FM 57-10

DEPARTMENT OF THE ARMY FIELD MANUAL

ARMY FORCES IN JOINT AIRBORNE OPERATIONS

HEADQUARTERS, DEPARTMENT OF THE ARMY

MARCH 1962

AGO 4887B

FIELD MANUAL
No. 57–10

HEADQUARTERS,
DEPARTMENT OF THE ARMY
WASHINGTON 25, D. C., *15 March 1962*

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* This manual supersedes FM 57–30, 31 July 1959, and applicable portions of FM 57–100, 9 September 1959.

CHAPTER 1
INTRODUCTION

Section I. GENERAL

1. Purpose

This manual sets forth tactical and administrative support doctrine for the employment of Army forces in joint airborne operations. It covers command and staff procedures, tactics, and techniques used in the planning and execution of such operations.

2. Scope

a. The discussions in this manual are written in general terms so as to be applicable to large or small units participating in joint airborne operations. For the purpose of simplicity in this manual the term "airborne force" is used throughout when referring to the Army component, although it is recognized the term "airborne force" when applied to a joint airborne operation includes both air and land forces. Only when necessary for clarity will the discussion be geared to a division level organization. These specific discussions are clearly marked in the text.

b. Of primary concern are the tactics and techniques peculiar to airborne operations. Details of unit organization and capabilities, and guidance for employment of units in other than airborne operations are contained in other appropriate field manuals.

c. Where reference is made to functions and responsibilities of the theater army logistical command, it should be understood that similiar functions are performed by any administrative agency which has been designated to support the airborne operation.

d. Basic material is applicable to nuclear warfare. Where appropriate, modifying guidance for other forms of war is included.

e. Users are encouraged to submit recommended changes to this manual. Changes should be submitted on DA Form 1598 and forwarded direct to U.S. Army Command and General Staff College.

Section II. BASIC CONSIDERATIONS

3. General

a. An airborne operation involves the movement and delivery by air, into an objective area, of combat forces and their logistic

support for the execution of a tactical or strategic mission. The means employed may be any combination of airborne units, air transportable units, and transport aircraft, depending on the mission and the situation. Whenever the term "airborne operations" is used in this manual, it is construed to mean joint airborne operations.

(1) A joint airborne operation is one conducted by Army forces together with forces of another service, usually the Air Force.

(2) For doctrine on airmobile operations using Army aircraft, see FM's 57–35, 7–20, and 7–30.

b. The major differences between joint airborne operations and airmobile operations are—

(1) Command and control of the air transport means.

(2) Characteristics of the aircraft.

(3) Size and scope of operations.

(4) Degree of administrative support and preparation required. Details concerning airmobile operations are contained in FM's 7–11, 7–15, 7–20, 7–30, and 57–35.

c. An administrative air movement of personnel, supplies, or equipment is not termed an airborne operation, although some of the techniques employed in an airborne operation may be applicable.

d. An airborne unit is organized, equipped, and trained primarily for making an airborne assault by parachute or airlanding by assault aircraft. Units other than airborne are normally employed in airborne operations in a followup air landed role, but may, if circumstances permit, execute air landed assaults (par. 9*g*).

4. Operational Environment

a. General. The strategic mobility of airborne forces permits their employment in a wide range of operational environments to include either active war or cold war.

b. Active War. A major consideration in active war is the scale of use of nuclear weapons, which may vary in range from a very high level of usage through a low level to none at all. The commander must carefully evaluate the scale or probable scale of usage to determine the allowable pattern of operations for each situation. The enemy's nuclear capability must be sufficiently reduced to permit the conduct of airborne operations without incurring unacceptable losses, or the probability of his using nuclear weapons must be sufficiently low to justify the risk.

c. Cold War.

(1) The equipment, organization, and training of airborne forces permit their rapid deployment by air to any area of the world.

(2) Planning and training of airborne units in preparation for participation in cold war situations emphasize operations against irregular forces.

(3) Administrative support requirements in a cold war environment are normally characterized by a maximum use of air lines of communication, limited support force structure and base complexes, and use of prestocked land or floating strategic bases.

5. Missions

Airborne forces may be assigned missions of strategic as well as tactical significance in active war or cold war. Typical missions are to—

a. Seize and hold important objectives until ground linkup.

b. Conduct an exploitation from an area seized by an airborne assault.

c. Occupy areas or reinforce units beyond the immediate reach of surface forces.

d. Conduct airborne raids.

e. Seize an advance base for the further deployment of forces of any of the services.

f. Move by air on short notice to an oversea land area as a deterrent or resistance force.

g. Constitute a strategic reserve.

h. Conduct harassing and interdiction missions behind enemy lines.

i. Control areas and the civilian population therein.

6. Characteristics of Airborne Operations

a. Joint airborne operations require careful coordination between participating services. Detailed coordination with troop carrier units is accomplished during joint briefings, in aircraft loading, and in the scheme for delivery of forces into the objective area.

b. Ground tactical operations of airborne units are similar to operations of other ground combat units, differing in the amount of armor and other heavy equipment in the objective area. Air-

borne forces rely on artillery, air force, and naval fire support from outside the objective area since reinforcing fires normally are not available within the objective area. The general disposition of forces in the objective area permits rapid shifting of reserves and fires.

c. Multiple dispersed marshalling camps, airfields, and air landing facilities are required in the departure area. The number required and degree of dispersion is dependent upon the enemy capability to interfere with marshalling and takeoff. Drop zones and landing zones are required in the objective area. Sufficient air transport and offensive air effort must be available to insure successful movement of units and their equipment to the objective area, and to supply the force for the required length of time.

d. Characteristics of parachute operations and air landed operations are as follows:

(1) Parachute operations require specially trained units and use of air delivery equipment. Ground units employed in an air landed role require a lesser amount of specialized training and equipment.

(2) Parachute delivery may be made on any terrain relatively free of obstacles. Assault landings, using assault aircraft, require moderately level and unobstructed terrain having suitable trafficability.

(3) Air landed operations with Air Force aircraft other than assault aircraft require the use of airfields or improved air landing facilities. Aircraft with short or vertical takeoff and landing characteristics require minimum landing facilities and extend the versatility of airborne forces through their ability to land in areas otherwise accessible only to units landed by parachute.

(4) Parachute landings permit rapid, near simultaneous, delivery of forces. Air landings normally require more time for delivery, but forces are delivered in small, tactical groupings organized to facilitate assembly and commitment to combat.

(5) All equipment organic to the airborne division planned for use in the objective area, except Army aircraft, can be delivered by parachute. Some types of Army aircraft can be air landed by transport aircraft; others can be flown into the objective area, range permitting. Air landed operations permit movement of the heavier and bulkier combat and combat support equipment of certain ground units.

(6) In air landed operations, aircraft may be used for

evacuating personnel and materiel from the objective area.

7. Capabilities of Airborne Forces

a. Airborne forces provide a means by which a commander can decisively influence operations. When provided with adequate air transport means, they can make aerial intertheater as well as intratheater movements.

b. Strategic surprise can be obtained by rapid shifts of airborne forces over great distances. Tactical surprise is achieved by the sudden, undetected, mass delivery of combat forces into the enemy area.

c. Airborne forces can overfly major terrain barriers and conduct military operations. They are particularly well suited for execution of turning movements, for employment in conjunction with armored or other mobile forces, and for exploitation of field artillery, air, or naval fires on relatively distant objectives. Airborne forces can conduct small scale, widely dispersed operations during a high level nuclear exchange and seize, neutralize, or destroy enemy nuclear means.

8. Limitations of Airborne Forces

a. Airborne forces are vulnerable to enemy armor attacks. Antitank weapons, strong air support, and proper selection and utilization of terrain can reduce this vulnerability.

b. Unfavorable weather, including low visibility, heavy precipitation, and high winds, as it influences aircraft capabilities and parachute delivery, is more restrictive on airborne operations than on ground operations; however, some meteorological effects can be overcome by appropriate use of electronic navigational and landing aids.

c. Air superiority en route to and over the objective area is required for airborne operations. Enemy air defense means must be neutralized, suppressed, or avoided.

d. When conducting sustained operations, the airborne division normally should be augmented by combat support and logistic support elements.

e. Once on the ground, the mobility of airborne combat forces is dependent on the numbers and types of ground and air vehicles which can be brought into, and supported within the objective area.

f. The availability of airlift.

9. Concepts of Employment

a. Airborne forces normally are not committed on missions that can be performed as economically or as expeditiously by other combat forces. Movement by long-range aircraft allows strategic deployment of airborne forces on short notice to any area of the world. These forces may be moved directly to the objective area, or may be moved to forward bases from which they can be relifted by medium transport and assault aircraft to conduct airborne assault operations. An airborne capability constitutes a strategic threat which may compel the enemy to disperse and dissipate his forces to protect vital installations in his rear areas and on his flanks.

b. Airborne forces may be committed to exploit the results of a nuclear attack when existing radiation in areas of employment is within acceptable limits.

c. The control and planning for joint airborne operations normally is accomplished at theater level. Commanders of subordinate echelons may request commitment of airborne forces where warranted. Airborne commanders must keep themselves informed of the theater situation in order to recommend employment of airborne forces.

d. Airborne operations may be conducted into areas occupied by well organized enemy combat forces when preceded by neutralizing preassault air or field artillery bombardment.

e. Airborne operations can be conducted in daylight or during darkness. The inherent difficulties of night operations favor launching major airborne assaults during daylight. It is desirable to conduct loading and a major portion of the air movement during darkness in order to conceal these operations. Establishing a recognizable pattern in the timing of the assaults is avoided.

f. In major airborne operations, the initial assault normally will be made by parachute elements. Air landed units may then move into protected landing areas to exploit the tactical advantage gained or to conduct other operations. When required, airborne operations may be conducted entirely by parachute. Air landed units can conduct assault operations without having been preceded by a parachute assault if the landing area is undefended or lightly defended, or neutralized. The airborne force is most vulnerable to enemy counterattack during the period immediately after landing. Movement of strong enemy forces to the airhead area during this period must be prevented.

g. Dependent upon the mission, enemy capabilities, forces available, weather, the terrain in the objective area, and the

planned time until linkup, reinforcement, or withdrawal, the airborne force may attack in one of two ways. It may be employed in a single airhead with all combat elements within supporting distance of each other, or its subordinate combat elements may be deployed in multiple airheads on missions independent of, or only partially dependent upon, the action of the remainder of the force.

(1) The selection of a single airhead facilitates control, coordination, and planning but may complicate the problem of achieving adequate dispersion. This method of employment may make it easier for the enemy to determine the location and size of the airborne force and to counterattack, particularly with nuclear weapons.

(2) Multiple airheads complicate control, but have the advantage of providing more dispersion and making the acquisition of intelligence more difficult for the enemy. The possibility of defeat in detail is greater.

h. The term "objective area" as it is used in airborne operations, is the proposed area of airborne operations and includes the airhead. The airhead in an operation of long duration must contain an adequate number of airfields or terrain suitable for air landing facilities to support the logistical requirements for the period of the operation.

10. Phases of an Airborne Operation

Planning, preparation, and conduct of a joint airborne operation progresses through the following three phases:

a. Mounting Phase. That period of time from receipt of the planning directive until aircraft are loaded and ready for takeoff is known as the mounting phase. During this period, tactical and administrative planning is accomplished, and troops, equipment, and supplies are assembled and readied for the operation. Marshalling takes place during the last part of the mounting phase. For details on marshalling see paragraphs 80 through 86.

b. Air Movement Phase. That period of the airborne operation beginning with the takeoff of loaded aircraft from the loading sites and ending with the delivery of units to their drop zone or landing zones is the air movement phase.

c. Assault Phase. That period of the airborne operation beginning with the initial assault landing of units on their drop zones or landing zones and extending through the seizure of assault objectives and the consolidation of the initial airhead is the assault phase.

11. Subsequent Operations

After the assault phase, operations in the objective area may consist of the offense, defense, linkup, or withdrawal (FM 61–100). Since airborne forces seek to retain the initiative while operating in enemy territory, the defense may include limited offensive operations to seize additional objectives which facilitate the defense or favor future operations. Withdrawal may be executed after accomplishment of the mission or when forced by enemy action.

12. Operations in Difficult Terrain

Airborne forces are organized and equipped to conduct ground combat operations in difficult terrain such as jungles and mountains. Lightweight equipment, foot mobility, helicopter support, and a high ratio of rifle strength give the airborne division the capability of moving by air and fighting in difficult terrain.

13. Operations Against Irregular Forces

The ability to be deployed by air, to traverse rugged terrain on foot with minimum weapons and equipment needed for operations against irregular forces, and nonreliance on ground lines of communications, enhance the airborne unit's capability for operating against guerrilla units. Airborne units require a minimum of specialized training to prepare for operations against irregular forces. They are trained to conduct raid and interdiction operations which are tactically similar. They are accustomed to conducting independent operations in the enemy's area and to fighting in small task forces without extensive combat and logistical support (FM 31–15).

CHAPTER 2
COMMAND, ORGANIZATIONS, AND RESPONSIBILITIES

Section I. GENERAL

14. Command Structure

a. Joint airborne operations require authoritative direction of participating forces. A well defined command relationship is basic to the successful employment of forces in joint airborne operations. Considerations in choosing the appropriate command structure involve the following: the mission to be accomplished, the existing organization within the area, the geographical location and nature of the contemplated operations, and the character, strength, and capabilities of friendly and enemy forces.

b. When significant elements of the Army and Air Force are participating in a joint airborne operation, the unified command or joint task force type command structure is preferred to insure unity of command. Elements not included in the command should be directed specifically as to the extent of support to be provided. Command by the unified or joint task force commander is exercised through appropriate component commanders of forces comprising the joint force. The commander of a joint task force may also command his service component in the joint force.

c. A joint task force is dissolved by the establishing authority. Considerations involved in the dissolution of a JTF are—

(1) The tasks generally assigned involve the delivery of assault troops to the objective area and the seizure of assault objectives or the destruction of enemy forces. They may include a linkup with surface forces or a planned withdrawal by air. Successful accomplishment of the mission is presumed to have occurred when—

(*a*) The main body of airborne troops, their equipment and supplies, have been delivered to the objective area;

(*b*) Suitable drop or landing zones are available in the objective area to permit continuous resupply functions by air; and

(*c*) The airborne commander has secured the airhead or linkup with other surface forces has occurred; or

(*d*) Preplanned or emergency withdrawal, when applicable, has been accomplished.

(2) Upon termination of the airborne operation, Air Force elements continue to provide normal airlift and air support to the surface forces in the objective area.

15. Preparation

a. General. Command responsibilities in preparing for an airborne operation include planning, assembly of participating forces and logistical support means, accomplishment of service and joint training, marshalling of forces for the assault, and intelligence and security measures.

b. Coordination and Control. Coordination between the logistical support agency, Army and Air Force elements of the airborne force, the supporting Air Force units, and other supporting forces is initiated early and is detailed and continuous. Establishment of a joint task force headquarters facilitates control and coordination. Direct liaison is established between appropriate headquarters in the initial planning stage.

Section II. THEATERS OF OPERATION

16. General

a. Long range planning is essential to insure availability of required airborne forces, coordination of airborne operations with the ground campaign, and provision of necessary combat and administrative support. Combat support usually involves all services within the theater, while administrative support primarily involves theater army. The theater commander requests the forces and facilities needed to execute and support desired operations. He may be directed to maintain required stocks of supplies and equipment, including air delivery equipment, for a strategic force deployed from CONUS or another area of operations.

b. Figure 1 illustrates a type theater organization in which the theater commander has organized a joint airborne task force for a specific joint airborne operation.

17. Logistical Support

a. Normally, logistic support of airborne operations is furnished on a uniservice basis.

b. Airborne operations require numerous airfields and air landing facilities within the operational radius of proposed objective areas, and camps or bivouacs in the general area of aircraft loading sites. These are properly dispersed and integrated into the overall plan for combat operations and logistical support within the theater.

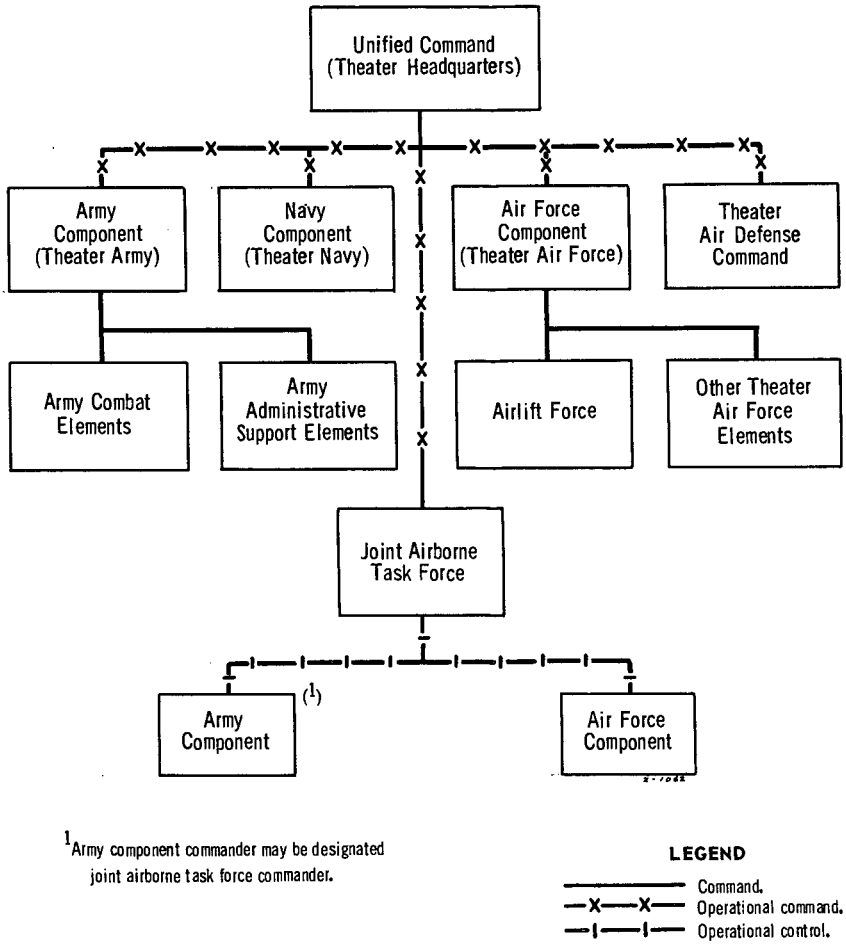


Figure 1. A type theater organization with joint airborne task force organized for a specific operation.

c. The mounting of a joint airborne operation requires planning, coordination, and direction from theater level. Theater responsibilities include—

(1) Mission assignment.

(2) Command structure.

(3) Designation of the general mounting area.

(4) Action to obtain additional forces, supplies, and equipment required from outside the theater.

(5) Delineation of command responsibilities for mounting and support and general direction and coordination of the major commands involved.

Section III. THEATER ARMY

18. General

After hostilities begin, the combat forces assigned to theater army normally operate under a tactical force established by the unified or combined commander. Thus, US theater army responsibilities for the support of airborne operations are usually limited to administrative support, to include the construction and maintenance of departure airfields and departure air landing facilities.

19. Theater Army Logistical Command

The theater army logistical command supports an airborne operation mounted in or supported from the communications zone, as follows:

a. It develops and allocates the facilities in the mounting area, to include training and rehabilitation areas, required marshalling camps, and required airfields and air landing facilities. These are dispersed to minimize vulnerability and are allocated to maintain unit integrity. It is desirable to have covered facilities for dry storage and maintenance of parachutes, special equipment and some items of individual and organizational equipment stocked in the mounting area. Shop space and suitable facilities for inspection and maintenance of unit equipment and preparation of equipment for aircraft loading are also desirable.

b. It provides substitute equipment for the assault units or their immediate followup elements to replace that which must be prepared for movement to the objective area.

c. It conducts technical inspections, and maintains or replaces faulty equipment.

d. It obtains, prepares and maintains supplies required by the airborne force for the operation, except that the airborne unit is responsible for preparing its accompanying supplies (par. 72). Preparation may require prepackaging in air delivery containers, palletization, or other similar measures.

e. It provides medical support for marshalling camps and necessary hospitalization facilities for the general mounting area. Personnel hospitalized during or after briefings are isolated until compromise of information they possess would no longer constitute a security risk.

f. It provides the necessary guards, MPs, and counterintelligence corps personnel to insure proper security of marshalling camps and the general mounting area.

g. It provides a mounting area communications system for use by the airborne force and for movement control in support of the airborne operations.

h. It provides guards as necessary for air evacuation of prisoners of war from the objective area.

i. It provides evacuation facilities from departure area airfields and air landing facilities for personnel and material evacuated from the objective area.

j. It provides transportation support for movement to and within the mounting area, and necessary movement control.

k. It provides necessary personnel services.

Section IV. THEATER AIR FORCE

20. General

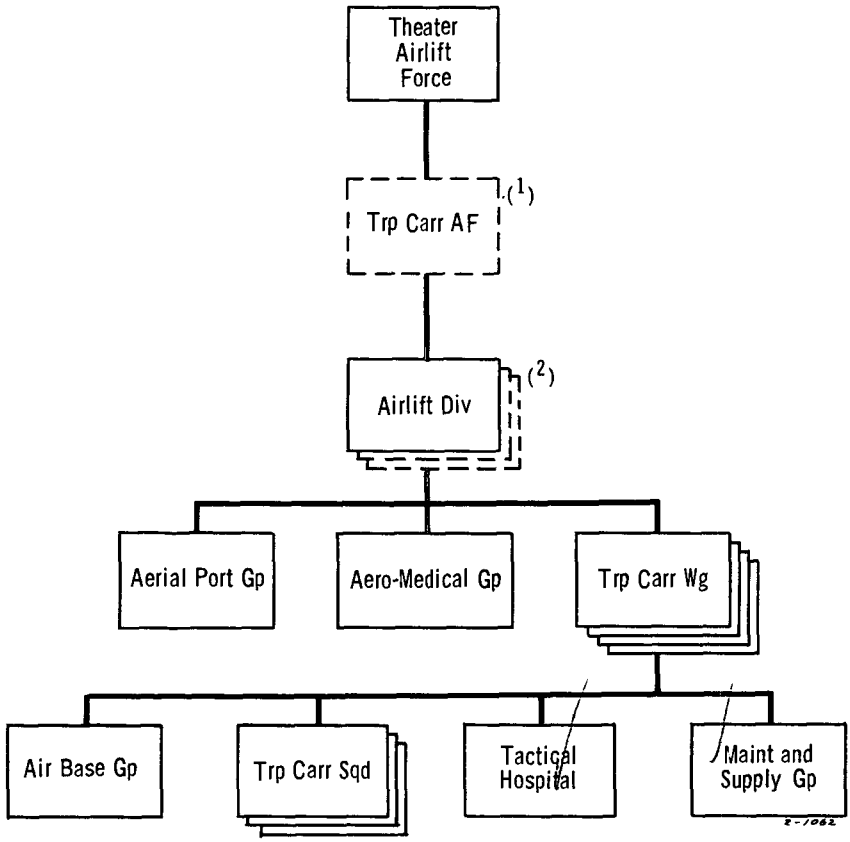
Theater air force provides Air Force units which perform tactical air support operations to include—close air support, counterair operations, interdiction, reconnaissance, air weather service, and air rescue operations. In addition, missions of the theater Air Force in support of airborne operations include air transport of troops, equipment, and supplies to the objective area; evacuation of personnel and materiel from the objective area; and provision for combat control teams (CCT), combat airlift support units (CALSU), and complete air terminals, as required by a particular operation.

21. Troop Carrier

a. Organization. Troop carrier units are subordinate to theater air force (fig. 1). In a fully developed theater of operations they may be organized into a theater airlift force (fig. 2).

b. Combat Control Teams. Air Force combat control teams, part of the joint airborne advance party (not shown on fig. 2), are especially equipped and trained to serve as air coordination parties for troop carrier forces in the airborne objective area during the assault. For additional discussion of the joint airborne advance party to include combat control teams, see paragraph 27 and appendix V.

c. Combat Airlift Support Unit. The troop carrier commander provides and designates a location for a coordination facility at each departure area and objective area airfield and air landing facility prior to the arrival of participating units. This facility is operated by the combat airlift support unit (CALSU) and includes liaison representation of the unit being transported. The



[1]This headquarters will not be used except in very large theaters.

[2]Number of divisions is variable.

Figure 2. Typical organization of a theater airlift force.

CALSU normally includes an operations function and a support function.

d. Capabilities. Operations can be conducted by day or night. Assault aircraft pilots are trained to make landings on minimum criteria air landing facilities by day or night.

e. Limitations. Troop carrier aircraft are vulnerable to enemy fighter aircraft, adverse weather conditions, and ground fire. Special navigational aids may be required for locating specific landing areas. The allowable cargo load (ACL) of an aircraft varies with the distance to be flown, the anticipated condition of air landing facilities and airfields, meteorological conditions, and the altitude at which the aircraft must fly.

f. Operational Effectiveness. Radius of action normally is the limiting factor in tactical operations because of the lack of refueling facilities in the objective area. Range may be the limiting consideration in strategic and administrative moves.

g. Aircraft Availability. The directing authority designates the size and composition of airlift forces to support the operation. The actual number of aircraft available will vary with the type of aircraft, maintenance conditions, type of missions, unit training, duration of operation, airfield conditions, and enemy opposition. For each operation, the troop carrier commander advises the airborne commander as to the number and type of aircraft sorties that can be available on D-day and the estimated number to be available on each subsequent day of the operation. After the decision has been made as to the number of sorties which will support the operation, the troop carrier commander makes provisions to replace aborting aircraft in order that the specified number of sorties will be available.

h. Types of Aircraft. Both troop carrier and MATS aircraft may be used in joint airborne operations. The ACL for each type aircraft available to the airborne forces must be established by the troop carrier commander for each operation. This is done early in the planning stage to permit Army forces to determine aircraft requirements and plan for nonstandard or awkward loads. TM 57–210 contains payload-distance graphs for Air Force aircraft. (These graphs may be used for broad operational planning only.)

i. Delivery. By using modern navigational and landing aids in the departure area and in the objective area, troop carrier forces can deliver a small number of troops and supplies under weather and visibility conditions less favorable than the minimum requirements for mass delivery. Single aircraft, carefully controlled and spaced at intervals along flight routes, may fly to and from the objective area under instrument conditions.

22. Troop Carrier Planning for Air Movement

a. For general responsibilities of the troop carrier commander for planning, see appendix IV.

b. Air routes selected should be as short as practicable, avoid alerting the enemy air defense system, bypass enemy air defenses so far as possible, take advantage of terrain features for navigation and control points, establish a free air-passage corridor over naval forces when required, and minimize conflict with other theater air traffic.

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c. Serials take off, assemble in formation, and take their assigned positions in the air columns. A detailed air traffic analysis is required to determine the sequence of takeoff of serial components. Air Force plans for air movement are based on the airborne force commander's landing priorities.

d. Air movement plans are coordinated with other forces such as strategic and tactical air commands, air defense command, air rescue service, Marine Corps, Navy, and interested Army headquarters. Instructions for emergency procedure, recognition signals, and the siting of electronic and visual navigation aids are then prepared. Details of the final plans for air movement are reflected in the operation plan.

23. Responsibilities of Troop Carrier Commanders

a. Proper functioning of lighting, intercommunication, air delivery, and similar aircraft equipment.

b. Provision of all Air Force accessories and special equipment required by Army units for a particular operation, such as loading ramps, materials handling equipment, and tiedown devices.

c. Provision of qualified personnel to furnish technical assistance and advice to the loading unit.

d. Conduct of air rescue drills and ditching procedure.

e. Delivery of the airborne force to their drop and landing zones.

f. Ejection of cargo from aircraft while in flight, except for those containers and supplies which are pushed from jump exits by parachutists immediately before their exit from the aircraft.

g. Prior to enplaning an air crew member will accompany the Army plane load commander on an inspection of the aircraft as outlined on the aircraft inspection card posted in the aircraft. The pilot or his representative will be present during the loading of the aircraft. He immediately advises CALSU of any discrepancies effecting takeoff schedule of his aircraft.

h. During the parachute delivery, the aircraft commander maintains the prescribed altitude, attitude, and speed; gives warning and jump signals; and actuates the release mechanism for air delivery loads.

24. Departure Area

a. The troop carrier commander is responsible for providing and designating a location for a coordination facility at each departure and arrival airfield prior to the arrival of participating

units. This facility will be known as a Combat Airlift Support Unit (CALSU) and will include liaison representation of the unit being transported. Representatives of the two commanders will be present at the coordination facility at all times during the conduct of the airborne operation until departure of the followup echelon for the objective area.

b. Movement and dispatch of troop carrier aircraft from the airfield is controlled by the Air Force. Army representatives, operating on the airfield and working in close coordination with Air Force personnel, coordinate the movement of Army units and cargo to the airfield.

c. When plans are made to load units at air landing facilities other than airfields, minimum air terminal facilities are provided. The troop carrier unit will provide a small CALSU. Loading of aircraft at these facilities will frequently require use of field expedients.

25. Air Terminals

a. An air terminal is an installation with facilities for loading and unloading aircraft and intransit handling of units and other traffic. Air Force aerial port squadrons, part of an aerial port group, are equipped and trained to operate Air Force air terminals. These terminals are located at airfields which are required for intratheater air movement of materiel or personnel in support of combat or administrative operations. The functions performed at air terminals include air and ground movement control, unloading, documentation, intransit storage, loading, and connected activities of manifesting, briefing and evacuation. Army and Air Force responsibilities are contained in AR 59–106/AFR 76–7.

b. The location, number, and composition of air terminals depend upon the number and characteristics of available airfields, the tonnages to be handled at each airfield and the estimated flow of wounded or other personnel. Combat airlift support units are placed on temporary duty at facilities which are not provided with air terminals.

26. Signal Communications

The supporting Air Force commander establishes in the objective area a control center for coordinating air traffic during the assault phase. For air warning information and flight instruction, communication is established with control and reporting centers outside the objective area. Radio range, radar, radar beacons, flashing lights, smoke signals, and panels may be used by the Air Force to mark the flight routes.

27. Combat Control of Troop Carrier Aircraft

The direction of aircraft to the objective area and the marking of drop zones and landing zones is an Air Force responsibility. Selected Air Force personnel who make up the combat control team (CCT) are trained to precede an airborne force to the objective area; to establish navigational aids for troop carrier formations to insure accurate delivery of airborne forces; to survey landing sites; and report the practicability of landing troops, equipment and supplies; to assist aircraft in landing at selected sites by pointing out obstacles to landing and acting as flight control personnel; and to remove obstacles from landing sites (app. V).

28. Tactical Air Support

a. General. Tactical air support of airborne operations is integrated with the overall tactical air operations within the theater.

b. Types of Missions. The principal types of missions executed by tactical air forces are—

(1) *Air escort* for the troop carrier air columns of assault, followup and air supply operations.

(2) *Reconnaissance* (photo, visual, electronic, and weather) during both the planning and operational phases of the airborne operation.

(3) *Preassault bombardment* of the immediate area of the contemplated airhead and of other areas for deception.

(4) *Interdiction* of the objective area to prevent or delay enemy reinforcements attempting to counterattack the airborne force.

(5) *Close support* of airborne forces in the objective area.

(6) *Air defense.* See paragraph 30.

e. Control.

(1) *Preassault phase.* If the joint airborne force includes tactical air elements, the joint airborne force commander directs the preassault air effort. If it does not, or if included elements are insufficient, preassault air support must be requested from the Air Force through normal channels.

(2) *Assault phase.*

(*a*) Initially, the tactical air coordinator (airborne) will control the aircraft which are allocated to perform the close air support strikes within the objective area. The tactical air coordinator, an Air Force control officer,

will be accompanied by a representative of the airborne commander, normally a G3 air officer. This team will be airborne in a high performance aircraft. During the preliminary stages of the assault phase, the Army will request close air support missions through the forward air controller (FAC), who is in contact with the tactical air coordinator aircraft. The Army representative will evaluate the request and pass approved requests to the tactical air coordinator (Airborne) who will assign the strike mission to orbiting or alert fighter aircraft and designate the FAC who will assist in accomplishing the required mission.

(*b*) When the tactical ground situation permits, an austere element of the tactical air control system should be established in the airhead. This agency will normally possess a ground-to-air and point-to-point communications capability. When this facility is established, the function of the tactical air coordinator can be absorbed. Concurrently with the establishment of this facility the airborne force commander establishes in the airhead a tactical operations center to include a tactical air support element (TASE). The channel for close air support requests is from the requesting unit to the TASE, which passes approved requests to the AF facility of the tactical air control system located in the airhead. This facility assigns aircraft to fulfill the mission requirement.

Section V. OTHER THEATER FORCES

29. Theater Navy

Theater Navy responsibilities for support of airborne operations include, when appropriate, naval air support, missile and gunfire support, search and rescue operations, provisions of navigational aids, sea transport for followup forces and administrative support, and coordination of other naval operations with airborne operations.

30. Theater Air Defense Forces

a. During mounting, air defense for the airborne force is provided by theater air defense forces. Operations of the Air Force air defense forces and the air defense artillery are coordinated at the appropriate air defense control facility.

b. Air defense in the objective area is the joint responsibility of the Air Force and the airborne force when air defense artillery

is available. Integration of air defense artillery operations with Air Force interceptor operations is accomplished in accordance with procedures outlined in FM 44–1 and as directed by the theater commander.

Section VI. OTHER ARMY ORGANIZATIONS

31. Field Army

Field army, augmented if necessary with appropriate specialists, is capable of planning and directing airborne operations. Elements of a field army may be directed to emphasize training for participation in airborne operations to decrease the time necessary for executing airborne missions.

32. Corps

a. General. When two or more divisions are involved in a single joint airborne operation a corps headquarters may be designated to direct and conduct operations.

b. Employment. A corps may participate in airborne operations as follows:

(1) In an operation by a division or smaller unit in which the corps supervises the planning and execution of the operation, but is itself not committed in the objective area.

(2) In a large scale operation in which the corps is the senior Army headquarters. The corps may require augmentation to carry out essential administrative functions normally performed by the field army.

33. Airborne Division

a. General. The airborne division is organized, trained, and equipped to conduct frequent airborne assaults. All of its equipment is air transportable in Air Force transport aircraft. Excluding army aircraft, all equipment planned for use in the objective area can be delivered by parachute.

b. Organization. For an airborne operation, the airborne force normally has attached an air liaison party, forward air controllers, military intelligence and counterintelligence units or teams, and civil affairs elements. It may also have attached additional combat, combat support, and administrative support elements. The exact number of such attachments depends upon the mission; expected length of time before linkup, withdrawal, or relief; enemy situation; civilian problems in the objective area; and the

size of the airborne force. For details of organization and capabilities during operations subsequent to the assault, see FM 61–100.

34. Infantry, Mechanized, and Armored Divisions

a. The majority of the infantry division's equipment is air transportable in Air Force medium and heavy transport aircraft. Exceptions are certain engineer vehicles, tanks, and tank recovery vehicles. The infantry division, less heavy equipment can participate in joint airborne operations in the air landed role.

b. Because of the preponderance of nonair transportable equipment, the armored and mechanized divisions do not participate in joint airborne operations. These divisions minus their heavy equipment may be deployed administratively by airlift to an area where required equipment has been previously stockpiled.

c. With equipment limitations discussed above, the infantry division may participate in joint airborne operations, either alone or with airborne units as follows:

(1) The division may be air landed within an established airhead to assist in expanding the airhead, to assume responsibility for a portion of the airhead, to be an exploiting force or part of such a force, or to be a reserve.

(2) If the landing area is undefended or lightly defended, or if it can be neutralized by fire, the division may conduct an air landed assault operation which has not been preceded by a parachute assault operation of airborne troops.

CHAPTER 3
TACTICAL PLANNING AND PROCEDURES

Section I. GENERAL

35. Theater and Field Army

Planning for joint airborne operations is normally initiated at theater or comparable level. To facilitate rapid planning for and launching of an airborne operation, studies are made of probable areas of employment in the theater or area of operations. Field armies may be directed to plan specific employment of airborne operations and for the employment of airborne forces in the ground role.

36. Directives

a. Detailed planning is begun immediately upon receipt of a directive. See appendix IV. It is based on the mission, availability of aircraft, logistical support, and intelligence of the objective area. The amount of detail in planning and the detail in which intelligence is sought vary with the echelon of command and the time available before the operation is launched.

b. As soon as possible after receipt of a directive and after completion of initial studies, a joint planning conference should be held by commanders of the Army and Air Force components. The purpose of this conference is to arrive at complete agreement and firm decisions on all phases of the airborne operation. Such agreement or decisions will form the basis for preparation of operation plans. Unresolved areas will be referred to the joint commander or the directing authority through appropriate channels. Applicable topics for discussion at the joint planning conference are listed in appendix IV. At the conclusion of the joint planning conference, the Army and troop carrier units prepare their respective operation plans. The joint commander publishes plans for operations of the joint force.

c. The joint commander or the commander directing the operation establishes provisions for passage of command of the Army element of the airborne force in the objective area based on considerations discussed in paragraph 14*c*.

37. Planning Techniques

a. Planning Sequence. Planning for airborne operations begins with a visualization of operations in the objective area and proceeds in the following sequence:

(1) *Ground tactical plan.* Missions and objectives, location of the airhead line, COP and other reconnaissance and security forces, task organization and boundaries, and reserve. Special consideration must be given to the assembly and reorganization of assault forces and to the decentralized nature of initial operations in the objective area.

(2) *Landing.* Sequence, time, and method of delivery, and place of arrival of troops and materiel in the objective area to support the scheme of maneuver.

(3) *Air movement plan.* Aircraft loads, assignment to serials and columns, loading and departure sites, flight routes, and other measures for air movement from the departure area.

(4) *Marshalling plan.* Movement to temporary camps (if required) in which final preparation for the operation is accomplished, movement to loading sites, and loading into aircraft for the air movement.

(5) *How published.* Each of these, except for landing, normally is published as a formal document.

b. Simplicity. Because of the great detail and complexities involved in airborne planning, simplicity, though sought, is difficult to attain. Planners must strive for uncomplicated landing and assembly plans and optimum tactical integrity of units in aircraft loading.

c. Coordination. Upon receipt of directives or orders to plan an airborne operation, commanders of Army, Navy, and Air Force units concerned immediately exchange liaison officers who perform duties as outlined in FM 101–5 and such additional duties as listed in appendix II. The necessity for continuous liaison, mutual interchange of information, and frequent coordinating conferences emphasizes the desirability of locating planning staffs in close proximity.

d. Standing Operating Procedures. Where appropriate, standing operating procedures (SOP) are developed.

38. Operation Plans

See appendix IV.

Section II. INTELLIGENCE

39. General

Intelligence plans are influenced by the following considerations:

a. Planning is centralized.

b. Details of coordination and organization of intelligence agencies are carefully planned before intitial contact is made with the enemy.

c. Higher headquarters provide most of the information and intelligence for airborne units during the planning phase.

d. Terrain analysis is more detailed with special emphasis on areas suitable for drop zones and for landing zones.

e. Weather conditions are of great importance.

f. Counterintelligence measures are stringent and rigidly enforced.

g. Detailed briefing of all personnel, down to and including the individual soldier, is essential.

h. Surprise is vital to the success of the mission.

40. Weather

a. Airborne operations are affected by weather to a greater degree than are most other Army operations. The mass delivery of airborne forces requires compact formation flying. With present equipment, visual reference is required for pilots to maintain position in the formation. Surface wind velocity is a major consideration for high winds can cause unacceptable aircraft or parachute landing losses. For these reasons, weather intelligence includes data on visibility as affected by precipitation, fog, or the effects of preparatory fires including nuclear support; cloud cover and ceilings; and surface and drop altitude wind velocities in the objective area that may adversely affect parachute or air landing operations.

b. A study of the weather conditions likely to prevail prior to and during the proposed operation is made early in the planning stage.

c. In analyzing the effects of weather on airborne operations. the G2 (J2) determines the general impact of the forecasted weather on enemy capabilities and friendly courses of action. This general analysis of weather by the G2 (J2) enables other staff officers to visualize the effect of weather on aspects of the operation important to them. For example, weather may—

(1) Prevent the Air Force from completing preliminary missions essential to preparing the objective area for the assault.
(2) Curtail training for the operation.
(3) Require provisions for special types and unusual quantities of clothing, lubricants, food, and other materiel.
(4) Necessitate postponement or cancellation of the operation.
(5) Delay takeoff of aircraft or prevent serials in flight from reaching the objective area.
(6) Prevent accurate or mass delivery of units into the objective area.
(7) Prevent or delay supply or reinforcement of units in the objective area.
(8) Interfere with tactical air support of the force.
(9) Cause significant variations in the effects of friendly or enemy employment of nuclear weapons.
(10) Prevent or delay the rehabilitation, preparation, or construction of airfields, or air landing facilities.

d. Weather minimums describe the worst weather conditions which will allow full-scale participation by all forces. The airborne force commander specifies the maximum acceptable surface wind velocity in the objective area. Troop carrier and supporting fighter forces specify the minimum ceiling and visibility which must prevail in the departure area, en route, and in the objective area. When weather conditions are less favorable than specified minimums, the operation is either canceled or postponed to await more suitable weather, or a decision is made to execute the operation despite resultant effects from the weather.

41. Terrain

Terrain in the objective area influences the size and extent of the airhead and assignment of missions to subordinate units. Adequate terrain intelligence permits commanders to select landing and assembly areas; to prepare barrier plans to reduce the threat of armor; and to plan construction of air landing facilities.

42. Landing Areas

a. The general landing area is assigned by the senior planning headquarters. In lower units, specific designation of locations is required. Consideration must be given to conditions created by friendly nuclear fires.

b. Desirable characteristics of drop zones and assault landing zones are—

(1) Ease of identification from the air.

(2) A straight approach for aircraft.

(3) Close to ground objectives.

(4) Concealment and cover in close proximity to landing areas.

(5) Relative freedom from antiairborne obstacles and air defenses.

(6) Sufficient capacity for the force to be delivered.

c. Assault landing zones which will be developed into air landing facilities should possess the following additional characteristics:

(1) Area of sufficient length and trafficability to accommodate the number and type of aircraft to be landed, on a continual basis.

(2) Parking and dispersal areas to accommodate the planned capacity of the facility.

(3) A road net to handle traffic.

(4) Minimum requirement for construction and maintenance.

(5) Areas and facilities for supply and for holding patients awaiting evacuation.

d. The enemy airfield summary includes information regarding the number, condition, capacity, and description of all airfields in the objective area. The summary also includes a detailed description of possible sites for construction of air landing facilities to assist engineer planning. The summary may be issued as a separate study or be published as a portion of the intelligence annex.

43. Political, Sociological, and Economic Factors

The following considerations are sufficiently important in airborne operations to warrant inclusion in the intelligence estimate:

a. Assistance or resistance expected from political or paramilitary groups or organizations.

b. Availability of indigenous resources for support of the particular operation or projected operations.

c. Attitude of civilian population in the objective area.

44. Enemy

Enemy capabilities which receive emphasis are as follows:

a. Employing nuclear weapons, chemical and biological agents, and air attacks against the airborne force in the departure area, en route, and in the objective area.

b. Employing electronic countermeasures.

c. Redisposing forces in the objective area prior to the airborne assault, with particular attention to armor and air defense artillery.

d. Attacking the airborne force during landing and reorganization.

e. Reinforcing his defense or attack.

45. Reconnaissance and Observation Missions

The air reconnaissance plan is developed and implemented early. Requirements of subordinate units must be anticipated. Emphasis is placed on photo reconnaissance during the planning phase. Visual and electronic reconnaissance are desirable during the operational phase. Aerial reconnaissance is oriented on enemy units and areas and routes that the enemy may use in reacting to an airborne assault.

46. Briefing

There is little opportunity for progressive orientation of personnel or for basic modification of plans during the initial stages of an airborne assault. All details of coordination must be firm and personnel must be thoroughly oriented prior to enplaning. Briefing aids are prepared in sufficient time to be available during marshalling, and may include maps, airphotos, slides, terrain models, movies, charts, sketches, diagrams, and sandtables.

47. Maps and Air Photos

Supply of maps and airphotos in airborne operations should satisfy the increased requirements caused by detailed planning and the need for larger quantities by subordinate units. Large-scale maps overprinted with antiairborne obstacles and defenses are desirable.

48. Counterintelligence

a. Vulnerability to Detection. Airborne forces are vulnerable to enemy intelligence efforts because of the distinctive characteristics of airborne and troop carrier units, and the necessity for bringing these forces together prior to an operation. Compensating factors are the capability of airborne forces to move rapidly by air from dispersed locations and the fact that airborne operations normally are launched from dispersed bases deep in friendly territory.

b. Responsibility of Commanders. Commanders establish and enforce strict security measures. These measures are maintained from the inception of the planning phase until completion of the operation, or until appropriate announcements or releases are made through official channels. The requirements for continuous concurrent planning, coordination, and cooperation among the component staffs within the airborne force involve the exchange of extensive amounts of classified information between participating forces.

c. Procedures. Counterintelligence and security measures, peculiar to airborne operations include the following:

(1) Prior to being briefed, participating units are restricted to sealed areas until the operation is executed or canceled. Briefings are conducted at the latest practicable time and in locations which can be closely guarded. Departures from sealed areas are controlled by the senior component commander at each location and are limited to personnel on official duties.

(2) No marked maps, operation orders, overlays, or similar items are carried into the objective area except as specifically authorized. Documents of intelligence value carried in the assault echelon must be prepared for rapid, effective destruction.

(3) If the operation is postponed, personnel are returned to designated areas and security measures maintained until further instructions are received.

(4) SOIs with assault elements must be temporary and abbreviated.

(5) The special construction of and move to marshalling camps is whenever possible avoided.

d. Intelligence Corps Units. Intelligence units having a counterintelligence and security capability may be attached to airborne units for employment early in the objective area.

Section III. OPERATIONS

49. Tactical Planning

a. Preliminary Planning. A major task in preliminary planning is the preparation of aircraft requirement tables (app. III). Units prepare and maintain tables showing the number of aircraft required for a variety of conditions. These tables serve as a basis for requesting and allocating aircraft for a particular operation. Plans must be flexible since changes in numbers, capacities, and types of aircraft may occur at any time.

b. Development of Operation Plans. Detailed operational planning begins upon receipt of a directive and assembly of necessary intelligence and planning data. The ground tactical plan is prepared as soon as possible, since planning, particularly for supply, communications, and air operations, depends on it.

c. Organization for Combat. Army combat elements of the airborne force may include parachute or air landed units, or both. The capabilities and availability of aircraft and the capacity of landing areas in the objective area imposed restrictions on the organization and size of the airborne force.

d. Phase Back. Sufficient aircraft are not always available to transport the airborne unit to the objective area in mass at the desired time. In such cases it may be necessary to phase back selected units into subsequent lifts. By this method fewer aircraft will conduct multiple lifts to provide the same number of sorties. The following units may be considered for phase back:

(1) Units not required for accomplishment of first priority tasks.

(2) Units assigned areas which are most distant from the enemy from a time standpoint.

(3) Elements of units which can accomplish their mission at reduced strength for a short period of time.

e. Alternate Plans. Tactical assault plans provide for alternate courses of action. These plans compensate for faulty intelligence, malfunction or failure of nuclear weapons; adverse weather in the departure area, en route, or in the objective area; misdelivery or failure of any part of the assault force to accomplish its mission; enemy employment of nuclear weapons; or failure of communications. An alternate tactical assault plan is prepared for each serial scheduled for a particular drop or landing zone. Special provisions are made for disseminating the order to execute an alternate plan.

50. Echelonment for Airborne Assault

Army combat elements of the airborne force are normally organized into three echelons—assault, followup, and rear.

a. Assault Echelon. The assault echelon is composed of those forces required to seize the assault objectives and the initial airhead, and includes their reserves and supporting troops. In division operations the assault echelon consists of the brigades, the division reserve, and division troops.

b. Followup Echelon. The followup echelon is that part of the airborne force (less rear echelon) not required in the objective

area during the initial assault, but which is necessary for operations subsequent to the initial assault. It enters the objective area as soon as practicable by air or surface movement or a combination of these methods. Depending on the means of transportation used, the followup echelon consists of additional vehicles and equipment of units in the assault echelon, and additional combat, combat support, and service units.

c. Rear Echelon. The rear echelon is that part of the force which is left in the departure area to perform administrative and service functions not required in the objective area. If the airborne force continues in the ground combat role after linkup, the rear echelon may be brought forward.

51. Ground Tactical Plan

a. General. The ground tactical plan assigns missions and objectives, designates the airhead line, the COP and other reconnaissance and security forces, prescribes a task organization and boundaries, and provides a reserve. The ground tactical plan is based upon normal considerations governing the conduct of ground operations. Some modification is necessary, however, because of the initial decentralization of control. Special consideration must be given to the times and places at which the assault and reserve elements are landed, and to assembly and reorganization of the assault forces.

b. Selection of Assault Objectives and Airhead Line. Based on an analysis of the mission, specific assault objectives are selected, the early seizure of which will assist the accomplishment of the mission. The selection of assault objectives is based on a consideration of the same factors as for ground operations (mission, enemy capabilities, capabilities of the airborne force, and terrain) plus a consideration of landing areas available and the expected time of linkup, reinforcement, or withdrawal. Initially, objectives are selected to block high speed and secondary avenues of approach and to include those key terrain features whose early seizure is critical to the establishment of the airborne force airhead (fig. 3). Concurrently with the selection of objectives, the exact location and extent of the airhead are considered. The area within the airhead, as delineated by the airhead line, is denied to the enemy; penetrations are reduced by counterattack or by fire. Unoccupied areas within the airhead are covered by barriers, patrols, ground and air observation, surveillance devices, and fires. The number of objectives and distance between them may require multiple airheads. Multiple airheads are normally required when the objectives are so widely separated as to extend the occupy-

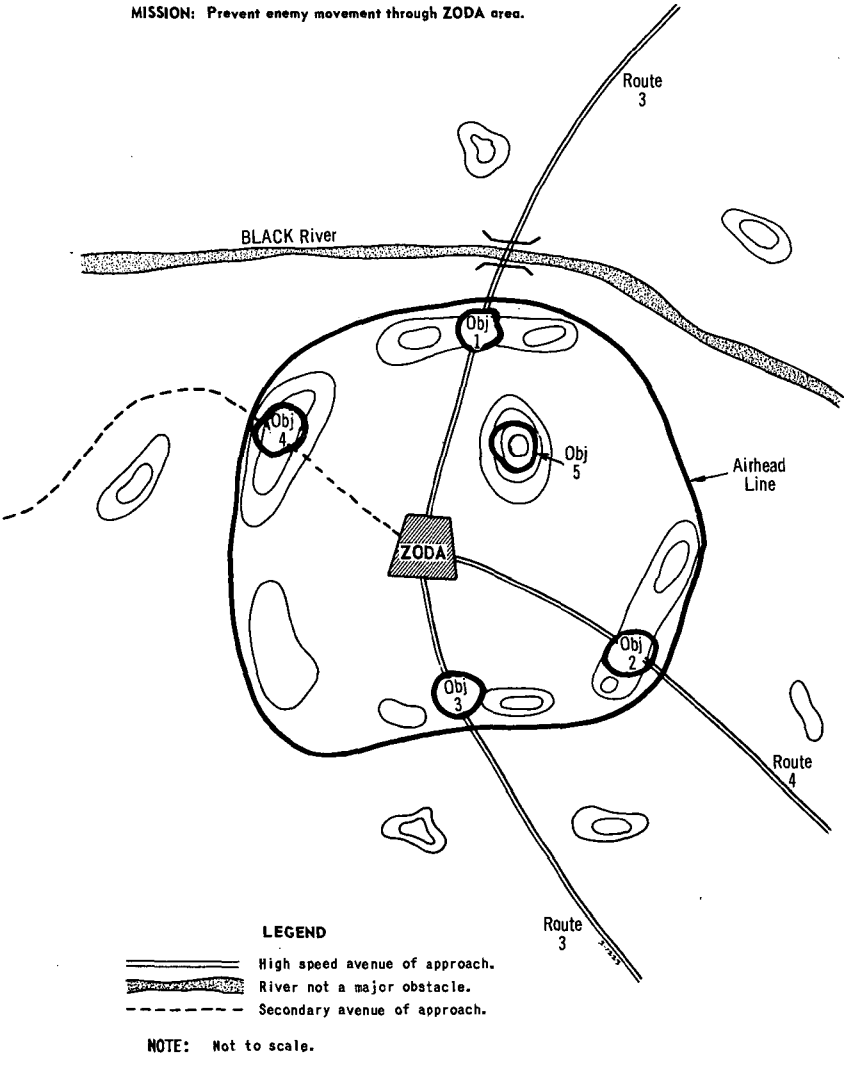


Figure 3. Airhead, showing only the designation of assault objectives and the airhead line.

ing forces beyond mutual supporting distance. The airhead (s) must contain adequate space for defense in depth; maneuver; landing of troops, supplies, and equipment; protection of critical installation; and sufficient dispersion to reduce vulnerability.

c. Boundaries and Task Organization. The task organization is considered concurrently with boundaries. Employment of subordinate units is visualized in order that the organization for

combat will be commensurate with the mission assigned to each brigade (fig. 4).

(1) *Boundaries.* Sectors of responsibility are assigned to major subordinate combat elements by the placement of boundaries (fig. 5). A commander assigned a sector of responsibility seizes the objectives located therein and defends the sector. In airborne operations, a commander assigned a sector responsibility habitually clears the area of enemy forces. Boundaries are extended forward of the combat outpost to the distance necessary to coordinate fires. In selecting and designating assault boundaries for airborne operations, the same criteria are used as in other operations. Additional considerations are the requirements for including adequate drop and landing zones within each sector; minimizing readjust-

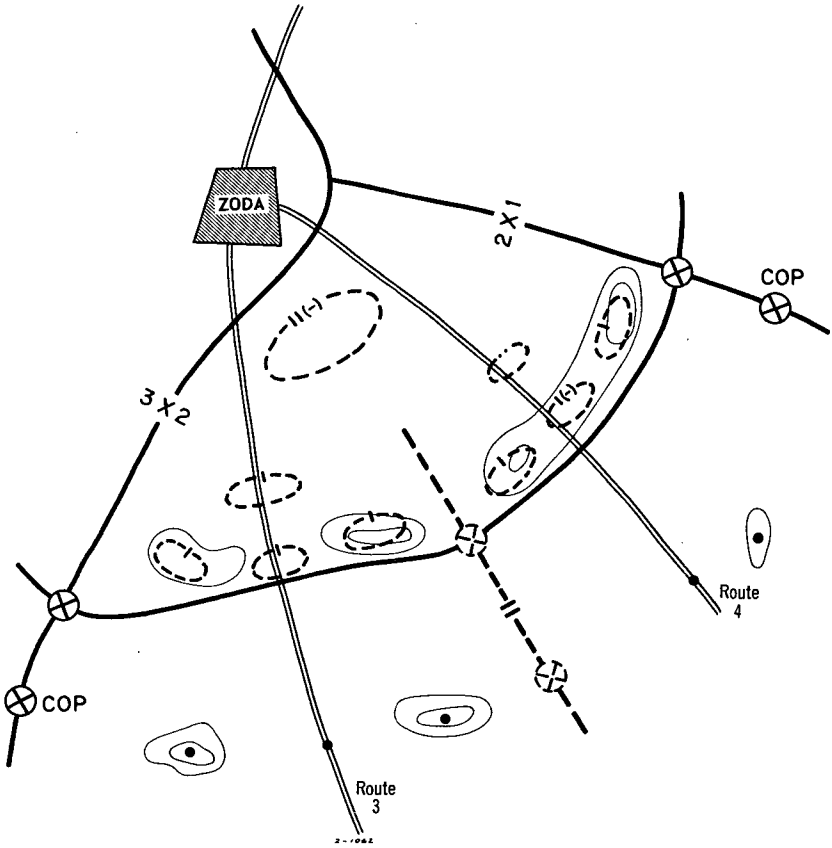


Figure 4. Visualization of disposition of units in a brigade sector.

ment in transition from the assault to subsequent phases; and avoiding the necessity for a subordinate unit to fight in widely divergent directions simultaneously.

(2) *Task Organization.*

(*a*) *Assault units.* Assault units normally are given assault objectives and sectors of responsibility for the assault phase. These assault units are tailored for the initial assault by the attachment of required combat, combat support, and logistical support units. Many of these attachments will terminate as soon as centralized control can be regained. Other units are attached for the movement only.

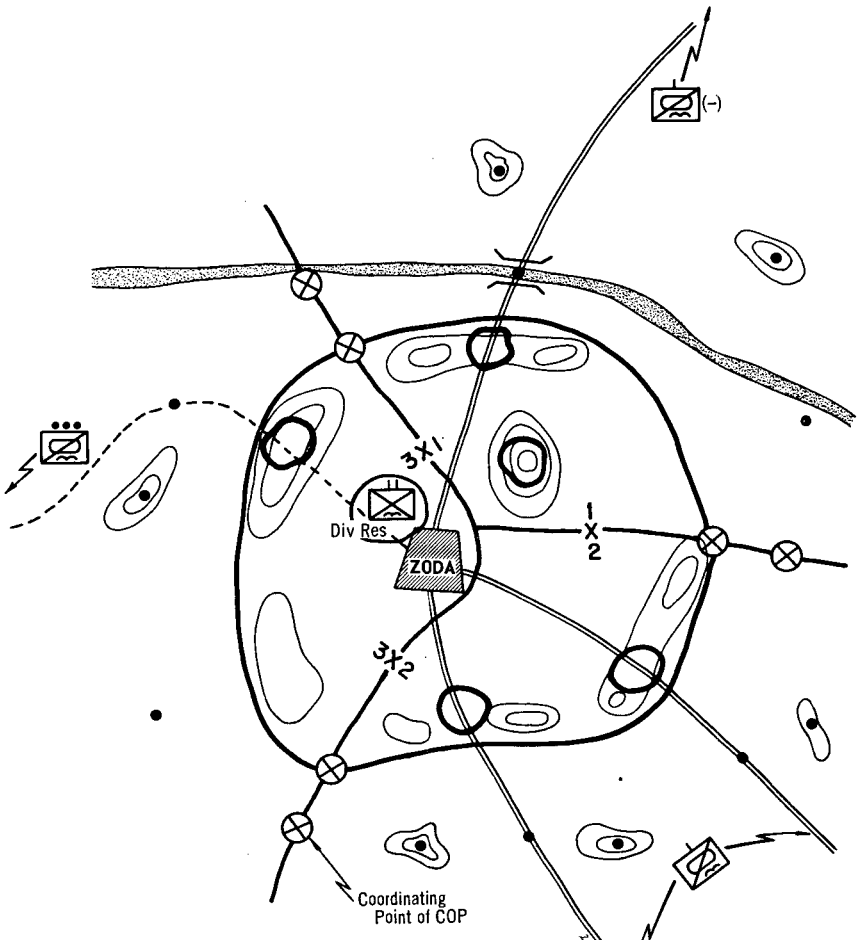
(*b*) *Reserve.* The reserve normally is not assigned assault tasks or areas of responsibility since such missions may interfere with employment in its primary role. However, the reserve may be assigned such missions as to protect critical interior locations; like airfields, the airborne force command post, or nuclear delivery means. The reserve normally is brought into the objective area in the assault echelon. When elements of the division are simultaneously committed in widely separated areas the reserve may be held in readiness in the departure area prepared for commitment as required. The initial reserve is usually small, in order that the assault forces may have maximum combat power for accomplishing their missions. When assault tasks have been accomplished, additional forces may become available as reserves.

(*c*) *Rear Area.* As operations in the objective area progress, a rear area may be established, in which case area responsibility to include rear area security of the rear area normally is assigned to an appropriate commander.

d. Security Elements.

(1) *Combat Outpost (COP).* As a result of the greatly expanded area of responsibility inherent in a perimeter type formation and to economize on the use of security forces, a general outpost (GOP) normally is not established. The composition, mission, and conduct of operations for the COP in airborne operations is similar to that of the COP in normal ground operations, except that the airborne COP may be placed farther forward of the battle positions than is the COP in normal ground operations. COP forces are landed early in the assault

echelon. They may be landed directly on their assigned positions, or they may land within the airhead and then move out from it to perform their mission. Because of the extended frontages over which the COP forces operate, special emphasis is placed on communications. The airborne force designates the location for COP forces which are essential to the accomplishment of the mission. Subordinate units designate additional COP positions as required.



NOTE:
1. Dots indicate COP positions designated by division.
2. The air cavalry troop is used to extend the reconnaissance and security capabilities of the armored cavalry troops.
3. River not a major obstacle.
4. Not to scale.

Figure 5. Complete sketch for airborne division assault.

(2) *Reconnaissance and Security Forces.* Designated forces under control of the airborne force commander perform reconnaissance and security missions beyond the COP with emphasis on likely enemy avenues of approach. For a division level operation these forces normally will include the armored cavalry squadron. Reconnaissance and security forces arrive in the assault echelon.

e. Drop and Landing Zones. The nature and location of drop and landing zones are important considerations in formulating the plans for landing and the ground tactical plan. Drop and landing zones must be of sufficient size to accommodate assault forces and provide for an initial disposition of troops which facilitates seizure of assigned objectives (par. 42). It is desirable to land assault units on or as close to their objectives or positions as possible. Use of battalion-size drop and landing zones permit rapid assembly and reorganization. However, some company task force size drop and landing zones may be used. The following procedure is employed:

(1) Concurrent with the development of the ground tactical plan, usable drop and landing zones are selected. (This selection normally is accomplished by the appropriate troop carrier personnel, the airborne force G2, and the airborne force engineer.)

(2) Based on this information, subordinate commanders (in coordination with the G3), select drop and landing zones. The airborne force commander then determines the order in which units will land. Units normally land within their assigned sectors. If insufficient or inadequate drop and landing zones exist, troops may land in an adjacent unit's sector or outside the airhead.

f. Assembly. Speed in recovering equipment and reorganizing is of paramount importance. When smaller units have immediate, specific missions, they proceed without waiting for the assembly of entire parent units.

g. Regaining of Control. Initially the effort of all commanders and staff officers is devoted to regaining the control necessary for effective direction of the assault force. The assault radio net is established promptly.

h. Timing of Operation. In selecting the hour of landing, consideration is given to the enemy situation and capabilities, the effect of predicted weather and visibility, and the plans of friendly forces. The inherent difficulties of night operations, which occur in formation flying, assembly, and reorganization, favor launching large-scale airborne attacks in daylight; however, care must be

exercised to prevent setting a pattern of habitually launching airborne assaults at a particular time. The principal advantages of landing at night are that darkness aids in gaining tactical surprise and reduces the effectiveness of enemy fire. Disadvantages are the difficulties of locating DZs and LZs, assembling troops and equipment, decrease in effectiveness of supporting fires, and increased opportunity for enemy movement of armor toward the airhead under cover of darkness.

i. Cover and Deception. Cover and deception are the responsibility of a high headquarters. The joint task force makes recommendations concerning cover and deception and implements its part of the overall plan. The airborne force may provide personnel and equipment to augment the deception created by dropping dummy and decoy devices in the same general area.

52. Landings

The plan for landing supports the ground tactical plan. It includes the sequences, time, and place of arrival of troops and material in the objective area. The plan for landing normally is not published as a formal document. Certain details concerning the landing may be found in the air movement plan.

53. Air Movement Plan

a. Plans for air movement include the flight route diagram (prepared by troop carrier), the air movement table (prepared jointly), and the air loading table (prepared by Army elements). See TM 57–210 for a detailed discussion of worksheets and forms used in air movement planning.

b. Brigade units are assigned to serials scheduled to load at airfields and air landing facilities located in the same general area, thus facilitating control during marshalling.

c. The air movement table assigns units to serials within the air columns. The location of units in successive serials is in accordance with priorities established for landing. Tactical integrity of Army and troop carrier units is maintained so far as practicable. Serials normally do not exceed 20 aircraft. The need for dispersion may require use of even smaller serials, and may limit tactical integrity to company-size units. Normally all elements in a given serial are landed on the same drop or landing zone in the objective area, although certain aircraft of a serial may continue on in order to drop COP forces in their planned areas of employment. Additional details concerning air movement are contained in paragraphs 89 through 91, and in appendix III.

54. Signal Communication

a. General. Joint signal plans are prepared to integrate the communication facilities of each component of the force. Signal communication plans are coordinated with troop carrier units; Navy, Air Force, and Army units providing supporting fires; the next higher headquarters; the commander designated to assume command of forces in the objective area upon linkup; and friendly advancing units with whom contact is expected in the objective area. Signal plans for airborne forces cover the signal equipment and supplies to be landed by aircraft and the sequence of their delivery to include equipment to replace losses expected in the assault; and elements of signal units, if any, which are to remain in the departure area to aid in the movement of signal supplies and equipment.

b. Mounting Phase. The supporting theater army logistical command agency is responsible for providing communications during mounting. The airborne force signal unit is primarily concerned with preparing for the aiborne operation.

c. Air Movement. En route to the objective area, all communications between aircraft or from aircraft back to the departure area are transmitted over Air Force communications means.

d. Objective Area. The airborne force signal officer plans the communications to be established in the objective area. These plans include—

(1) An assault net to operate during the early part of the operation in the objective area.

(2) Transition from the assault net operations to the normal airborne force communication nets.

(3) Communications from the objective area to—

(*a*) Troop carrier forces.

(*b*) Higher headquarters.

(*c*) Supporting tactical air elements.

(*d*) Departure area.

(*e*) Any other supporting elements.

55. Fire Support

Supporting fires may be furnished by field artillery, armed Army aircraft, naval gunfire units, air defense forces, and tactical air forces. Employment of nuclear weapons in the assault permits achievement of greater speed in the seizure of assault objectives, the use of smaller assault forces, and the delivery of air landed units directly on, or immediately adjacent to, objectives that

otherwise might be too heavily defended. The integration and control of supporting fires are discussed in FM 61–100.

56. Special Forces

Special forces directed guerrillas operating in the area of a projected airborne operation can assist the airborne commander by interdicting enemy movement in and near the objective area; attacking enemy command, signal, and supply installations in and near the objective area; executing supporting attacks; and executing deception plans. These forces also assist in evasion and escape; provide information to include likely nuclear targets; and assist in selecting, marking, and securing drop and landing zones. A detailed discussion of Special Forces is contained in FM 31–21 and FM 31–21A.

Section IV. TRAINING AND REHEARSALS

57. General

Airborne forces should be capable of launching an operation on short notice. Training is progressive and designed to minimize planning time and to develop maximum skill in the loading, rigging and air delivery of equipment, and assault and assembly. Rehearsals are conducted whenever possible to improve the status of training and to test joint and unilateral procedures. The joint airborne task force commander prescribes the nature and scope of unilateral and joint training to be conducted. He also insures coordination of training between appropriate subordinate forces.

58. Training of Army Forces

a. Airborne Units.

(1) Individual training, in addition to normal ground training, includes training in parachute techniques, flight discipline, and loading and unloading of aircraft.

(2) Unit training peculiar to airborne operations includes unit loading of aircraft, techniques for mass delivery in assault landings, assembly after landing, familiarization with tactics suitable for expected conditions in the objective area, special measures for antitank defense, and special problems of administration and logistics.

(3) Command and staff training includes technique of preparing airborne operation orders, annexes, and air movement forms; marshalling techniques and procedures; organization and functions of participating forces of other services; communication procedures and

techniques; logistical procedures; employment of combined arms; conduct of tactical operations; and command post exercises.

b. Air Transportable Units. Air transportable units preparing for airlanded operations conduct essentially the same training as airborne units except for training in parachute and aerial delivery techniques. Guidance for the preparation of air movement plans plus detailed information on the air transportability of various items of equipment in the field army are contained in TM 57–210. For aircraft requirements for nondivisional units, see FM 101–10, part I.

59. Training of Air Forces

Air Force training for airborne operations includes technique of formation flying, execution of mass parachute drops, and assault aircraft landings; qualification of necessary specialists; command and staff techniques, to include operations of CALSU; logistical procedures; individual flight techniques; air exercises; joint training; and rehearsals.

60. Joint Training

a. Joint training is preceded by appropriate uniservice training. Airborne and troop carrier units engage in the maximum amount of joint training permitted by time and facilities. Such training is conducted at all echelons and includes staff as well as unit training. Necessary training of joint airborne advance parties is accomplished.

b. Joint command post exercises, field maneuvers, and tests are conducted, so far as practicable, during each training phase to ascertain progress and insure standardization of procedures of Army and troop carrier forces. Day and night operations are included.

c. Joint training is culminated by full-scale rehearsals for specific operations, if practicable.

61. Rehearsals

Within the limitations of time, equipment, and security, detailed rehearsals are conducted under conditions that approximate the actual operation as closely as possible.

CHAPTER 4
ADMINISTRATIVE PLANNING AND PROCEDURES

Section I. GENERAL

62. Airborne Force Responsibilities

Although responsibility for providing administrative support for an airborne operation is usually assigned to the theater army logistical command as discussed in paragraph 19, the division has a limited capability of mounting an airborne operation on short notice when a minimum of assistance is provided by agencies outside the division.

63. Administrative Plan

The administrative plan is prepared as discussed in FM 101–5. In airborne operations the administrative plan includes instructions for marshalling.

Section II. PERSONNEL AND CIVIL AFFAIRS

64. General

Personnel and civil affairs planning for an airborne operation is generally the same as for normal ground operations.

65. Strengths, Records, and Reports

A record is kept of the personnel participating in the airborne assault and those that remain in the departure area. After the assault landings have been made, the units of the airborne force submit strength reports as prescribed in the force SOP. In the early phases of the operation, these reports are in many cases only an approximation. They include the number of personnel from other units that have joined the reporting unit.

66. Replacements

a. Overstrength Replacements. Personnel losses that will be sustained during the initial stages (normally the first 3 days) of the airborne operation are estimated to include loss estimates for the air movement and early ground phases. Requisitions for overstrength replacements are based on the total loss estimate. These

replacements should be received in time to be assigned to and train with subordinate units of the division. They normally do not participate in the initial airborne assault, but are held in the departure area and are delivered to the objective area when required. Allocations to specific units are based on original assignments with such minimum adjustments as are required by the actual losses incurred. Aircraft are allocated for movement of overstrength replacements to the objective area. Replacements normally are air landed in the objective area.

b. Other Replacements. Replacements required in addition to overstrength replacements are requisitioned in the normal manner.

c. Unit Replacements. It is desirable to have unit replacements of company to battalion size briefed and available in the departure area for commitment as required. These units remain under the control of the next higher headquarters until released to the airborne commander.

67. Prisoners of War

PWs are evacuated by air from PW collecting points. This is done to avoid diverting personnel and supplies required in support of combat operations to the care of prisoners retained in the airhead. PW collecting points are located near air landing facilities. The theater army logistical command furnishes guards on aircraft for PW evacuation as requested by the airborne force.

68. Graves Registration Service

The senior commander in the airhead will be provided the authority to establish temporary burial facilities as required.

69. Civil Affairs

The airborne force is provided civil affairs personnel if required. A portion of the civil affairs section may enter the objective area during the assault phase. Remaining CA personnel are air landed in the followup echelon. Civil affairs are discussed further in FM 41–10.

Section III. LOGISTICS

70. General

Logistical planning is facilitated by use of a logistical time-planning schedule (app. IV). Considerations which affect logistical planning include—

a. Number and location of marshalling camps and composition of forces to be marshalled therein.

b. Aircraft loading characteristics and allocation.

c. Materials handling equipment available.

d. Nature and amount of accompanying supplies and equipment and requirements for followup and routine supplies.

e. Initial airhead patient evacuation policy.

f. Airfields and air landing facilities available in the departure area and in the objective area.

g. Supplies, equipment, manpower, and materials available in the objective area.

71. Supply

The quantity and type of supplies and equipment carried by assault airborne forces are dictated by the initial combat requirements. They are influenced by the capability of the airborne unit to handle them, availability and carrying capacity of aircraft, projected date of linkup or withdrawal, anticipated weather, and enemy capabilities. Unused aircraft space in the followup echelon normally will be used to carry supplies for forces already in the objective area. Documentation of supplies delivered to the airhead facilities allocation and shifting of logistical means to support planned or unexpected situations. Based on the considerations above, the airborne force commander determines the levels of supply for a particular operation. Normally, it is desirable to maintain a 3-day level of supply in the airhead at all times except on raid and relift operations. A 2-day level of supply is considered to be the minimum safe level within the airhead.

72. Phases of Supply

a. Phases of supply used in airborne operations are *accompanying supply, followup supply,* and *routine supply.*

b. Accompanying supplies are those supplies taken into the airhead by units at their time of entry. Accompanying supplies are issued to units prior to marshalling to allow their early preparation for air movement and delivery in the assault. Each unit receives and protects its own accompanying supplies. Accompanying supplies include unit prescribed loads and additional supplies brought into the airhead under support command control. Units in both the assault and followup echelons will carry accompanying supplies into the airhead.

(1) *Unit prescribed loads* carried by the units are established by the airborne force commander. They are delivered

into the airhead on individuals, organic vehicles, and in heavy drop or air landed loads. With the exception of a raid type operation, the desired quantity of these supplies is sufficient to sustain operations for 3 days (class I, II, IV, and V), move ground vehicles approximately 250 to 350 kilometers (class III) and allow operation of division aircraft 6 hours a day for 3 days (class IIIA).

(2) *Additional supplies*, brought into the airhead under support command control, consists of the airborne force reserve of class III, selected items of class II and IV, and repair parts.

c. Followup supplies are those supplies delivered after the initial assault landings to resupply units until routine supply procedures can be instituted. Delivery is made by air landing, parachute, or free fall. There are two types of followup supply, *automatic* and *on-call.*

(1) *Automatic followup supplies* are brought into the objective area on prescheduled deliveries and are based upon estimated daily expenditures plus requirements to build up reserve stocks. The type and quantity of supplies to be included in automatic followup supply is determined by the division. The plan for delivery of automatic followup supply is prepared jointly by the division, the supporting TALOG agency, and the Air Force command. In a division operation, deliveries are made directly to using units and not to division supply points. It is not desirable to schedule automatic followup supplies for delivery on D-day since units within the airhead are expected to be fully occupied with seizing assault objectives, establishing the airhead, and recovering accompanying supplies.

(2) *On-call followup supplies* are held in readiness in the departure area for immediate delivery to units on a specific request basis. These followup supplies consist of additional quantities of those supplies included in automatic followup supply, essential major items of equipment, and supplies which are not consumed at a predictable rate. The airborne force determines the quantities and types of supplies to be included in the on-call supply. The requirement is given to the supporting TALOG agency which is responsible for assembling, maintaining, and, in coordination with the Air Force, loading the supplies aboard aircraft. The TALOG agency maintains the established on-call supply, to include re-

constituting portions which have been shipped, at aircraft loading sites until the airborne force commander modifies or cancels the requirement. Depending on the situation, on-call supplies may be segregated and prepackaged into type loads, such as 105-mm artillery ammunition or emergency rations for a battalion, or may be maintained in bulk pending emergency requests for specific types and amounts.

d. Routine supplies are delivered as a result of normal requisitioning procedures, and replace supplies which have been expended or build up reserve stocks. The source of routine supply may be the supporting TALOG agency or Army supply points established by the ground force commander subsequent to linkup. When supported overland from Army supply points, supply procedures are the same as for other ground operations. If centralized supply points are to be established when the objective area is supplied by air, it is desirable that additional supply personnel be provided.

73. Supply by Class

a. Class I. Assault and individual combat rations are carried by all airborne units entering the objective area. Combat rations are normally used for followup supply of airborne forces.

b. Class II. Limited amounts of essential class II items are included in accompanying supplies. Minimum stocks of individual clothing and equipment are included in followup and routine supply. Major items of equipment will be included in resupply, to include on-call followup supply, as dictated by the situation.

c. Class III and IIIA. Vehicles and machinery are enplaned with fuel tanks filled to the safe level (generally three-fourths full). Additional fuel and lubricants are carried on each vehicle. Initially, supply of fuel and lubricants for vehicles is delivered in small containers. During later phases of the operation fuel may be delivered to the objective area in bulk. Aviation gasoline is dispensed from the largest available containers with a fuel segregation pump. The class III reserve is maintained in the objective area by the supply and transportation units. The class IIIA supply point and prescribed class IIIA reserves are located at or near the base airfield.

d. Class IV. The amount of class IV supply brought into the objective area is limited. Class IV supplies necessary to support the operation can be reduced by careful selection of drop and assault landing zones to minimize the requirement for construction equipment and material. Local resources are exploited to the maximum extent.

e. Class V.

(1) The amount and type of class V assault supply vary with each operation. A unit prescribed load is designated for each operation.

(2) Followup supply includes required types of class V supply and allows continuity of combat operations. The enemy situation in the objective area frequently requires changes in the amounts and types of followup supply planned for delivery.

f. Repair Parts. Maintenance units entering the objective area carry their prescribed load and authorized parts list of repair parts.

g. Water. Filled water containers are carried both for use en route and for consumption in the objective area. Location of possible water supply points is predetermined and water purification units are made available in the objective area as early as practicable.

h. Captured Supplies and Salvage. Within limitations prescribed by technical services and technical intelligence requirements, full use is made of captured or abandoned enemy materiel and supplies. Logistical considerations require recovery of salvageable equipment, especially parachutes and air delivery containers.

i. Special Supplies and Equipment. Airborne operations may necessitate additions, deletions, and substitution for standard equipment and prescribed loads of units.

74. Type of Loading

a. Combat loading distributes accompanying supplies among aircraft in such a manner that equipment and supplies, essential to initiation of combat, are readily accessible to units on landing. Particularly critical equipment may be duplicated to safeguard against loss or damage.

b. Followup and routine supply may be loaded in delivering aircraft by classes of supply to facilitate unloading, handling, and delivery in the airhead.

75. Delivery of Supplies

a. Prior to the availability of improved air landing facilities in the airhead, supplies are delivered to using units by parachute, free fall, or assault air landing on unprepared landing zones. Followup supplies are delivered, so far as possible, by air landing on prepared minimum criteria air landing facilities. High tonnage

items are delivered as far forward as possible. Items with slow rates of consumption are delivered to supply points. Organic or attached cargo helicopters are employed to compensate for the shortage of ground transportation.

(1) Landing of supplies by aircraft is the preferred delivery method. Aircraft are capable of landing larger loads on adequate landing areas than can be delivered by parachute or free fall. In addition, air landed aircraft may be used for evacuation of personnel and equipment from the objective area.

(2) Delivery of supplies by parachute is more economical than free fall when aircraft cannot land. This procedure entails the use of air delivery equipment and specially trained personnel. Some loss of equipment by breakage and misdelivery is inherent in parachute delivery. Enemy action or weather conditions may dictate the use of parachute delivery even though suitable landing areas exist.

(3) Free fall is more accurate than parachute delivery. Certain items of supply such as blankets and other textile items, barbed wire and vehicle tires and tubes can be delivered with little or no damage occurring. For other items, the accuracy and the savings of delivery equipment attained by this method may be offset by greater loss or damage to supplies dropped.

b. Supply and transport units may accompany the assault echelon to recover assault supplies transported under control of the airborne force and to establish necessary supply points. Supply point distribution, unit distribution, or a combination of both, may be used for those supplies handled by the airborne force. Delivery of priority supplies may be accomplished by vertical takeoff and landing (VTOL) aircraft.

76. Medical Evacuation and Hospitalization

a. General. In operations of limited duration medical service support elements must be prepared to hold patients up to 72 hours if evacuation from the airhead is delayed. Necessary medical installations are located near suitable air landing facilities. When aircraft cannot land, additional medical units may be required within the objective area to permit holding of patients for a longer period of time. A firm long term evacuation policy cannot be established in advance; it is modified as circumstances either permit or require.

b. Evacuation Within the Airhead. The airborne force medical service supervises the transportation of wounded to the designated

air landing facility for aeromedical evacuation from the objective area. During the initial phases of the assault, wounded may be evacuated directly from battalion aid stations.

c. Evacuation From the Airhead. Evacuation from the airhead is an Air Force responsibility. The appropriate Air Force agencies—

(1) Provide, operate, and control necessary airlift.

(2) Coordinate aeromedical evacuation requirements with other transport operations.

(3) Process all patients received in the aeromedical evacuation system to include receipt, manifesting, medical care in flight, aircraft loading and unloading, and patient movement registration.

(4) Provide patient staging facilities within the airhead when required.

(5) Accomplish necessary liaison with Army medical installations.

d. References. For a more detailed discussion of medical service support of airborne operations, see FM 8–10, and FM 8–15.

77. Transportation

In an airborne operation, transportation means in the airhead are limited. Therefore, greater reliance on Air Force transport is necessary for the delivery of supplies direct to the users. Maximum use is made of captured enemy vehicles in order to supplement the limited transporation resources.

78. Service

a. Service Troop. Minimum service elements accompany airborne forces into the airhead as most essential services are either performed in the marshalling area or are deferred. In sustained operations additional service elements are transported to the airhead.

b. Maintenance. The problem of maintenance is magnified by the relatively limited number of service troops in the objective area and by the damage resulting from malfunctions during the air delivery of equipment. To minimize requirements, intensive maintenance is performed prior to departure to insure the highest standard of operational readiness of all equipment entering the objective area. Maintenance units support unit marshalling as required. Maintenance during the initial assault normally is performed by maintenance personnel organic to the battalions and separate companies. In division operations the complete forward

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support companies, plus designated individuals and equipment from the battalion headquarters, enter the objective area in the followup echelon (FM 9–30).

79. Operation of the ADSOC

a. Initially, the force support command headquarters is represented in the objective area by a skeletonized ADSOC. The skeletonized ADSOC is established in the vicinity of the airborne force G4 section, uses communication facilities of the airborne force command post, and contains only essential logistical representatives. As additional elements of the support command headquarters enter the objective area, the skeletonized ADSOC is expanded, and resumes its normal position as a staff facility of the support command headquarters.

b. All requests initiated within the airhead for logistical support from outside the airhead are processed through the ADSOC.

c. During the early stages of the airborne operation, periodic reports are required of subordinate units. These operation reports are received over the division command radio nets and include essential data concerning supply, maintenance, medical evacuation, and transportation. The establishment of the administrative net and the expansion of the ADSOC allows the ADSOC to react more promptly. Responsibilities, functions, and organization of the Airborne Division ADSOC conform to those set forth in FM 54–2.

Section IV. MARSHALLING

80. General

a. Marshalling is a phase of the overall mounting operation during which units move to temporary camps (if required) where final preparations for combat are completed, move to loading airfields or air landing facilities, and load for takeoff. Marshalling procedures facilitate the rapid and orderly launching of an airborne operation under conditions of maximum security. Assault units are marshalled simultaneously. Whenever possible airborne units should be so located as to preclude the necessity for preparation of and movement to marshalling camps in order to accomplish the marshalling phase.

b. The marshalling area is the general area in which unit marshalling camps and departure airfields are located (fig. 6). When there are limited numbers of airfields and air landing facilities in the immediate vicinity of marshalling camps, or when requirements for dispersion so dictate, loading may be accomplished on a phased schedule. Instructions governing movement of aircraft

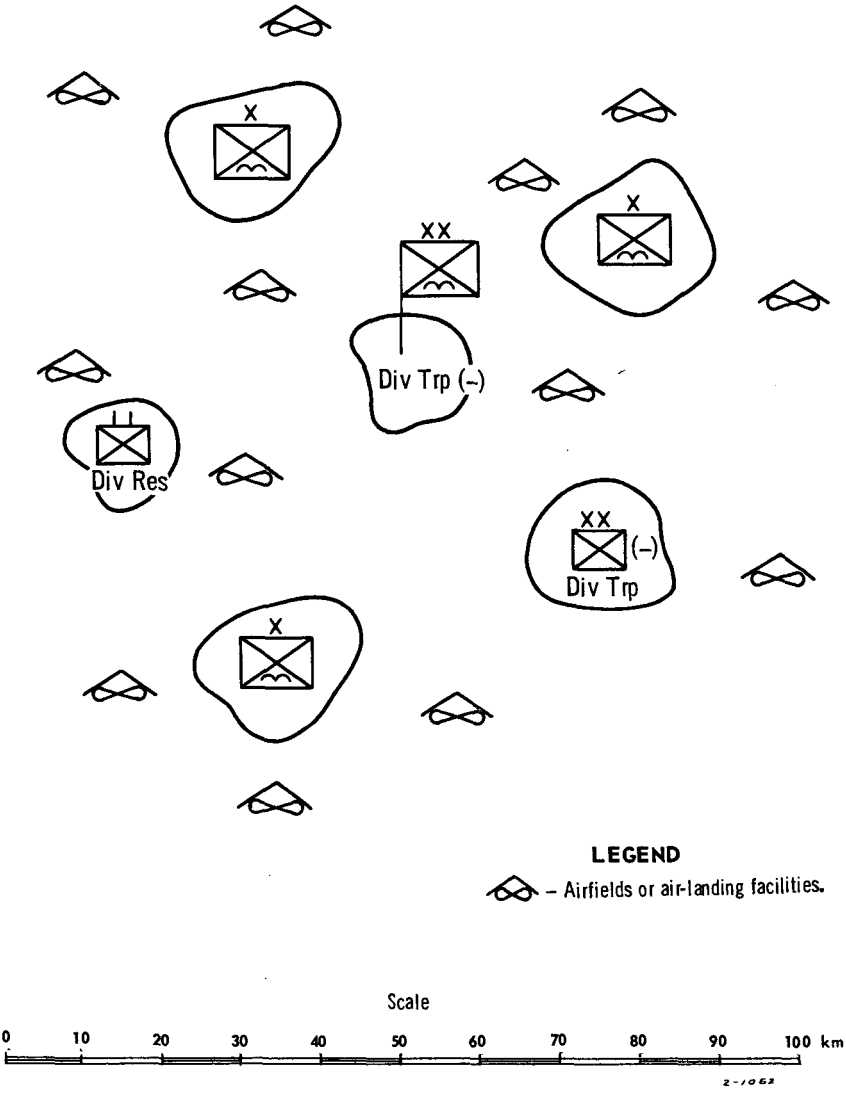

Figure 6. Airborne division in dispersed marshalling camps.

are developed during air movement planning, and are contained in the air movement annex of the airborne unit operation order.

81. Planning

a. The G4 (J4) of the command to be marshalled has primary general staff responsibility for planning and supervising marshalling. He coordinates with the appropriate TALOG agency in order that maximum assistance during marshalling will be provided.

Provision of administrative assistance by the TALOG agency is based on the concept that during marshalling, the airborne forces should be concentrating on final preparations for the assault, and the TALOG agency should provide the bulk of the administrative assistance. For examples of assistance normally provided by the TALOG agency, see paragraph 19. Availability of prepackaged supplies and equipment, and use of SOPs will facilitate administrative preparations.

b. The marshalling annex of the airborne force administrative plan contains detailed instructions for: providing certain facilities and services while units are marshalling; detailed briefing of troops on the operation; movement of units to loading sites; and loading of troops and equipment into individual aircraft. Specific aircraft loads are developed during air movement planning, and are set forth in air loading tables appended to the air movement annex of the operation order.

82. Preparation Prior to Marshalling

a. Marshalling is accomplished in the minimum possible time and usually will not exceed 48 hours for units of division size because of the requirement for security and the threat of enemy employment of nuclear weapons. Units complete maximum preparation prior to marshalling.

b. As early as practicable, units obtain the equipment and supplies which are to accompany them into the objective area. Inspections are held to determine the status of equipment. Maintenance is performed and parachutes, aerial delivery containers, and heavy drop loads are prepared.

c. Individual clothing and equipment and unit equipment, not needed in the objective area, are packed in suitable containers and left for storage with the rear echelon or TALOG agency.

83. Final Preparations During Marshalling

Final preparations include—

a. Briefings, the responsibility of the G3 (J3), are planned and conducted in close coordination with G2 (J2). G3 (J3) in planning briefings determines the time, place, personnel involved, and details to be covered. Prior to sealing, the dissemination of information is on a "need-to-know" basis.

b. Final checks to insure that equipment to be taken into the objective area is available and operational.

c. Providing necessary personnel services. Among these are currency exchange, disposition of unit funds, religious services, and mail service.

d. Preparation of accompanying air delivery containers.

e. Completing preparation of heavy drop loads.

f. Issue of individual maps, photos, and escape kits.

g. Security inspection for diaries, letters, or other unauthorized documents.

h. Issue of individual assault rations and ammunition.

i. Check of air movement forms to include flight manifests.

j. Submission of required reports.

84. Movement to Loading Sites

The airborne force commander assigns priorities for the movement of units, supplies, and equipment to loading sites based on the time required for loading and the scheduled times of takeoff. G4 (J4), in coordination with G3 (J3), is responsible for the preparation of the movement table for this move. The TALOG agency provides ground transportation as required and exercises overall control of movements. Movements are made at night when possible. Maximum security measures are enforced. Personnel and equipment should arrive at loading airfields and air landing facilities at the latest possible time consistent with requirements for last minute briefings and the rigging of personnel parachutes.

85. Loading

a. The troop carrier unit commander provides parking diagrams which show the number, location and sequence of takeoff of aircraft, and the location of reserve aircraft.

b. Personnel in charge of each aircraft load are prebriefed concerning the location and route of movement to their respective aircraft.

c. The CALSU marks each aircraft with the chalk number that appears on the air movement table.

d. Rapid marshalling requires adequate trucks and materials handling equipment to assist in loading of heavy equipment and supplies for air delivery. Heavy drop loads are prepared in the vicinity of loading sites in order to reduce the requirement for transportation support.

e. Movement on airfields and air landing facilities is under Air Force control. Routes to and from enplaning and loading areas are clearly marked. Strict control of both air and ground traffic is maintained on and across runways and strips. Guides will be provided by Army units.

f. Aircraft personnel loads are met by guides who lead them to their respective aircraft for loading.

g. Army units are responsible for loading and lashing their accompanying supplies and equipment with technical assistance of the troop carrier representative.

h. Provision for loading aids and materials such as ramps, roller conveyors, and tie-down equipment is a troop carrier responsibility.

i. Reserve aircraft should be available on-call to insure complete serials in the event of last minute failure of individual aircraft. The time of takeoff of allotted reserve aircraft is dependent on the situation at the moment and is the responsibility of the Air Force commander (par. 21).

j. For additional details on loading procedures and techniques in preparation for air movement, see appendix III.

86. Preparation of Platform Loads

a. General. The problem of rigging and loading the numerous platform loads that will accompany the assault echelon of the airborne force is complicated when dispersed marshalling camps are used.

b. Considerations. The following are the critical factors that must be considered:

(1) The rigging and loading of a large number of items is time-consuming.

(2) Skilled technical supervision is required to insure that each load is properly rigged.

(3) Transportation is required to move the rigged load to the aircraft.

(4) The number of standard-type hoist devices available is seldom adequate, and field expedients are frequently required.

c. Assembly Line. An assembly line technique is used for the rigging of multiple platform loads. It offers the following advantages:

(1) Fewer skilled, technical supervisors are required.

(2) Personnel performing the work on the assembly line become more efficient the longer the assembly line stays in operation.

(3) Fewer hoist devices are required.

d. Field Expedients. Units develop SOPs for the construction of the various types of hoist devices that they will need to lift their organic platform load items (TC 10–1).

Section V. DEVELOPMENT OF AIR LANDING FACILITIES AND AIRFIELDS

87. General

a. Air landing facilities are those minimum essential facilities which can reasonably be constructed to permit the continuous air landing of aircraft. An air landing facility is less elaborate than an airfield but usually more elaborate than a landing zone. Types of aircraft using these facilities may include assault aircraft, medium transport aircraft, and helicopters. Because of the characteristics of these aircraft, separate facilities may be required.

b. The ground force commander is responsible for the construction, repair and maintenance of air landing facilities in the airhead. The troop carrier commander furnishes the ground force commander his requirements and recommended priorities in which they should be accomplished. The ground force commander establishes final priorities after joint consideration of the ground force and troop carrier requirements. Any deviations are coordinated with the troop carrier commander.

c. Construction or rehabilitation of air landing facilities and airfields is initiated early. Plans for the initial assault provide for the seizure of airfields or sites for air landing facilities to support the tactical and logistical plans. Assault units are augmented as necessary to perform minimum required initial construction.

d. The airborne and troop carrier commanders prepare plans to cope with the problem of disabled aircraft on landing facilities. Airborne troops provide assistance in movement of disabled aircraft which might interfere with subsequent operations.

88. Number and Location

a. A large number of widely dispersed, low activity, air landing facilities is used in preference to a few highly developed airfield complexes, both in the departure and in the objective areas.

b. The number and location of air landing facilities and airfields vary with the—

(1) Size of the force to be employed and supported.

(2) Planned buildup including the number and type of aircraft to be accommodated.

(3) Tactical and logistical plans.

(4) Terrain in the objective area, with particular attention to—

(*a*) Airfields that can be seized intact or rehabilitated.

(*b*) Highways and other roads or open areas of reasonably well-compacted soil.

(*c*) Soil characteristics, relief, and vegetation.

(5) Enemy capabilities.

(6) Engineer capabilities.

(7) Weather during the time of operations.

c. It is desirable to have a minimum one assault air landing facility in each brigade area and one for use of division troops, one medium transport air landing facility per division, and one heavy transport airfield per corps. These do not include facilities for employment or organic and attached Army aviation, alternate facilities to offset losses from enemy action, or desired additional facilities which should be provided if the situation permits. If possible, one assault air landing facility in each battalion area should be available.

d. For further details on air landing facility site selection and requirements for engineer support, see FM 5–136.

CHAPTER 5
CONDUCT OF AIRBORNE OPERATIONS

Section I. AIR MOVEMENT

89. General

The troop carrier commander prescribes the system used to expedite takeoff and landing, designates rendezvous and departure points, and prescribes flight formation, assembly pattern and flight routes, emergency and crash procedures, and similar details concerning airfield operations and air movement (par. 23).

90. Aircraft En Route

a. The flight to the objective area is closely regulated. Each serial takes off and assembles into formation before departing on a course to the force rendezvous point (FRP). At the FRP, air serials take position in the air columns and then proceed to the departure point (DP) on a precise time schedule. This assembly procedure funnels the air serials into the air columns in the desired priority of landing and with the proper space between serials. From the departure point, all serials fly at a specified airspeed over the remainder of the route to the IP.

b. Navigation aids such as lights, radios, and radar beacons are placed at each control point and at intervals along the routes over friendly territory to insure accurate navigation.

c. A time interval between serials is necessary to provide tolerance for minor variations in timing at the various control points and to compensate for the accordion effect, which occurs when parachute serials reduce speed to discharge their loads.

d. Multiple columns reduce the time length and the time required to land the force in the objective area.

e. Parachute serials precede assault landing aircraft serials going to the same drop and landing zone. A time interval between the last parachute landing and the first assault aircraft landing is necessary to permit parachute troops to clear the landing zone of enemy, and to remove obstacles. When it is necessary for assault aircraft to land on a drop zone, equipment bundles, parachutes, vehicles, weapons, and casualties must be cleared from the area.

f. The decision to execute alternate plans should be made prior to reaching the initial point (IP) at which serials leave the air column for final runs to their drop and landing zones.

91. Aircraft Over the Objective Area

a. Parachute Release Point. Normally, Air Force units will use the computed air release point (CARP) system for aerial delivery in determining the point at which parachuting personnel and equipment are released to land at a given point. This system is satisfactory only for visual flight rule (VFR) conditions since it involves dead reckoning navigation and predetermined parachute characteristics. During instrument flight rules (IFR) conditions, employment of combat control teams is essential (app. V). Combat control aircraft, when required, precede or accompany the main troop carrier columns to drop the joint airborne advance party. Combat control aircraft are equipped with electronic devices for precise navigation and are operated by specially trained air crews.

b. Parachute Serials. The ground dispersion from parachute serials depends upon the type aircraft used and skill of the aircraft crews and the parachute troops. Good results require precise navigation to the proper drop zone, compact formation, correct speed and altitude for the drop, and rapid and proper exit of personnel, supplies, and equipment. As parachute serials approach the drop zones, troops are alerted by the pilots in sufficient time to make last-minute equipment inspections and prepare for exit (TM 57–220). Before reaching its drop zone, the serial reduces speed. The drop is made on signal of the pilot. Empty aircraft increase speed, execute the planned traffic pattern and may return over the same route or alternate route, but at a different altitude to avoid inbound traffic.

c. Air Landed Serials. As serials approach the landing zones, individual aircraft execute the landing plan. Upon landing, aircraft are parked and unloaded rapidly, and return to departure airfields over predesignated routes. They may return empty or may be used to evacuate wounded, prisoners of war, or equipment.

Section II. THE ASSAULT

92. Landing

a. Combat elements are landed on or as close to their objectives as possible. They are organized to facilitate execution of the ground tactical plan and to avoid presenting profitable targets. Only essential combat equipment is carried in the individual's

combat load. Additional equipment and supplies are dropped as separate bundles or landed by assault aircraft (app. VII, TM 57–210).

b. Assault elements customarily land in their assigned sectors. The airborne force reserve and other troops not assigned to the assault elements will land on prescribed drop and landing zones in one or more of the assault unit's sectors. Command echelons of the airborne force are assigned to different serials.

c. Air landed elements of the assault echelon follow the parachute elements and land on landing zones as near as practicable to parent unit dispositions.

93. Reorganization

a. Units use predesignated areas, visual and sound devices, and identification markings for personnel and equipment to facilitate assembly. Assembly areas are selected in close proximity to landing areas. They are identified by prominent landmarks and marked.

b. Upon landing, the lead elements of a unit are charged with security of the drop and landing zones. Remaining elements move quickly to their assembly areas carrying equipment required for the mission assigned. Upon arrival in assembly areas, unit commanders report the status of their units, receive any new instructions, and continue with the operation.

c. Reorganization of units is accomplished as rapidly as possible. Seizure of assault objectives will be undertaken without waiting for the reorganization of all elements of the airborne force.

d. Designated personnel remain at the drop and landing zones to protect the area, to assemble stragglers, to establish prisoner of war collecting points, to care for wounded, and to complete removal of supplies.

e. Elements of air landed units move by plane load from the deplaning area to a rendezvous point and then to designated unit assembly areas. They carry with them all equipment needed to accomplish initial tasks. This movement is controlled by guides and route markers. Designated personnel remain at the landing zone to unload aircraft and remove supplies and equipment from the landing zone.

f. Reorganization of the airborne force is complete when assault elements of all units are reorganized and communication is established.

94. Conduct of the Initial Assault

a. The initial assault stresses the coordinated action of small units to seize initial objectives before the advantage of surprise has worn off. As assault objectives are seized, the efforts of the airborne force are directed toward securing of the airhead.

b. Tactical surprise, coupled with detailed planning, should enable units to seize their assault objectives and secure the airhead before the enemy has time to react in force. Missions of units are changed as required by enemy defense of initial objectives. The enemy can be expected to launch uncoordinated attacks quickly along major avenues of approach with forces locally available. Progressively, the degree of coordination and strength of these attacks will increase, and the airborne force must develop correspondingly greater strength in its defensive positions. Preparation of early defense against armored and nuclear attack is a major consideration.

c. Units assigned to perform reconnaissance and security missions land in early serials to establish roadblocks, to locate enemy forces, to disrupt enemy communication facilities, and to provide the commander with early warning, security, and information. When initial objectives are lightly defended, the bulk of the force may be employed in clearing assigned sectors and preparing defensive positions in depth. Extensive patrolling is initiated early between adjacent defensive positions within the airhead line and between the airhead and the COP. Army aircraft are well suited for the support of this patrolling. Contact with any friendly guerrilla forces in the area is established as rapidly as possible.

d. Personnel are briefed on unit plans, plans of adjacent and higher units, and alternate plans in order that units or personnel landed in the areas other than those planned can direct their efforts to the accomplishment of the general mission. Misdelivered units or personnel establish contact with their respective headquarters as soon as practicable.

e. Reserves consisting of either withheld forces or forces on which restrictions have been placed, will prepare and occupy blocking positions pending commitment. Typical missions for reserves committed during the initial assault include taking over the mission of misdelivered units, dealing with unexpected opposition in seizing assault objectives, or in securing the initial airhead.

95. Armor Units

When present in the objective area armor units are employed in accordance with FM 17–15 and FM 17–36. Employment of the

airborne tank battalion in the assault phase is characterized by decentralized control. Tank companies normally are attached to airborne brigades or battalions. The allocation of tank battalion units to the brigades depends primarily upon the estimate of combat power necessary for seizure of initial objectives. During the assault phase, armor elements are employed in the assault gun role. The airborne division tank battalion (—), (with or without tank companies), may enter the objective area as part of the division or brigade reserve. Further details are contained in FM 17–15 and FM 17–36.

96. Artillery

In division level operations, one 105-mm howitzer battalion is normally attached to each brigade, with batteries of the missle/howitzer battalion providing general support or general support reinforcing fires. Regardless of the organization for combat in the initial assault, centralized control of all division artillery is regained as soon as practicable. After assault objectives have been seized, artillery units may displace to previously selected positions well forward within the airhead in order to support the COP. In some situations, artillery may be emplaced outside the airhead to support COP forces. When troops on the COP withdraw, the artillery displaces to previously selected positions within the airhead. Airborne artillery, after reorganization has been completed, adheres to tactics and techniques applicable to other artillery units (FM 6–20, parts 1 and 2).

97. Engineer

Principal missions of engineer units during the assault include providing combat engineering support to the assault units, and initiating construction of air landing facilities and rehabilitation of airfields in the objective area. Detailed instructions concerning tasks to be accomplished or initiated during the assault are contained in the engineer annex to the operation order. Engineers are brought under centralized control as soon as practicable in order to more efficiently perform their supporting tasks (FM 5–136).

98. Army Aviation

a. Whenever possible, organic and attached Army aircraft move to the objective area under their own power arriving as soon after the initial assault as the tactical situation permits. Flights are closely controlled and regulated to avoid interference with flights of the troop carrier elements. Within the field army area, terminal

guidance for Army aircraft normally is provided by TOE pathfinder units (FM 57–38). Certain navigational aids of the troop carrier elements may also be used. Although flights at low altitude are a primary passive means of avoiding enemy counteraction, provisions should also be made for air escort by fighter aircraft.

b. When the distance from the departure area to the objective area is beyond the range of Army aircraft, but the distance from forward battle areas is within their range capabilities, the procedures outlined below normally are adopted. Aircraft are serviced in the departure area and flown from the departure area on a planned schedule. They reservice in the forward areas and depart over planned routes to the objective area. A variation of this technique is the employment of naval carrier-type vessels as a refueling base or for transport on one leg of the trip to the objective area. When none of the methods cited above can be used because of the extreme range to the objective area, Army aircraft may be disassembled for transport in troop carrier aircraft. For lighter Army aircraft partial disassembly for transport and reassembly for use in the objective area is possible. However, it is time consuming and its impact on tactical plans must be considered. For other aircraft, particularly large helicopters, the complexity of the reassembly process in the objective area prohibits their early employment.

c. For details on the organization and employment of the division aviation battalion, see FM 1–15.

99. Establishment of the Command Post and Communications

a. Early establishment of communications is essential for effective control of ground operations. Communications personnel and equipment are phased into the objective area early in the assault to insure timely installation of vital communications for the command post which they are to serve. See FM 61–100 and FM 11–57 for a discussion of command post organization.

b. Provisions are made for communications with supporting troop carrier forces, bases in friendly territory, linkup forces, or other ground forces with a common or coordinated mission.

Section III. ORGANIZATION OF THE OBJECTIVE AREA

100. General

The major consideration after the initial assault landings have been made and the initial ground missions accomplished is the organization of the airhead and immediate surrounding territory. Combat, combat support and administrative support forces within

the airhead are disposed to conduct the initial defense pending initiation of any required subsequent operations.

101. Defense

a. The degree to which the airhead is occupied and organized for defense is determined by the mission, enemy capabilities, troops available, and defensive characteristics of the terrain and duration of the operation. Adjustments in planned dispositions of troops and installations are made by appropriate commanders to fit the terrain and situation.

b. Reinforcement of COP forces is accomplished as soon as possible after completion of assault missions. Reconnaissance forward of the COP is intensified by both air and surface means. Roadblocks, minefields, and similar artificial obstacles are continuously improved along all likely avenues of approach.

c. The defense of the airhead is conducted by aggressive action as far forward of the airhead as possible. Strongpoints are organized in depth on dominant terrain and cover main and secondary avenues of approach leading into the airhead. Intervening gaps are covered by fire, mines, artificial obstacles, continuous reconnaissance, and surveillance. The small reserves of the initial assault are augmented. Enemy attacks are countered by shifting units not heavily engaged, reinforcing threatened areas, massing supporting fires, and counterattacking. The shape of the airhead provides interior lines of communication, which facilitate the shifting of troops and commitment of available reserves. Reserves are prepared to counterattack, to occupy defensive positions, or to execute blocking missions. Major counterattacks to restore the airhead line are accomplished at brigade level or above. For major penetrations, the brigade reserve may be committed in a blocking role, with the division reserve executing the counterattack. Priorities for the designation of new reserves are established, and when the existing reserves are committed, new reserves are constituted. Commitment of the division reserve normally will be by attachment to the brigade in whose sector the reserve is to be employed as the shape and area of the airhead will not permit retention of a brigade headquarters in reserve.

102. Defense Against Armor

a. During the initial phases of an airborne operation, one of the primary defenses against enemy armor is tactical air support. Throughout the operation, enemy armor is attacked as far as possible from the objective area and is maintained under observation and attack as long as it poses a threat to the airborne force.

b. Antitank weapons are located in depth along favorable avenues of approach for armor. All major avenues of approach are covered by planned nonnuclear and nuclear fire. The antitank weapons organic to units not under armored attack may be concentrated pending anticipated employment, or moved to threatened sectors.

103. Defense Against Air Attack

In major operations, protection against enemy air attack is provided by attached air defense artillery units, by air defense artillery units of higher headquarters, or by the Air Force. For smaller scale operations, the airborne force may operate without air defense artillery.

Section IV. SUBSEQUENT OPERATIONS

104. General

Subsequent operations may include continued defense of the airhead to include delaying actions, withdrawal (either overland or by air), or offensive operations to include exploitation and further airborne assaults. Peculiar aspects of delaying action, air withdrawal, exploitation, and subsequent airborne assaults when conducted from the objective area are discussed below.

105. Delaying Action

a. Conduct of delaying action envisions seizure of a large airhead or several small separated airheads initially, followed by delaying operations on successive positions when forced to withdraw by enemy action. Space is traded for time. This type defense may be feasible for large-scale operations but will seldom be conducted by divisions or smaller size units. Availability of aircraft, especially VTOL aircraft, facilitates employment of elements of the airborne force in execution of delaying action along major avenues of approach. Shortage of ground vehicular mobility, lack of armor, considerations of communication and command over relatively great distances, and the sacrifice of mutual support usually make adoption of delaying action by the airborne division impracticable.

b. If withdrawal from the initial positions is required, the final area to which the airborne force withdraws must contain adequate space for maneuver, for protection of critical installations, and for such air landing or air withdrawal operations as are planned.

106. Withdrawal by Air

a. Withdrawal by air may be forced by the enemy or may be made voluntarily.

b. Withdrawal by air involves consideration of the following:

(1) Aircraft and suitable landing zones must be available.

(2) Local air superiority or absence of enemy air interference and suppression of the enemy's air defense during the withdrawal is essential.

(3) The operation is sensitive to weather.

(4) Surprise and deception are essential to the success of the operation.

(5) Withdrawal of the detachments left in contact is a critical phase of the withdrawal.

(6) The decision to withdraw by air must be made sufficiently in advance of the anticipated time of execution to permit adequate planning and coordination.

(7) Priorities for evacuating troops, supplies, and materiel must be established. Supplies and equipment which cannot be evacuated are destroyed.

c. When a decision has been made to conduct an air withdrawal, the airborne commander furnishes the troop carrier commander a list of unit priorities broken down into plane loads indicating departure points and destination. The troop carrier commander is responsible for air movement control. He will establish required CALSUs within the objective area to coordinate arrival and departure of aircraft. The airborne commander establishes loading control centers adjacent to CALSUs in order to insure that presecribed plane loads of personnel and equipment are available in ready areas prepared to load, that prescribed plane loads are called forward from ready areas as aircraft arrive, and that the CALSU is notified when aircraft are loaded.

107. Exploitation

See FM 61–100.

108. Buildup

An extensive buildup of troops and supplies in the objective area may be inherent in the mission of the airborne force. Major factors to be considered in planning the buildup are requirements for air landing facility construction (pars. 87 and 88), the reception of troops and materiel, the preparation of units for further operations, requirement for logistical facilities and service troops, and

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the availability and capability of aircraft. Plans for buildup must be considered simultaneously with plans for air movement. Details are reflected in the air movement table, air loading table, and other appropriate documents.

109. Subsequent Airborne Operations From the Objective Area

a. Airborne operations may be conducted from the objective area. Forces are given mission-type orders, and the operation is launched with minimum preparation. The airborne operation mounted from a division size objective will employ only a portion of the division in airborne assault.

b. Prior to launching subsequent airborne assaults, it is desirable that personnel replacements be furnished for the units concerned, and that individual and unit equipment be inspected and replaced or repaired where necessary. To avoid congestion in the objective area during preparation for the assault, equipment to be delivered by heavy drop may be obtained as additional items from TALOG resources, and rigged and loaded in the original departure area by rear echelon personnel or by supporting TALOG units. After briefing of pilots and crews has been accomplished, the heavy drop aircraft are flown to predesignated rendezvous points where they join air columns departing for the new objective area. If necessary, platforms, parachutes, and other required rigging and loading equipment, along with technical advisory personnel, may be flown in and equipment of the airborne force rigged and loaded for heavy drop. Aircraft which are to drop personnel should arrive with the required number of packed personnel parachutes.

Section V. AIR TRAFFIC CONTROL

110. General

In joint airborne operations, air traffic control is vested in the joint task force commander. The air traffic control plan is developed concurrently and coordinated with the air movement and signal communication plans. Control is exercised over all aircraft operating within a designated area and remains in force until the operation has been completed.

111. Airhead Air Traffic Control Center

The airhead air traffic control center (AATCC) is an agency established by a joint force commander to exercise air traffic regulation over all aircraft operating within a designated regulation area, including the airborne objective area. It contains Army,

Air Force, and Navy elements as required and operates as directed by the joint force commander. Detailed air traffic control procedures are developed by the joint force commander early in the planning phase of each operation. These procedures are coordinated with the Army, Air Force, and Navy commanders concerned, and permit maximum freedom of operation for all aircraft. Special effort is made to refrain from establishing arbitrary restriction on altitudes, unnecessary grounding of aircraft, or other restrictions not deemed absolutely essential. Major functions of the AATCC are—

a. To establish and monitor rules and procedures for the regulation of the flight of all aircraft operating within the designated regulation area.

b. To receive and display flight plan information as required and monitor all air traffic within the regulation area.

c. To maintain intelligence, operational, and weather data necessary to provide warning, identification, inflight assistance, and weather information to aircraft operating in its area of responsibility.

d. To accomplish coordination and liaison with the tactical operations center (TOC).

e. To establish and operate ground-to-air and/or point-to-point communication facilities between the AATCC and all elements operating within the control area.

112. Air Traffic Director

The joint task force commander will usually designate an air traffic director (ATD) from one of the elements of the AATCC for each phase of the operation. Arrangements for Army, Navy, and Air Force representation and communication in the AATCC are made as required for control of their respective aircraft in accordance with regulation procedures directed by the ATD. The joint task force commander will provide guidance to the ATD.

Section VI. AIRBORNE RAIDS

113. Characteristics

Airborne raids are similar to other raids except that the raiding force uses air transport to move to the objective area and may be withdrawn by air. The airborne raid is more apt to go beyond the supporting distance of the parent unit than other types of raids.

114. Objectives and Missions

a. The raiding force may be assigned an area of operations rather than a specific objective, and may operate separately or in conjunction with guerrilla forces.

b. Suitable missions for the raid are: destroy, capture, or harass enemy forces; destroy installations; seize critical equipment or other intelligence objectives; rescue friendly personnel; and disrupt the operation of enemy headquarters or communication facilities.

115. Planning and Preparation

Withdrawal plans are considered concurrently with all other aspects of the planning and in some circumstances may be the overriding consideration. Other aspects of planning and preparation for airborne raids closely parallel those required for the airborne assault. Plans for movement are designed to deliver the raiding force to the objective area with the minimum risk of detection. Detailed intelligence is essential to the successful planning and conduct of the airborne raid. Plans are made to isolate the objective area. A coordinated effort is directed toward destroying or disrupting enemy forces moving towards the objective area. This is accomplished by fires from aircraft, missiles, and naval forces. Guerrilla forces can be used to assist the effort by destroying bridges and communications, and by blocking defiles. Withdrawal from a raid under heavy enemy pressure may be difficult and therefore requires detailed, flexible plans.

116. Raid Forces

The size of the raiding force must be kept to the minimum required to accomplish the assigned mission. The raiding force is organized into self-contained elements tailored to accomplish specific tasks. Such elements may include assault parties, security parties, and a reserve. However, the unit TOE structure is retained to the greatest degree practicable to permit the use of the established chain of command. Special equipment required for the operation may have to be destroyed prior to the withdrawal. The reserve may be kept outside the objective area to be flown in when required or the raid may be conducted without a reserve.

117. Timing

If possible airborne raids are carried out under conditions of low visibility to achieve surprise. The execution of daylight raids normally requires a greater use of supporting fires, and measures to limit enemy ground observation and electronic detection. The

raid is executed as swiftly as possible, and the force is withdrawn before the enemy can react with significant force.

118. Training and Rehearsals

Special training for each operation is conducted except in cases when raids must be mounted on very short notice. Normally there is at least one rehearsal of the entire operation to include the withdrawal phase. This rehearsal is carried out sufficiently early to insure that any lessons learned can be incorporated in the operational plan. When air and naval forces are to participate in the raid, they should also participate in the rehearsal. The ground phase is rehearsed on terrain similar to that in the objective area and under conditions similar to those anticipated for the actual raid.

119. Conduct of the Raid

For details of conduct of the raid, see FM 61–100.

120. Withdrawal

a. The raiding force withdraws by air, land, sea, or a combination of these means. The withdrawal must be carefully planned since it is frequently the most difficult part of the operation. Alternate withdrawal plans are made to overcome unforeseen developments.

b. An air withdrawal (par. 106) may be made by assault or medium transport aircraft, or by helicopter, and may be preceded by overland withdrawal to pickup points.

c. Submarines, destroyers, and small boats may be used when evacuation by sea is practicable. Plans provide for alternate beaches and in some instances for naval gunfire to cover the withdrawal.

d. The raiding force may withdraw overland. This method of withdrawal is favored when—

(1) The distance to friendly lines is relatively short.

(2) The terrain provides cover and concealment for the movement of small groups on foot and limits the employment of mobile units against the raiding force.

(3) Enemy forces are widely dispersed or are under such pressure that they would have difficulty in concentrating against the raiding force.

(4) The raiding force is lightly equipped and does not have the mission of evacuating captured personnel or materiel.

(5) The raiding force moves through an area occupied by friendly civilians, or where partisan or guerrilla forces can assist the withdrawal.

e. Equipment and supplies which cannot be evacuated are destroyed.

121. Supply

Normally, the raiding force carries only the supplies and equipment necessary to accomplish its mission. However, plans, particularly for an overland withdrawal, may require resupply. Resupply is made by airdrop direct to the raiding force. Captured materiel and weapons are used to the maximum.

122. Command and Communications

a. It is essential that the headquarters controlling the raid have command or operational control of all units directly participating in the operation in order to insure complete coordination and control.

b. A reliable communication system between the raiding force and the next higher headquarters outside the objective area is essential for overall coordination of the operation.

Section VII. AREA INTERDICTION OPERATIONS

123. Mission

a. An airborne force may be assigned an area interdiction mission to prevent or hinder enemy operations in a specified area. This type operation is appropriate in conjunction with a major offensive by friendly forces and may be of short or long duration. Although the force commander retains overall control of the operation, the operation is characterized by assignment of areas of operation to subordinate units.

b. Elements of the airborne force operate over a large area and accomplish such tasks as destroying enemy communication facilities and supply installations; destroying or neutralizing enemy antiaircraft, missile, and electronic facilities; and cutting rail lines, cratering roads, and destroying bridges to prevent or disrupt movement of enemy supplies and combat forces.

124. Terrain

Terrain that limits or restricts the off-road mobility of enemy forces will assist the airborne force in the accomplishment of the interdiction mission.

125. Tactics Employed

a. The area assigned to the airborne force is divided into sectors. Each of the subordinate elements of the airborne force is responsible for operations within its assigned sector. The force, dispersed over such large area, presents few, if any, profitable targets for enemy weapons.

b. The interdiction area assigned the airborne force must provide space for the maneuver and permit the use of reconnaissance and security forces.

c. The elements of the force operating in the various sectors inflict maximum damage on any enemy forces in, or entering, the objective area. No attempt is made to deny completely the interdiction area to the enemy. Enemy forces in the area are subjected to maximum harassment. However, specific tasks assigned by higher headquarters may require engagement in decisive combat.

d. Equipment, weapons, or supplies that reduce the off-road mobility of the airborne force are not normally brought into the interdiction area.

e. Certain locations may be controlled by the airborne force to provide for aid stations, evacuation points, refueling facilities, and the delivery of supplies.

126. Mobility

a. Sufficient ground and air transportation is introduced into the objective area to enable the airborne force to accomplish its mission and to avoid being pinned down and defeated in detail.

b. Elements of the airborne force may be moved within the interdiction area by means of vertical or short takeoff and landing aircraft. The number of aircraft introduced into the area of operations is dependent on the distance from friendly areas and the ability of the aircraft to survive and operate within enemy territory.

c. If a reserve is not taken into the objective area, the commander may provide additional forces to threatened sectors by the movement of an on-call reserve from the departure area or by shifting unengaged forces from one subordinate unit to another within the interdiction area.

127. Movement Restrictions

Forces do not move outside of the designated area without specific authority of the higher headquarters coordinating the entire ground-air-airborne effort. The restriction on movement

is necessary to reduce coordination problems and to allow higher headquarters to deliver fires of all types in the enemy area not included within the interdiction area.

128. Coordination and Control

Coordination and control of forces in the interdiction area are highlighted in three general areas.

a. Control of Nuclear Fires. Maximum control of fires is required to avoid casualties among the dispersed and moving elements of the airborne force. Certain areas where targets for nuclear weapons either exist, or probably will exist, during the course of the operation are designated as "no entry" areas. These areas are reserved for attack by nuclear weapons and their location is disseminated to all appropriate levels of command. Entry into these areas by any forces is allowed only upon specific approval of a designated control headquarters of the force.

b. Communications. The dispersion of the airborne force over a large area complicates communication problems and requires the augmentation of existing radio facilities.

c. Supply. The airborne force enters the objective area with its accompanying supplies. Additional supplies are delivered on an on-call basis to selected locations. The situation existing within the interdiction area may require that aircraft landing in the objective area or air-dropping supplies be directed to usable areas by air controllers operating within the interdiction area. Since operations are based on maintaining a minimum level of supply in the interdiction area, there is a greater requirement to use captured enemy stocks and to live off the land.

APPENDIX I
REFERENCES

JCS Pub 1	Dictionary of United States Military Terms for Joint Usage.
JCS Pub 2	Unified Action Armed Forces (UNAAF).
JCS Pub 3	Joint Logistics and Personnel Policy and Guidance.
DA Pam 108–1	Index of Motion Pictures, Film Strips, Slides, and Phono-Recordings.
DA Pam 310-series	Military Publication Indexes (as applicable).
AR 59–106	Operation of Air Force Terminals.
AR 310–3	DA Publications—Preparation, Coordination, and Approval.
AR 320–5	Dictionary of United States Army Terms.
AR 320–50	Authorized Abbreviations and Brevity Codes.
FM 1–15	Aviation Battalion, Infantry, Airborne, Mechanized, and Armored Divisions.
FM 1–60	Army Aviation Air Traffic Operations—Tactical.
FM 1–100	Army Aviation.
FM 5–136	Engineer Battalion, Airborne Division.
FM 6–20–1	Field Artillery Tactics.
FM 6–20–2	Field Artillery Techniques.
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 7–30	Infantry, Airborne and Mechanized Division Brigades.
FM 8–10	Medical Service, Theater of Operations.
FM 8–15	Division Medical Service, Infantry, Airborne, Mechanized, and Armored Divisions.
FM 9–30	Maintenance Battalion, Division Support Command.

FM 10–33	Airborne Division, Quartermaster Air Equipment Support Company.
FM 10–50	Supply and Transport Battalion, Division Support Command.
FM 11–57	Signal Battalion, Airborne Division.
FM 12–11	Administration Company, Infantry, Airborne, Armored, Infantry, and Mechanized Divisions.
FM 17–1	Armor Operation; Small Units.
FM 17–15	Tank Units, Platoon, Company and Battalion.
FM 17–36	Armored Cavalry Platoon and Troop, Air Cavalry Troop, and Divisional Armored Cavalry Squadron.
FM 19–10	Military Police Operations.
FM 19–25	Military Police Traffic Control.
FM 19–40	Handling Prisoners of War.
FM 19–90	The Provost Marshal.
FM 21–5	Military Training.
FM 21–6	Techniques of Military Instruction.
FM 21–10	Military Sanitation.
FM 21–30	Military Symbols.
FM 21–60	Visual Signals.
FM 27–10	The Law of Land Warfare.
FM 30–5	Combat Intelligence.
FM 30–20	Aerial Surveillance — Reconnaissance, Field Army.
FM 31–8	Medical Service in Joint Oversea Operations.
FM 31–10	Barriers and Denial Operations.
FM 31–12	Army Forces in Amphibious Operations (The Army Landing Force).
FM 31–15	Operations Against Irregular Forces.
FM 31–21	Guerrilla Warfare and Special Forces Operations.
FM 31–40	Tactical Cover and Deception (U).
FM 41–5	Joint Manual of Civil Affairs/Military Government.
FM 41–10	Civil Affairs/Military Government Operations.
FM 41–15	Civil Affairs/Military Government Units.
FM 44–1	Air Defense Artillery Employment.
FM 54–1	The Logistical Command.
FM 54–2	Division Logistics and the Support Command.

FM 57–35	Airmobile Operations.
FM 57–38	Pathfinder Guidance for Army Aircraft.
FM 61–100	The Division.
FM 100–1	Field Service Regulations; Doctrinal Guidance (U).
FM 100–5	Field Service Regulations; Operations.
FM 100–10	Field Service Regulations; Administration.
FM 100–15	Field Service Regulations; Larger Units.
FM 101–5	Staff Officers' Field Manual: Staff Organization and Procedure.
FM 101–10	Staff Officers' Field Manual: Organization, Technical, and Logistical Data.
FM 101–31	Staff Officers' Field Manual; Nuclear Weapons Employment (U).
TM 9–236	Military Tactical Vehicles (Ordnance Corps Responsibility).
TM 10–500 series	Air Delivery of Equipment.
TM 57–210	Air Movement of Troops and Equipment.
TM 57–220	Technical Training of Parachutists.
TC 10–1 (1955)	Field Expedients and Vehicles for Outloading Heavy-Drop Equipment.
TC 101–1 (1958)	Prediction of Fallout and Radiological Monitoring and Survey.

APPENDIX II
DUTIES OF ARMY LIAISON OFFICERS WITH OTHER SERVICE HEADQUARTERS

1. General

Army liaison officers must be thoroughly familiar with all aspects of the airborne operation. They must be accredited to attend required briefings and conferences, and must be provided with adequate transportation and communications facilities.

2. Duties

Specific duties of airborne force liaison officers are—

a. To provide a point of contact for the coordination of matters involving dual responsibility such as—

(1) Joint staff meetings.

(2) Joint briefings.

(3) Availability of equipment.

(4) Examination of parallel orders to insure complete agreement of plans and arrangements.

(5) Procurement of equipment and facilities belonging to his own command which are required by the command to which he is detailed.

(6) Provision and implementation of plans for marshalling to include loading of aircraft.

(7) Preparation of joint reports.

b. To be familiar with plans and arrangements to provide reserve aircraft in the event of last-minute failures and for the movement of troops from aborting aircraft to reserve aircraft.

c. To represent his commander at the Air Force combat airlift support unit (CALSU).

d. To be familiar with the location and capacity of all installations at the airfield(s) and air landing facilities with which his unit will be concerned.

APPENDIX III
AIR MOVEMENT PROCEDURES

1. General

The procedures outlined herein apply to airborne assault operations as well as to administrative air movements.

2. Principles

a. Basic principles which apply in loading aircraft for assault operations are—

(1) Unit commanders strive for tactical loading.

(2) All individuals carry complete combat equipment.

(3) Ammunition and crew accompanies each weapon so far as possible.

(4) Drivers accompany vehicles; prime movers are loaded with their towed loads.

(5) Component parts of equipment accompany the item of equipment in the same aircraft.

(6) Key personnel with equipment are distributed throughout several aircraft.

(7) Every load is safely balanced and lashed and is listed on a flight manifest form.

(8) Each aircraft is loaded to take maximum advantage of its cargo capabilities so far as tactical loading permits.

(9) Aircraft are loaded in accordance with their cargo-carrying capabilities over the critical leg as dictated by refueling capabilities.

b. The situation will determine which of the above principles will apply in air movements not involving an airborne assault.

3. Computations of Aircraft Requirements

a. Commanders and staff officers must be familiar with the types and characteristics of available aircraft. Types and characteristics of aircraft are contained in TM 57–210.

b. The two methods used most frequently in computing aircraft requirements are—

(1) The type load method for tactical operations.

(2) The weight method for administrative movements.

c. The *type load method* is a typical arrangement of personnel and cargo within load limits and center of gravity for safe flight in a particular type of aircraft. For example, a type load for one kind of aircraft under certain conditions might be 20 personnel and two ¼-ton trucks.

d. The *weight method* of computing aircraft requirements considers only the total weight of cargo to be moved. For example, an aircraft might have a total capacity of 15,000 pounds. The aircraft is loaded with any combination of cargo and personnel which most nearly uses this capacity.

e. For details of determining type loads and weight loads, see TM 57–210.

4. Load Categories

a. Army loads are classified into three broad categories which are based upon differences in loading and unloading times, requirements for materials handling equipment and/or field expedients, and aircraft characteristics.

b. Load catgories are as follows:

(1) *Category I.* Bulk personnel loads including—
- (*a*) Personnel with individual combat equipment.
- (*b*) Accompanying supplies.
- (*c*) Accompanying personal baggage.
- (*d*) Parachutes.

(2) *Category II.* Composite loads including—
- (*a*) Vehicles.
- (*b*) Vehicles loaded with cargo.
- (*c*) Accompanying personnel.

(3) *Category III.* Bulk cargo loads including—
- (*a*) Unit supplies and equipment not transported on unit transportation in category II loads.
- (*b*) Bulk supplies and equipment prescribed for a given operation.

5. Procedures

a. The movement of forces by air for airborne assault is best accomplished by developing plans in an orderly sequence involving the following steps:

(1) Determine the task organization of the force to be moved and compute the number of personnel and items of equipment which are to be moved.

(2) List the units and their equipment on the basic planning guide (TM 57–210), organize the force into assault,

followup, and rear echelons in accordance with tactical plans.

(3) Allocate the available aircraft on the aircraft allocation and phasing plan worksheet. If sufficient aircraft are not available, phase back low priority items to the followup echelon.

(4) Prepare the aircraft loading worksheet.

(5) Prepare the air movement table.

b. Details of preparing the above forms are contained in TM 57–210.

c. For movement by air not terminated by assault landings, the procedures and steps outlined above are employed except that the lead echelon of the force is called the initial echelon rather than the assault echelon. Tactical integrity of units may be dispensed with to allow for more efficient utilization of aircraft.

6. Traffic Control at Airfields and Air Landing Facilities

a. Traffic control is essential in order to avoid congestion at loading and unloading sites. In outloading any force, control is accomplished by using a call forward system in which loads are brought into the loading area as required.

b. The control system outlined below is applicable to air landing facilities as well as airfields. The system provides separate loading facilities for personnel, heavy drop loads, and aerial supply, or for each of the categories of loads listed in paragraph 4. This separation is essential for effective control and for decreasing the time required to load. The airfield control system is established with minimum required personnel and communications equipment with careful regard to the size of the forces being moved. See figure 8 for a concept of outloading control.

c. Outloading procedures are as follows:

(1) Initially, personnel and equipment are dispersed in marshalling camps distant from the loading airfields but in close communication with control groups at the airfields.

(2) Upon call, the unit or equipment is moved by plane load to the call forward area. The call forward area maintains a minimum number of plane loads on hand to insure uninterrupted loading. Guides and military police are used as required.

(3) As aircraft arrive in the loading area, plane loads are called forward and the members of the unit load and tie

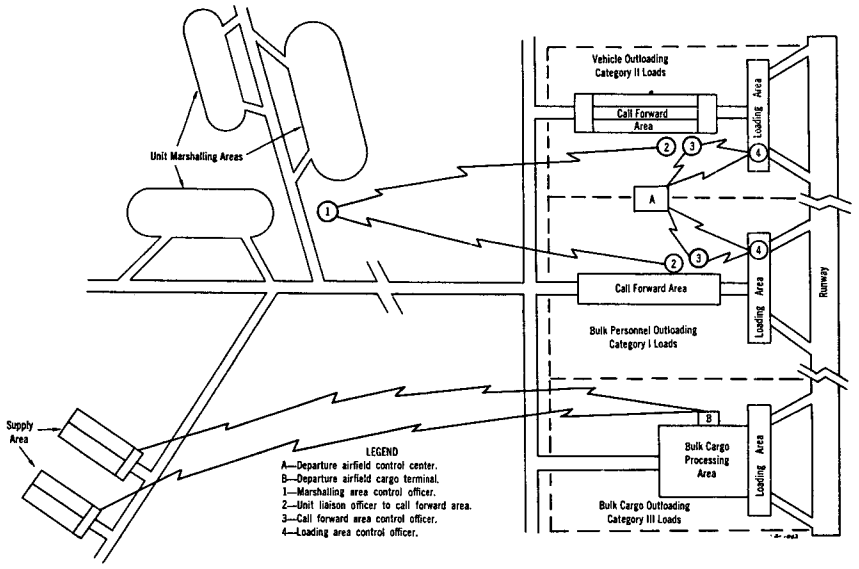

Figure 7. Concept of outloading control.

down equipment with technical assistance of the Air Force personnel.

(4) A log listing the departure of each aircraft is maintained by control personnel. The log contains the following information:

(*a*) Aircraft tail number.

(*b*) Summary of load or unit load number. (Manifests are correlated with this entry.)

(*c*) Time aircraft was available for loading.

(*d*) Station time.

(*e*) Takeoff time.

(*f*) Remarks.

d. A control sytem at arrival airfields is essential for air movements to prevent congestion and facilitates orderly movement of cargo and personnel. At arrival airfields, the control system is essentially reversed from that used at departure airfields. On arrival, aircraft are unloaded and the loads moved to dispersed holding areas where arriving elements are allowed to build up to convenient size for further movements. Load categories are kept separated as far as possible in order to facilitate control and movement.

APPENDIX IV
PLANNING SCHEDULES

1. Schedule of Planning for Airborne Operations

See figure 8.

2. Example of a Logistical Time-Planning Schedule

a. General. This example is for a large-scale operation for which there is ample planning time.

b. Theater Army or Field Army.

Prior to D—45, based upon directives from higher headquarters, determines—

Tentative selection of additional camps required for concentration and marshalling.
Estimated duration of operation.
Estimated daily supply requirements.
Desired level of supply in the objective area for military and civil requirements.
Availability of supplies required for operation.
Availability of logistical resources within objective area.
Availability of aircraft for operation.
Ability to deliver required supplies to departure area airfields and air landing facilities at the required times.
Characteristics of air landing facilities within objective area.
Availability of evacuation and hospitalization facilities for the support of the operation.

D—45:

Receives higher headquarters logistical plan.
Preparation of army logistical plan commences.
Preparation of detailed service troop list commences.
Preparation of camps for concentration and marshalling commences.

D—40:

G4 conference on logistical support with corps concerned.
Alerting of service units to be used for the operation.
Allocation of specific camps to all units participating in the operation.

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1. Schedule of Planning for Airborne Operations

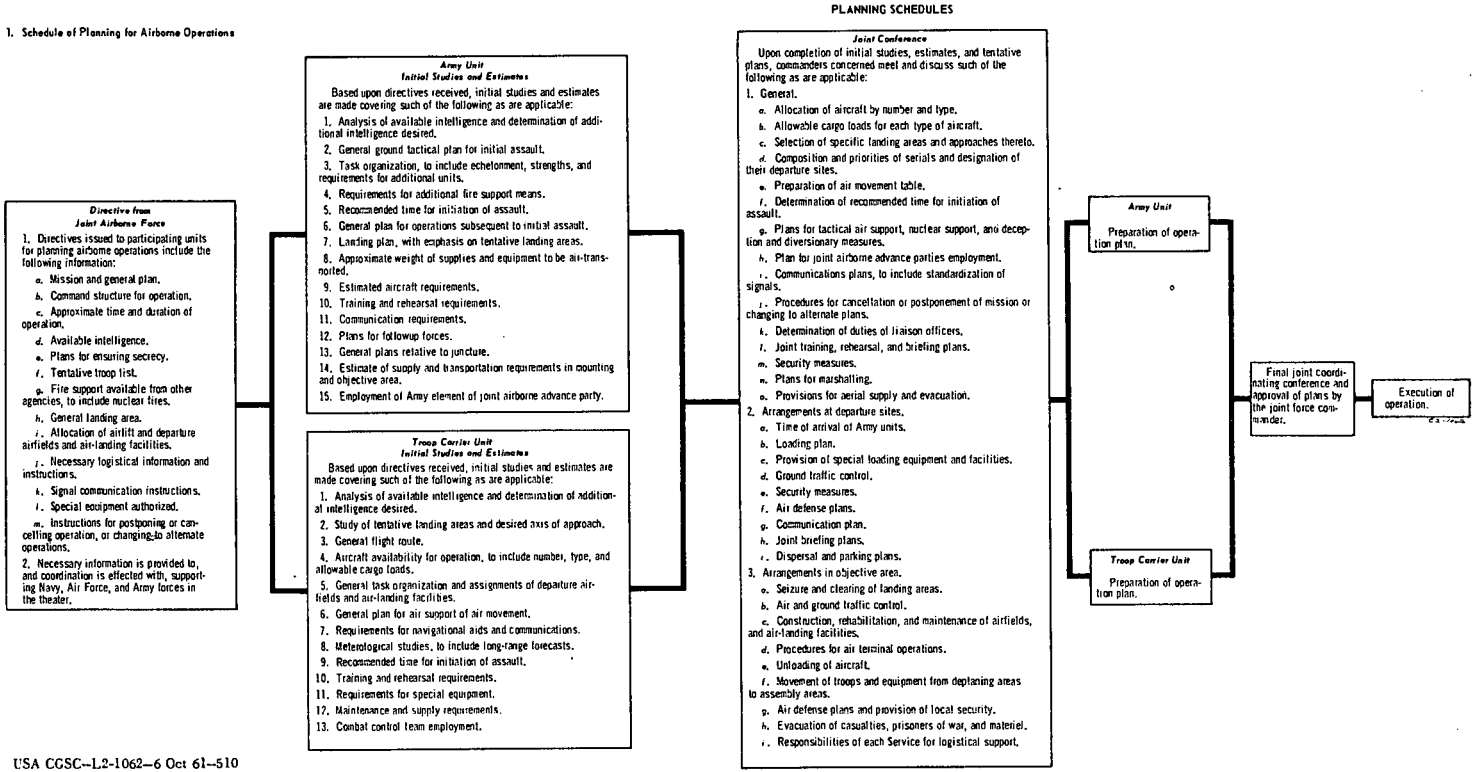

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Figure 8. Planning schedules.

Conference with supporting TALOG agency concerning availability of equipment and supplies and projected readiness dates of camps for concentration and marshalling.

D—37:

Conference with troop carrier unit commander on logistical organization and facilities for delivery and support of forces in the objective area.

D—33:

Logistical plan completed.

D—30:

Completed logistical plan furnished subordinate corps.

Assault corps relieved of current tactical operations.

Service troops receive directive for participation in operations.

D—25:

Coordination with corps on phasing of army service units into the objective area.

D—20:

Movement of army service units to mounting area commences.

Followup corps relieved of current tactical operations.

D—15 (up to D—7):

Assault airborne divisions close in mounting area.

D—14:

Preparation of followup supply in departure areas commences.

D—8 (up to D—4):

Reorganization and equipping of army service units completed.

Air landed divisions close in mounting area.

D—2:

Assault airborne forces sealed for marshalling.

D—1:

Movement of assault echelon to aircraft loading sites commences.

Movement, as required, of followup divisions and service units to camps to be used for marshalling commences.

Loading of equipment of assault airborne forces.

D—day:

Loading of personnel, equipment and accompanying supplies completed.

Departure of airborne assault forces.

c. Corps.

D—40:

Warning order for airborne operation received.
Initial logistical planning commences.

D—35:

Units to participate alerted for airborne operation.

D—30:

Army logistical plan received by corps.
Assault corps relieved from current tactical operations.

D—28:

Assault airborne divisions attached to corps.

D—21:

Corps logistical plans completed.

D—20:

Followup divisions attached for operation.
Corps logistical plan furnished divisions.

D—9:

Completion of reorganization and equipping of corps troops.

D—7:

Assault corps checks on followup supply in departure areas.

D—2:

Assault airborne force sealed for marshalling.

D—1:

Movement of assault echelon to aircraft loading sites commences.
Movement, as required, of followup divisions and service troops to camps to be used for marshalling commences.
Loading of equipment of assault airborne forces.

D—day:

Loading of personnel, equipment, and accompanying supplies completed.
Departure of assault force.

d. Division.

D—35:

Alerted for participation in airborne operation.

D—28 (up to D—10):

Assault airborne divisions attached to corps.

D—20:

Followup divisions attached to corps for operation.
Divisions receive corps logistical plan.
Preparation of division administrative order commences.

D—11 (up to D—5):

Marshalling plans completed.

D—10 (up to D—4):

Procurement of required supplies for operation from supporting supply installations commences.

Sufficient personnel and cargo parachutes packed for the operation.

D—7 (up to D—4):

Final shortages of supplies determined and requisitions submitted.

Issue of accompanying supplies to assault units.

Intensive maintenance of equipment initiated.

D—5 (up to D—3):

Attain full authorization of equipment and desired amounts of accompanying supplies.

Complete arrangements for additional transportation required for marshalling.

Complete administrative order and issue to units.

Recheck completeness of supply and equipment.

D—2:

Assault airborne divisions sealed for marshalling.

D—1:

Movement of assault echelon to aircraft loading sites commences.

Movement, as required, of followup divisions and service troops to camps to be used for marshalling commences.

Assault divisions load equipment.

D—day:

Loading of personnel, equipment, and accompanying supplies completed.

Departure of assault echelon.

e. The time schedule above is one in which the time available for planning is not critical. However, when an airborne corps is retained in a state of operational logistical readiness the entire schedule may be compressed into a period of from 1 to 2 weeks.

f. A phased down replica of this logistical time schedule may be adapted to division or smaller unit airborne operations.

APPENDIX V
JOINT AIRBORNE ADVANCE PARTY

1. General

a. Terminal guidance aids and control measures are employed on the ground in the objective area to assist and guide incoming troop carrier aircraft to the designated drop and landing zones. Combat control teams (CCT), composed of Air Force personnel, are organized, trained and equipped to provide this assistance and control. The security and protection of the combat control team is furnished by the airborne unit or by an Army assault team (AAT). The AAT is organized, trained and equipped by the Army to provide the required degree of security and protection to the CCT and to assist the airborne units in rapid assembly and reorganization after landing. The combination of CCT and AAT personnel is known as the joint airborne advance party (JAAP).

b. The use of nuclear weapons in an objective area prior to the airborne assault imposes a requirement for both ground and aerial radiological survey of drop and landing zones and adjacent areas. The possibility of widespread radiological contamination in the case of employment of large yield weapons will necessitate use of AATs to conduct radiological surveys and CCTs to divert incoming serials to alternate drop and landing zones.

2. Mission

a. The primary mission of the CCT is to locate, identify and mark the drop or landing zone and to establish and operate navigational aids and air traffic control communications necessary to assist and guide the troop carrier aircraft to the appropriate drop or landing zone.

b. The primary mission of the AAT is to provide security and protection to the CCT during the early stages of an airborne operation or until adequate security is provided by the strength and disposition of the airborne units. The airborne commander or his representative will determine when the AAT security mission has been completed and will advise the combat control team leader that the AAT is to be withdrawn.

3. Deployment

a. Details pertaining to the deployment of the CCTs and the AATs will be developed during the planning stage of an airborne

operation. Because of the risk of compromise involved in deployment of the teams into the objective area prior to the assault phase, the timing for the deployment and method of delivery will be agreed upon by the airborne and troop carrier commanders. Consideration will be given to the requirement for the CCTs to be fully operational in minimum time after reaching the drop or landing zone in order that navigational, identification, and air traffic control aids will be available to the maximum number of troop carrier aircraft.

b. The CCT and the AAT may be delivered to the objective area by any of the following methods:

(1) Air dropped or air landed in advance of the airborne assault.

(2) Air dropped or air landed in the lead serial.

(3) Deployed overland by infiltration or other deceptive means.

(4) By submarine or small surface craft.

(5) A combination of any of the above.

c. The organization for deployment will depend on the size of the CCT, the accompanying AAT, and their equipment. It is important that the CCT maintain unit integrity and be deployed as an entity. Necessary airlift for the CCT and the AAT will be provided from aircraft allotted to the Army airborne units.

(1) To insure maximum security and minimum assembly time of the CCT upon landing, the CCT will be allocated the required number of spaces at the front of one of the sticks of parachutists. Normally, the AAT will be allocated the corresponding spaces in the other stick.

(2) For air landed deployment, the CCT, AAT and their equipment will be allocated space in a lead aircraft in order to provide required navigational and control facilities at the earliest possible time.

4. Functions

a. For each troop carrier mission involving the use of a drop or landing zone, the CCT, under control of the troop carrier commander, will perform the following functions as determined appropriate:

(1) Deploy into the landing area by the most feasible means available.

(2) Mark the drop or landing zone and/or timing point with appropriate navigational identification aids, as required (par. 6).

(3) Establish ground-to-air communications.

(4) Establish point-to-point communications to troop carrier command post, CALSU, other combat control teams, or transport movement control center, as appropriate.

(5) Establish communication with the appropriate control element of the tactical air control system.

(6) Relay advice and information to incoming aircraft as to conditions in the landing area which may have an effect upon the accomplishment of the mission.

(7) Provide appropriate agencies with weather observations which may adversely affect local air operations.

(8) Accomplish, or assist in, site selection and marking of landing zones and relay complete information thereon to aircraft in-flight.

(9) Exercise air traffic control over aircraft within the objective area as directed until advance elements of the airhead air traffic control center (AATCC) are established in the airhead.

(10) Exercise air traffic control in the vicinity of drop and landing zones.

(11) Identify and coordinate with unit surgeons the physical location of patient staging points.

(12) Coordinate with unit surgeons for the orderly ground and air movement of aeromedical evacuees.

(13) Record statistical data concerning air landing and/or drop activities.

b. When the AAT is employed its primary function will be to provide security for the CCT. In addition, the AAT may be directed to perform the following functions:

(1) Conduct necessary reconnaissance of drop and landing zones.

(2) Conduct radiological reconnaissance and survey to determine the degree of contamination of drop and landing zones, assembly areas and select safe routes of advance.

(3) Mark Army assembly areas with appropriate panels, smoke or other aids as required in the Army operation plan.

(4) Assist Army units in reorganizing after landing.

(5) Reconnoiter unprepared landing zones for mines and other obstacles prior to landing of aircraft.

(6) Assist in clearing landing zones.

(7) Provide necessary ground-to-ground communications for coordination with other Army assault teams in the area.

(8) Establish and maintain communications with designated commanders of Army units landing on drop and landing zones.

(9) Furnish terminal guidance assistance to Army aircraft when required.

5. Marking of Drop and Landing Zones

a. The troop carrier commander, using CCTs, is responsible for the marking of the drop and landing zones and for providing required navigational aids and communications equipment necessary to fulfill the troop carrier requirements within the airhead. Certain tactical situations, such as isolated or cutoff units, may require deviations, and in these instances the Army commander receiving delivery is responsible for the marking of the drop and/or landing zones and for providing navigational aids and communications equipment in the objective area.

b. In addition to the specialized equipment authorized the CCT, the following types of marking equipment may be used by any unit when specialized items are not available:

(1) *Panels* (*Day Operations*). Standard aerial recognition panels for ground units. If standard panels are not available, any object or combination of objects, contrasting with the ground, that does not reduce overall dimensions of panel substitute below 2 by 12 feet may be used. Examples of this are canvas, tents, vehicles, clothes, or two men lying head to foot.

(2) *Light* (*Night Operations*). Standard marking lanterns. If standard lanterns are not available, any light source that can be seen at night from at least 1500 feet vertically may be used. Examples of these are spotlights, small fires, flashlights, or flares. Tactical situations may dictate that light be seen only from above in which case directional type lights with some simple hood or baffle should be used and aimed toward flight path or sound of friendly aircraft.

(3) During periods of reduced visibility (less than 5 miles), both panels and lights should be used.

c. Code identifiers consist of various block letters formed by the use of panels or lanterns. Only the following letters will be used for this purpose: A, B, C, E, J, O, P, R, S, and U. These letters have been selected for ease of identification and because they do not conflict with symbols used in the Ground/Air Emergency Code

and the Ground/Air Panel System. The letters should be formed with no less than eight panels and/or lights. Configuration should be approximately 100 by 100 feet provided sufficient space and marking materials are available.

d. During daylight operations, red smoke, and at night, red flares, will be used at the impact point of a drop zone or at the approach end of a landing zone to indicate an unsafe condition on the drop or landing zone. The dropping of personnel or equipment and the takeoff and landing aircraft will be suspended until the condition has been remedied.

e. Drop zone markings, when a combat control team is employed, will be at the following specified locations:

(1) *Timing points (TPs).* During night operations, low visibility conditions, or when there are no natural check points available, the timing points will be marked by the use of panels or lights depending upon the existing conditions.

(2) *Impact point.* The impact point will be marked by panels or lights using one of the code identifiers. The center of the code identifier will be oriented on the impact point.

f. When air delivery is to be accomplished to isolated or cutoff units, the Army commander will provide the following information and marking for the troop carrier commander:

(1) Code identifier (color and letter).

(2) Location of impact point. This location will be expressed using applicable Universal Transverse Mercator Grid (UTMG).

(3) Code identifier will be centered on the impact point.

g. All landing zone markings will be as follows:

(1) Panels or lights will be positioned about the perimeter of the usable landing zone in such a manner as to define its dimensions with special care to identify the beginning and end of the runway. They may be accomplished by the use of different colored panels or lights.

(2) The code identifier for the landing zone will be placed in the clear zone on the approach end approximately 100 feet from the end of the runway.

6. Communications

Maximum use will be made of available communications to provide navigational aids and coordination and control facilities consistent with the security requirements of the mission. In addition to the navigational aids provided in the form of homers,

direction finding equipment, and radar, communication equipment should provide for ground-to-air communication at all drop and landing zones. Point-to-point communications must be established between the drop and landing zones and selected locations in the rear area. It is important that the Army and troop carrier commanders exchange necessary information so that as the operation progresses, necessary coordination may be effected.

7. Briefings

The integrated nature of the work performed by combat control teams and Army assault teams requires that both units be familiar with all aspects of the mission which would have a bearing on their operation from the standpoint of both the air and ground action. Therefore, it is desirable that special briefings and joint training for the combat control teams and Army assault teams be held by the leaders of the respective teams prior to initiation of the assault.

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NG: Div (2); Div Arty (2); Bde (1); CC (1); Regt/Gp/Bg (1); TOE 33–106, 33–107 (1).

USAR: Same as Active Army.

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

U. S. GOVERNMENT PRINTING OFFICE: 1962—610521