4.2 Ammo.	420
(6)	2,500
(2) HC-1.	
CHALK #26. Opn Sgt.	240
Intel Sgt.	240
IS Rad TT Op.	240
Rad TT Op.	240
3/4T Trk w/GRC-46.	7,043
(4)	8,003
CHALK #27. S3 Air.	240
Rad TT Op.	240
3 Aidmen.	720
3/4T Trk w/AN-VRC-18, GRR-5, VRC-24.	6,293
(5)	7,493
CHALK #28. Forward Air Controller (Atchd)	240
2 IS Rad TT Op.	480
3/4T Trk w/VRC-35 (Est)	6,372
(3)	7,092
CHALK #29. Survl Sec (—one team)	960
AN/TPS-33.	300

	Pounds
3/4T Trk w/VRQ-3.	6,147
(4)	7,207
CHALK #30. Ch Fire Dir Cmpt.	240
2 Fire Dir Cmpt.	480
3/4T Trk w/VRC-9, GRR-5, VRQ-3.	6,490
(3)	7,210
CHALK #31. Antitank Sqd.	960
Davy Crockett Sqd.	720
1/4T Trk w/ENTAC (Est)	2,733
1/4T Trk w/Davy Crockett and VRC-10 (Est)	2,867
(7)	7,280
CHALK #32. Davy Crockett Sqd.	720
Antitank Sqd.	960
1/4T Trk w/Davy Crockett and VRC-10 (Est)	2,867
1/4T Trk w/ENTAC (Est)	2,733
(7)	7,280
CHALK #33. Davy Crockett Sqd.	720
Antitank Sqd.	960
1/4T Trk w/Davy Crockett and VRC-10 (Est)	2,867
1/4T Trk w/ENTAC (Est)	2,733
(7)	7,280
CHALK #34. Maint Sec	
1 Sr Wheel Veh Mech.	240
1 Wheel Veh Mech.	240
1 3/4T Trk.	5,917
1 3/4T Tlr.	1,340
(2)	7,737

Notes.

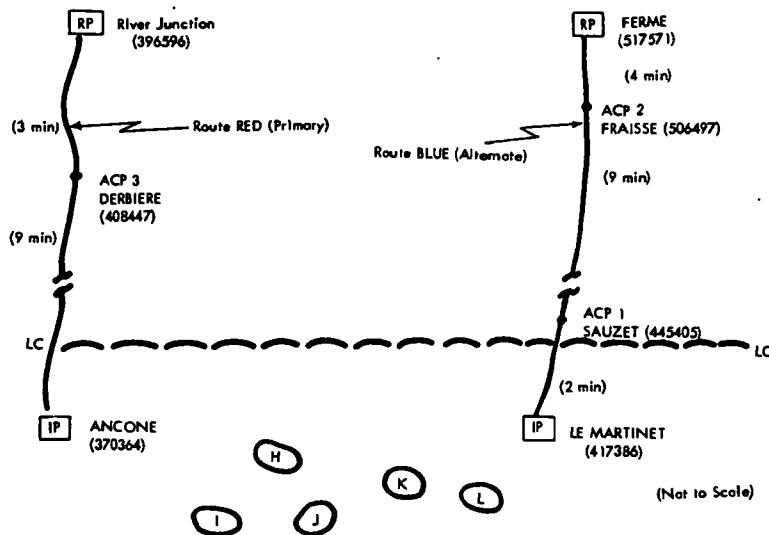
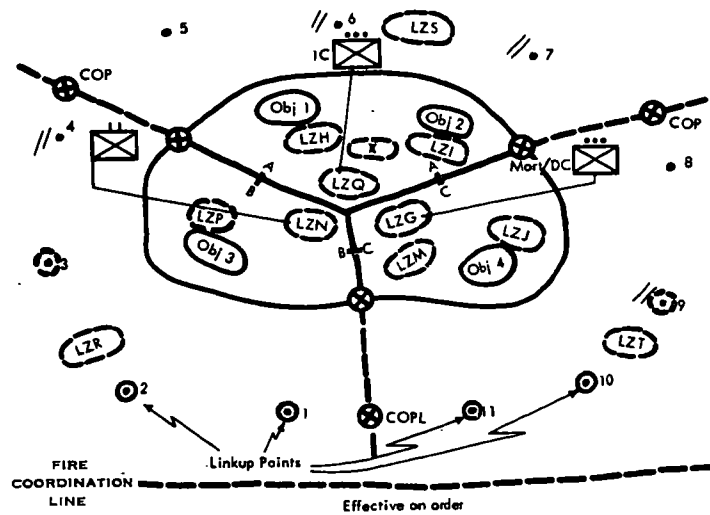
1. All chalk numbers would be loaded with bulk supplies required for mission not to exceed payload limitation for range mission planned.

2. The 75 mile radius is determined by the maximum distance a 1/4 ton truck w/VRQ-3 or item of similar weight can be externally transported by UH-1D aircraft.

APPENDIX VI

OPERATIONS ORDER

(CLASSIFICATION)



Operation overlay—battalion airmobile operation.

(CLASSIFICATION)

(CLASSIFICATION)

Copy No. _____
TF 1/66 Inf
LE PAVILLON (395365)
011800 Oct. 19 _____
SU531

OPORD 42

Reference: Map, FRANCE, 1:50,000, MONTELIMAR 1 & 2, 3 & 4 Sheets.

1. SITUATION

- a. Enemy forces: Annex A, Intelligence.
- b. Friendly forces:
 - (1) 1st Bde (—TF 1/66 Inf) attacks 030500 Oct., seizes Obj 121, continues attack to north on order.
 - (2) TF 1/67 Inf seizes Obj 11, link up with TF 1/66 Inf and continues attack to north on order.
 - (3) 1/45 Arty DS 1st Bde.
 - (4) 1/46 Arty reinf 1/45 Arty.
 - (5) 1st TAF supports 1st (US) Corps with priority to 21st Inf Div.
 - (6) Annex B, Fire Support Plan.
 - (7) 405th Assault Support Helicopter Battalion supports 1st Bde; priority to TF 1/66 Inf for the airmobile assault phase.
- c. Attachments and detachments:
 - (1) 2 obsn hel, 1st Bde Avn Plat, attached for operational control 011800 Oct.
 - (2) 1 A/21 Engr attached 011800 Oct.

2. MISSION

TF 1/66 Inf executes airmobile assault beginning 030600 Oct. to seize railroad and highway bridges vic LIVRON-SUR-DROME (4659); seizes, organizes and defends objective area astride DROME River until link up with TF 1/67 Inf; upon link up, assumes control of all forces in obj area; on order, reverts to 1st Bde reserve.

3. EXECUTION

- a. Concept of operation: TF 1/66 Inf conducts airmobile assault to seize Obj's 1, 2, 3, and 4; clears objective area and defends until link up with TF 1/67 Inf, assists passage of TF 1/67 Inf; 1 plat, Co C, is bn reserve Priority of fires to Co A.
- b. A1/66:
Attached: 1 AT Sqd.
 - (1) Seize Obj's 1 and 2; defend in sector.
 - (2) Upon seizure of bridge (453596), secure with minimum of 1 rifle plat.
- c. B1/66:
 - (1) Seize Obj 3; defend in sector.
 - (2) Block enemy movement toward bridges vic LIVRON-SUR-DROME.
- d. C1/66:
 - (1) Provide one plat TF control reserve.

(CLASSIFICATION)

(CLASSIFICATION)

- (2) Co (—):
- (a) Seize Obj 4; defend in sector.
 - (b) Block enemy movement toward bridge vic LIVRON-SUR-DROME.
- e. 1C1/66:
- (1) Prepare to assist in seizure of Obj's 1 and 2 in that priority.
 - (2) Prepare blocking pos X-Ray; occupy on order.
- f. Recon Plat:
- Attached: 1A/21 Engr.
- (1) Establish COP; screen likely avenues of approach approximately 1,000 meters forward of COP.
 - (2) Establish roadblocks at COP pos's 4, 6, 7, and 9.
 - (3) Upon withdrawal of COP provide rear area security forces as directed.
- g. Mort/DC Plat:
- (1) Mort: GS.
 - (2) DC: Move with rear echelon.
- h. AT Plat:
- (1) Attach 1 Sqd to A1/66.
 - (2) Plat (—): GS.
- i. 1A/21 Engr: Attached to Recon Plat.
- j. Coordinating instructions:
- (1) Each Rifle Co attach 1 Radar Team to Recon Plat for use on COPL. Teams revert to company control on order.
 - (2) Engr Plat revert to bn con on order; be prepared to clear approaches to bridges located on Obj 2, on order.
 - (3) Attachments effective 020800 Oct.
 - (4) A-Hour 030600 Oct. (landing time 1st Serial).
 - (5) Link up Plan—Annex C.
 - (6) Companies assume control COP on order.
 - (7) Movement data:
 - (a) Route Red primary for approach Blue for return; route Blue alternate for approach. Red alternate for return.
 - (b) Formation: Vee's in trail.
 - (c) Altitude: 25–100 feet.
 - (d) Speed: 70 knots.
 - (e) Time table:

Serial	Trans Avn Unit	Trans- ported Unit	No. Load Hel Area	Load Time	Take- off Time	IP Time	RP Time	Landing Zone or Objective	Remarks
1	4051 Aslt Spt	A	20 L	0540	0544	0547	0559	<u>LZH</u> <u>LZI</u>	
2	4052 Aslt Spt	Recon &	14 J	0545	0549	0552	0604	<u>LZR,S,T</u> <u>LZN</u>	Comd Gp to <u>LZN</u>

(CLASSIFICATION)

(CLASSIFICATION)

Co Engr
(—6 Hel) Plat
 Comd Gp

3	4053	B	20	H	0550	0554	0557	0609	<u>LZP</u> ,	Mort/DC
	Aslt	Mort/DC							<u>Obj</u> 3	Plat to <u>LZN</u>
	Spt	Plat							<u>LZN</u>	
	Co									
	6 Hel,									
	4052		6							
	Aslt									
	Spt Co									

4	4055	C	20	K	0555	0559	0602	0614	<u>LZJ</u> ,	Res Plat
	Aslt								<u>Obj</u> 4	to <u>LZQ</u>
	Spt Co								<u>LZQ</u>	
	2 Hel,	AT Plat							<u>LZM</u>	
	4054	(—)	2							
	Aslt									
	Spt Co									

5	4054	HQ Co	14	J	0600	0604	0607	0619	<u>LZN</u>	CP to <u>LZN</u> ;
	Aslt	(—)							<u>LZG</u>	LOG ELMS to
	Spt Co									LZG
	(—2 Hel)									

4. ADMINISTRATION AND LOGISTICS

ADMINO 41

5. COMMAND AND SIGNAL

a. Signal:

- (1) SOI, Index 1–12.
- (2) For linkup, Annex C.

b. Command:

- (1) TF 1/66 Inf CP opening to be announced by radio.
- (2) TF 1/66 Inf CO to accompany 2d Serial.

Acknowledge

Annexes: A—Intelligence *

B—Fire Support Plan *

C—Linkup Plan

THOMPSON

Lt Col

Distribution: A

TF 1/67 Inf

OFFICIAL:

SELLERA

S3

* This annex not illustrated in this order.

(CLASSIFICATION)

(CLASSIFICATION)

Copy No. _____
TF 1/66 Inf
LE PAVILLON (395365)
011800 Oct. 19 _____
SU531

ANNEX C (Linkup Plan) to OPORD 42

Reference: Map, FRANCE, 1:50,000, MONTELMAR 1 & 2, 3 & 4 Sheets.

1. Linkup target time: 031900 Oct.
2. Linkup points: COP pos's 1, 2, 10 and 11.
3. Command:
 - a. CO TF 1/66 Inf assumes command of all forces in objective area at time of linkup.
 - b. TF 1/66 Inf reverts to Bde con on order 1st Bde CO.
4. Liaison officers will be exchanged with TF 1/67 Inf at 011800 Oct.
5. Fire Support:
 - a. Fire Support Plans will be exchanged with TF 1/67 Inf as they become firm.
 - b. Plans coordinated with 1st Bde.
 - c. Fire Coordination Line—See overlay.
 - d. NFL—Coordinate with TF 1/67 Inf and 1st Bde.
6. Signal:
 - a. Maintain one CW and one radio link with TF 1/67 Inf and 1st Bde.
 - b. Call signs and frequencies to be exchanged with TF 1/67 Inf.
 - c. Recognition means:
 - (1) Force in objective area: Red parachute flare when linkup forces sighted or in answer to flare fired by linkup force.
 - (2) Linkup force: Green parachute flare when forces in objective area are sighted or in answer to flare fired by forces in objective area.
 - (3) Forces in objective area wear white armband on left arm.
 - (4) Linkup forces wear white armband on right arm.
 - (5) Emergency and supplementary means will be through use of radar. Either force swing canteen 3 times overhead; acknowledgment by other force will be swing canteen 2 times overhead, pause, then swing canteen overhead 2 times.
 - (6) Alternate means for night time: Swing flashlight in overhead arc. Acknowledgment will be by same means.
7. Other matters:
 - a. TF 1/66 Inf rear echelon move with TF 1/67 Inf; revert to TF 1/66 Inf Control after link up.
 - b. Logistics. ADMINO 41.
 - c. Plans to be exchanged with TF 1/67 Inf and coordinated with 1st Bde as they become firm.

THOMPSON
Lt Col

Distribution: A
OFFICIAL:

SELLERA
S3

(CLASSIFICATION)

APPENDIX VII

STANDING OPERATING PROCEDURE

(CLASSIFICATION)

Copy No. _____
2d Inf Bn, 76th Inf
APO 10, US Army
1 Jan. _____

Annex E (Airmobile Operations) to SOP No. _____

1. GENERAL

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.

2. PERSONNEL

a. Strengths, Records, and Reports.

- (1) As soon as practicable after receiving the warning order units submit reports, by companies, of the number of men in assault echelon and in the rear echelon.
- (2) A 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) Persons landed in other than assigned zones within the objective area join friendly units encountered. Rejoin parent unit when ordered by this headquarters (HQ).
- (3) Stragglers integrated from other units reported by name and organization as soon as practicable to this HQ.

c. Prisoners of War. Only prisoners of war designated by battalion S2 are evacuated from the objective area by air prior to linkup.

d. Graves Registration. Deceased personnel will be evacuated from objective area after linkup.

3. INTELLIGENCE

a. Weather.

- (1) Long-period forecast immediately after receipt of mission.
- (2) Short-period forecasts up to takeoff time.
- (3) When weather is below established minimums, operations executed only on specific instructions of this HQ.

(CLASSIFICATION)

(CLASSIFICATION)

b. Terrain.

(1) Maps and airphotos obtained and disseminated to company level in this priority:

- (a) Large-scale map coverage of objective area.
- (b) Large-scale, low-oblique airphotos of objective area with emphasis on landing zones and objectives.
- (c) Appropriate scale map coverage of routes of flight to and from the objective area.

(2) Maximum use of terrain models (sandtables) for briefings.

c. Counterintelligence.

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

d. Evasion and Escape. Personnel in aircraft forced to land prior to arrival on objective will take the following action:

- (1) If practicable, move overland immediately to join friendly units.
- (2) 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.
- (3) If (1) and (2) above are precluded by pursuing enemy, evade capture and attempt to join friendly units by infiltration. If casualties cannot be evacuated, medical supplies and medical personnel, if available, will be left with them. The decision to abandon casualties is the responsibility of the ranking individual present. Continuous attempts will be made to locate suitable sites for evacuation by aircraft.

4. OPERATIONS

a. Planning.

(1) Except when accomplished by higher HQ, this HQ will accomplish the following plans for all airmobile operations (subordinate units participate in planning):

- (a) Determine the size and composition of the force required to execute the mission.
- (b) Allocate transport aircraft for the operations and notify subordinate units of allowable cargo load.
- (c) Approve approach, return, alternate routes, and route corridors.
- (d) Approve altitudes and formations to be flown.
- (e) Approve loading areas to be used by participating units.

(2) Transport aviation unit commander will assist transported units in planning movement.

b. Training and Rehearsals.

- (1) Prior to executing an airmobile operation, participating personnel will receive instruction in the following:
 - (a) Conduct of airmobile operations.

(CLASSIFICATION)

(CLASSIFICATION)

- (b) Indoctrination in psychological problems inherent in air-mobile operations.
 - (c) Familiarization with loading, lashing, and unloading of type aircraft to be employed. (Aircraft requested by this HQ.)
 - (d) Assembly techniques.
 - (e) Evasion and escape tactics.
- (2) 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, low-oblique photos and maps of the objective area.

c. Loading.

- (1) Loading areas designated by this HQ.
- (2) Flight serials broken down into flight units as required by the movement, landing, and ground tactical plans.
- (3) Aircraft arrive at approved loading sites, by flight units, at the latest possible time. Individual aircraft within flight units marked according to airloading tables prior to arrival. Marking is the responsibility of the transport aviation unit.
- (4) Supporting transport aviation units assist in the planning for the execution of loading by providing technical advice and supervision.
- (5) Aircraft commander supervises aircraft loading.
- (6) Cargo or equipment to be transported externally 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 accomplished by aviation unit personnel.
- (7) When loading personnel or cargo into an aircraft, the troop commander insures 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 approach the helicopter from the direction of the nose so that the aviator can see them approaching.
 - (c) In loading helicopters no person 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 approach from the rear.
- (8) After all equipment and personnel have been loaded, the troop commander determines that:
 - (a) The equipment and cargo are in their proper place.
 - (b) The cargo or equipment required to be lashed is properly secured.

(CLASSIFICATION)

(CLASSIFICATION)

- (c) Each man is seated and has his safety belt fastened.
 - (d) Cargo compartment door(s) is closed and locked, or safety strap across door is properly fastened, as directed for the operation.
- (9) Briefing on emergency signals is conducted by aviation unit representative prior to loading.
- (10) When the troop commander has checked to insure that all cargo and personnel are secured, he will notify the aviator orally.
- (11) During flight the aviator commands the aircraft. Troop commander insures that:
 - (a) Cargo lashings (if applicable) are checked frequently to determine that cargo is properly secured.
 - (b) Troops keep safety belts secured and do not smoke unless authorized.
 - (c) Troops stay seated and do not move around in the cargo compartment without proper authorization.
- d. Air Movement.
 - (1) Pathfinder units, as required, may be employed in the objective area for aircraft control.
 - (2) Air control points (minimum of an IP and RP) designated to assist movement control.
 - (3) Time of takeoff, arrival at air control points, and landing will be as specified in air movement tables. Inability to comply with specified control times to be reported by flight serial commanders.
- e. Unloading.
 - (1) The aviator will notify the troop commander when the aircraft is four minutes out from the landing site. The troop commander then alerts members of the unit to be prepared to unload.
 - (2) No movement is made in the cargo compartment until clearance has been obtained from the aviator. After the aviator gives the clearance signal with the alarm bell, the commander of the troops has them release their safety belts and has the cargo unlashed, if applicable. He will then open the cargo door(s) and have the troops and equipment unloaded in reverse order from that in which the aircraft was loaded.
 - (3) After all troops and cargo have been unloaded from the aircraft, the crew chief will close the cargo compartment door(s) and signal the aviator that the cargo compartment is empty. Personnel will not depart aircraft (UH-1 series, CH-19, and CH-34) by going around the rear of the aircraft.
 - (4) The troop commander insures that members of his unit clear the unloading site in a safe, expeditious manner to prevent exposing personnel to unnecessary danger and to prevent any delay in takeoff or landing of aircraft.

(CLASSIFICATION)

(CLASSIFICATION)

- (5) Indigenous personnel in objective area are utilized upon approval this HQ only.

5. LOGISTICS

a. Supply.

- (1) Accompanying supplies (all classes). Prescribed load announced by this HQ for each operation. Followup and routine supplies planned by this HQ.
- (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 HQ for disposition instructions.
- (3) Captured materiel. Captured materiel may be used by capturing units. Captured munitions and fuel may be used on approval this HQ.

b. Medical Service.

- (1) Aeromedical evacuation of patients until ground link up or withdrawal.
- (2) Medical resupply, air movement, and aeromedical evacuation of patients as prescribed for other operations except as modified herein.

(c) Transportation and Troop Movement.

- (1) Motor:
- (a) Allocation of accompanying organic transport by this HQ.
- (b) Maximum use of captured vehicles to meet motor transportation requirements.
- (2) Aircraft: Allocation of supporting transport aircraft by this HQ.

d. Service.

- (1) When required, technical service teams will be provided participating units on request.
- (2) On link up, nearest supporting units provide necessary service.

THOMPSON
Lt Col

Distribution: A
OFFICIAL:
SELLERA
S3

(CLASSIFICATION)

INDEX

	Paragraph	Page		Paragraph	Page
Action, delaying	66	32	Relationships	8	5
Action, withdrawal	67	32	Responsibilities	9	5
Administrative duties	26	13	Commanders:		
Aircraft:			Aviation units	83	39
Availability	19	9	Ground forces	82	39
Loading	16	7	Major units	81	39
Refueling	14	7	Communications	23	11
Aircraft loading data	app. V	55	Counterguerrilla operations	77	36
Aircraft—personnel rehearsals	13	7	Defense against:		
Airmobile:			Airborne attack	65	32
Force	2	3	Armor	44	20
Missions	5	4	Nuclear attack	45	20
Operations	2	3	Defense, conduct	43	20
Airmobile operations:			Delaying action	66	32
Characteristics	3	3	Echelonment:		
Employment concepts	4	4	Assault	29	13
Flexibility	30	14	Rear	29	13
Airplane:			Resupply	29	13
Capabilities	17	8	Enemy	35	15
Limitations	17	8	Evacuation	25	12
Air movement plan	48, 49	23	Fire support coordination line	38	16
Altitude	49	23	Flight:		
Amphibious operations:			Corridor	49	23
Liaison	72	34	Formation	49	23
Planning	71	34	Routes	49	23
Responsibilities	70	34	Speed	49	23
Training	73	34	Graves registration	26	13
Army aviation	7	4	Ground force commanders	82	39
Assault, conduct	40	18	Helicopters:		
Assault, types	40	18	Capabilities	17	8
Assembly	47	21	Limitations	17	8
Assembly areas	38	16	Hospitalization	25	12
Assembly techniques	app. IV	51	Infiltration	75	36
Aviation support plans	12	7	Intelligence	33, 36	15, 16
Aviation unit commanders	83	39	Landing	47	21
Briefings	51	24	Landing-drop zones	app. III	47
Casualty report	26	13	Landing zones	46	21
Combat outpost line	42	19	Linkup	76	36
Combat outposts	41	19	Loading	50, 52-53	24, 55
Command:			Loading plans, sample	app. V	
Liaison	11	6			
Planning	28, 32	13, 14			

	Paragraph	Page		Paragraph	Page
Loading sites:			Infiltration	75	36
Loading	16	7	Linkup	76	36
Movement	15	7	Operation timing	47	21
Manifests	54	25	Operation under nuclear conditions	79	37
Movement control	49	23	Pathfinders	app. II	44
Night flight operations:			Planning sequence	32	14
Advantages	18	9	Prisoners of war	26	13
Disadvantages	18	9	Raids	74	34
Requisites	18	9	Reconnaissance	31	14
Night operations	78	37	Rehearsals	90	41
No fire line	38	16	Rehearsals, aircraft personnel	13	7
Nuclear safety line	38	16	Reorganization	47	21
Nuclear warfare operations	79	37	Reserves	38	16
Objective area	38	16	Retirement	68	33
Objectives:			Sectors	38	16
Development	42	19	Security forces	38	16
Seizure	41	19	Standing operating procedure	app. VII	69
Operations:			Strength messages	26	13
Attack of delaying positions	59	28	Supply, classes	24	12
Attack of organized positions	60	28	Tactical plan, ground	38, 39	16, 17
Attack of river line	61	29	Timing of operation	47	21
Counterattack	63	30	Training:		
Frontline units, relief	64	31	Aviation units	86	40
Meeting engagement	58	27	Combined	88	40
Movement to contact	57	26	Ground combat units	86	40
Pursuit	62	30	Sequence	89	41
Operations, counter guerrilla	77	36	Staff	87	40
Operations, night	78	37	Training, conduct	84	39
Operations order	app. VI	64	Transportation	27	13
Operations, special:			Weather-terrain	34	15
Raids	74	34	Withdrawal from action	67	32

By Order of the Secretary of the Army:

EARLE G. WHEELER,
General, United States Army,
Chief of Staff.

Official:

J. C. LAMBERT,
Major General, United States Army,
The Adjutant General.

Distribution

Active Army:

DCSPER (2)
ACSI (2)
DCSLOG (2)
Ofc Res Comp (2)
CRD (1)
COA (1)
CINFO (1)
TIG (1)
TJAG (1)
TPMG (1)
TSG (1)
CofEngrs (1)
CofCh (1)
USCONARC (10)
OPO (2)
ARADCOM (1)
USACDC (20)
USACAG (10)
USA CD Agcy (5) except
 USAICDA (10)
USACSSG (5)
USASDEG (5)
USA CD Experimentation Cen (10)
USA CD Nuclear Gp (1)
Armies (5)
LOGCOMD (1)
Corps (3) except
XVIII Abn Corps (400)

Div (5) except
 11 Air Aslt Div (200)
Div Arty (2)
Bde (5)
Regt/Gp/bg (3)
Bn (5)
Co/Btry (5)
USAADS (10)
USACMLCSCH (155)
USAES (300)
USAINTS (10)
USAMFSS (300)
USASWS (200)
USATSCH (370)
USAQMS (15)
USAWC (25)
Units org under fol TOE:
 (2 copies each)
 1-7
 1-57
 17-45
 17-46
 17-52
 17-56
 17-77
 17-85
 17-86
 55-56

NG: Same as active Army except allowance is one copy to each unit.

USAR: Same as active Army except allowance is one copy to each unit.

For explanation of abbreviations used, see AR 320-50.

3000021353

FM 31-53 AIRMOBILE OPERATIONS—1963

