DEPARTMENT OF THE ARMY FIELD MANUAL

DEPARTMENT OF THE AIR FORCE MANUAL

FM 57-1
AFM 2-51

U. S ARMY/U. S. AIR FORCE DOCTRINE FOR AIRBORNE OPERATIONS

DEPARTMENTS OF THE ARMY AND THE AIR FORCE

SEPTEMBER 1967

TAGO 5930A

FIELD MANUAL
No. 57-1
AIR FORCE MANUAL
No. 2-51

DEPARTMENTS OF THE ARMY
AND THE AIR FORCE
WASHINGTON, D.C., *27 September 1967*

U.S. ARMY/U.S. AIR FORCE DOCTRINE FOR AIRBORNE OPERATIONS

CHAPTER 1

INTRODUCTION

1–1. General

a. This manual sets forth the doctrine, responsibilities, tactics, and techniques employed by Army and Air Force component forces for use in planning and executing joint airborne operations. Guidance pertaining to air operations peculiar to the support of unconventional warfare is contained in appropriate JCS directives, FM 31–20, and AFM 2–5.

b. This manual is written in general terms so as to be applicable to large or small units participating in joint airborne operations. The terms used are those defined in JCS Pub 1 and in the Glossary.

c. Users are encouraged to submit comments or recommended changes to this manual. Comments or recommended changes from Army sources with reasons therefor, should be submitted on DA Form 1598 (Record of Comments on Publications) and forwarded direct to Commanding Officer, U.S. Army Combat Developments Command, Institute of Combined Arms and Support, Fort Leavenworth, Kansas 66027. Comments or recommended changes from Air Force sources, with reasons therefor, should be forwarded direct to Headquarters, Tactical Air Command, Langley Air Force Base, Virginia 23365.

1–2. Basic Considerations

a. A joint airborne operation involves two or more services in the movement and delivery by air into an objective area of combat forces and their logistic support for execution of a tactical or strategic mission. Delivery may be accomplished by airdrop or air landing. An administrative air movement of personnel, supplies, or equipment is not termed an airborne operation, although some of the procedures used in an airborne operation may be applicable. The term "joint operations" as used in this manual describes joint operations involving primarily Army and Air Force forces. The joint airborne operations to which this manual refers begin and end on order of the commander who established the joint airborne force(s). Joint airborne operations normally involve the whole spectrum of tactical air operations.

b. Airborne operations require detailed planning and close coordination among Army and Air Force forces. The feasibility of an operation must be closely weighed with particular emphasis given to the adequacy of total resources to achieve the objectives. Close relationships and coordination between participating units are continued during planning, briefing, aircraft loading, movement, and the assault phase and until the joint operation is terminated.

c. The commander must carefully evaluate the scale or probable scale of war to determine the allowable pattern of operations for each situation. In particular, the enemy's capability to employ offensive or defensive weapons must be sufficiently reduced to permit the conduct of airborne operations without first incurring unacceptable losses, or the probability of his employing these weapons must be sufficiently low to justify the risk, or the risk must be accepted. Unless otherwise stated, the material in this manual is applicable to all intensities of conflict.

d. In planning for airborne forces and tactical air forces participation in limited war situations and in counterinsurgency type operational environments, maximum use is made of air lines of communication. Support force

structure and base complexes may be presumed to be limited, and use of prestocked land or floating strategic bases should be considered.

e. In a cold war situation, objectives may include a show of force, a rapid change in the balance of power in an area, or opposing of threats to the security of lives and property.

1–3. Concepts of Employment

a. Army airborne forces may be strategically or tactically deployed, that is, moved or relocated by air, on short notice, to any land area within the delivery capability of the airlift force, and employed as a deterrent or combat force.

b. Airborne forces execute parachute or air-landed assaults to seize and hold important objectives until ground linkup or withdrawal can be accomplished, or until reinforced by air or amphibious landing.

c. United States air forces may provide support of forces participating in an airborne operation, to include: Counter air, close air support, tactical air reconnaissance, air interdiction, special air warfare operations; and airlift.

d. Airborne forces, when augmented with appropriate combat, combat support, and combat service support units, are capable of conducting sustained combat operations against a sophisticated enemy.

1–4. Capabilities

a. The strategic mobility of airborne forces permits their rapid employment to meet exigencies in a variety of conflict environments anywhere in the world. Airborne forces provide a means by which a commander can decisively influence operations by both long and short range movements. Strategic surprise can be obtained by rapid shifts of airborne forces over great distances; tactical surprise is achieved by the sudden, unexpected, mass delivery of these forces into an objective area. These forces constitute an effective means of providing a show of force in furthering national interests, since their presence furnishes an impressive display of U.S. capabilities.

b. Airborne forces are particularly well suited for—

(1) Execution of envelopments or turning movements.

(2) Attacks to exploit fires on relatively distant objectives.

(3) Seizure of critical terrain or installations.

(4) Counterinsurgency operations.

(5) Mobile reserves.

(6) Raids.

(7) Diversionary operations.

1–5. Limitations

a. Airborne forces during air movement are particularly vulnerable to enemy air defense measures which must be neutralized, suppressed, or avoided. Air superiority en route to and over the objective area is essential for airborne operations. After delivery, the force is vulnerable to air, armor, nuclear, and chemical and biological agent attacks. Adequate lightweight antitank and air defense weapons, air interdiction, tactical air support, use of chemical/biological/radiological protective measures, and proper selection and utilization of terrain reduce this vulnerability.

b. Unfavorable weather, including low visibility, low ceiling, and high winds, may restrict airborne operations. The limitations imposed by bad weather can be offset in varying degrees by appropriate use of electronic navigational and landing aids.

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

d. The mission and priority accorded to an airborne operation in relation to the overall area requirements will be the primary influencing factors determining the size force which can be employed and supported.

e. Physiological limitations associated with acclimatizing troops deployed over long distances involving extreme climate and altitude changes may appreciably reduce the initial effectiveness of airborne forces. The initial loss of individual efficiency due to change in en-

vironment should be considered during the planning stage of airborne operations.

f. The mobility and flexibility characteristics of airborne forces are ideally suited for the diversified operations encountered in northern areas. While conventional doctrine is as applicable to the north as elsewhere, modifications to operating procedures are required to overcome the limitations imposed on men and aircraft by the extreme environmental conditions. The guidance contained herein should be applied in conjunction with FM 31–70 and FM 31–71 (app A).

g. In combat situations in which nuclear weapons are being employed or their employment is a threat, consideration must be given in the planning phase to provide the airborne force with a nuclear capability.

1–6. Appropriate Missions

Airborne forces may be assigned missions of strategic as well as tactical significance. Typical missions are—

a. Seize and hold important objectives until ground linkup or withdrawal.

b. Exploit the effects of nuclear, biological, and chemical weapons.

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

d. Seize an advanced base for further deployment of forces, or to deny its use to the enemy.

e. Quick reaction movement to an oversea land area as a deterrent or combat force.

f. Constitute a strategic reserve or deterrent force.

g. Conduct tactical operations in conjunction with friendly forces conducting guerrilla warfare.

h. Conduct tactical operations against insurgent forces in a counterinsurgency operational environment.

i. Conduct counterguerrilla operations against enemy forces conducting guerrilla warfare behind friendly lines.

j. Conduct raids.

k. Show of force.

1–7. Operational Phases

The planning, preparation, and execution of an airborne operation generally fall into four interrelated phases—

a. The Mounting Phase. This is the period of time from receipt of the warning order or planning directive until airlift aircraft take off on the mission. During this period, joint tactical and support planning is accomplished; troops, equipment and supplies are assembled and readied; and briefings conducted. Marshaling takes place during the last part of the mounting phase, and includes movement of participating personnel, supplies, and equipment to departure areas and the loading into aircraft.

b. The Air Movement Phase. This phase begins with the take off of loaded airlift aircraft from departure areas and ends with the delivery of units to their drop or landing zones.

c. The Assault Phase. This is the period beginning with the assault landing of units on drop or landing zones, and extends through the seizure of initial objectives and consolidation of an initial airhead.

d. The Subsequent Operations Phase. After the assault phase, operations in the objective area may consist of offense, defense, linkup, or withdrawal. Since Army forces seek to retain the initiative while operating in enemy territory, defense may include limited offensive operations to seize additional objectives which facilitate the defense or favor future operations and securing the airspace over and immediately contiguous to the objective area. Early ground linkup with committed airborne forces is frequently a part of an operation. However, withdrawal without linkup after accomplishment of the mission may be planned or forced by enemy action.

1–8. Termination of Airborne Operations

a. The termination of an airborne operation depends upon the accomplishment of the assigned missions and tasks. Decision as to termination of an airborne operation will be made by the joint force commander or the commander

directing participation of both Army and Air Force elements. An airborne operation normally will be considered as terminated when—

(1) The Army commander has secured the objective area, the main body of the Army airborne force with its equipment and supplies has been delivered to the objective area, and suitable drop, landing and/or extraction zones are available to permit continuous resupply and evacuation by air, or

(2) Linkup with surface forces has occurred, or

(3) Preplanned or emergency withdrawal of the force has occurred.

b. The commander of the joint airborne force accomplishes his assigned mission, then reports this fact to the establishing authority, who will provide additional instructions as required.

CHAPTER 2

COMMAND CONTROL, ORGANIZATION AND RESPONSIBILITIES

2–1. General

a. The conduct of joint airborne operations requires that the efforts of participating forces be properly coordinated and integrated to achieve a common objective. These requisites are accomplished through joint forces command arrangements which are prescribed by law and DOD and JCS directives. Joint command organizations provide for central direction to coordinate the efforts of the forces committed; decentralized execution to accommodate the detailed action of a large number of commands or individuals; and common doctrine to create mutual understanding among the forces involved.

b. The principles, doctrines, and functions governing joint forces organization and operation are prescribed in detail in JCS Pub 2 Unified Action Armed Forces (UNAAF) which prescribes the several organizational structures in which service forces are organized for joint operations. When a joint task force is formed, it will be established in accordance with UNAAF 30251 through 30258. When the joint force commander determines that an operational need exists which can best be fulfllled by attachment of USAF tactical airlift units or aircraft, such attachments will be in accordance with UNAAF 30261 and 30262. See AFM 2–50/FM 100–27 for attachment procedures.

c. Detailed information relating to the responsibilities, authorizations, and functions of joint forces arrangements is contained in UNAAF. However, it is appropriate to repeat certain of the principles which are common to all joint organizations and which govern the conduct of joint operations, including airborne operations.

(1) Responsibilities and authority are vested in a single commander.

(2) Service forces are allocated commensurate with the assigned mission and consistent with overall service forces available to the allocating authority.

(3) The forces of each service assigned to a joint command are organized as a separate service component. The component commander is the senior officer qualified for command by the regulations of his own service.

d. Airborne operations may be conducted by or within any of the joint force organizations: A unified command, a subordinate unified command, or a joint task force. Joint force characteristics include—

	Unified Command	*Joint Task Forces*
Establishing authority	President through the Secretary of Defense.	SECDEF (JCS); comdr unified comd; comdr specified comd; comd existing JTF.
Purpose	To accomplish a broad continuing mission requiring execution by forces of two or more services— 1. In large scale, strategic operations, or 2. In a large geographic area requiring single responsibility for coordination of unified operations therein, and 3. Requiring centralized direction over all assigned resources.	To accomplish a specific mission of limited objective and duration by forces of two or more services, which— 1. Requires close integration of military efforts, or 2. Requires coordination of joint actions within a subordinate area, and 3. Does not require centralized direction of logistics.

	Unified Command	*Joint Task Forces*
Scope	Area of functional interest	Limited tasks
Forces	Two or more services	Two or more services
Staff	Joint	Joint or augmented uniservice staff
Authority	Operational command	Operational control

e. Although establishment of a joint task force is one method of effecting command and control in airborne operations, the coordinated participation of Army and Air Force units in airborne operations does not, in itself, dictate the organization of a joint task force. In many instances, the nature of missions assigned to participating component forces, the size of such forces or the type operation are such that the organization of a joint task force is not required. For example, a show of force executed by a company of infantry supported by Air Force elements may not warrant creation of a joint task force. In such instances, the procedures contained herein are applicable, and matters which participating component force commanders cannot resolve in coordination are referred for decision to the commander who directs the participation of both Army and Air Force elements. The decision to establish a joint task force rests with the unified or subordinate unified or existing joint task force command based on his estimate of the situation.

2–2. Command, Coordination, and Control in Joint Airborne Operations

a. General. Effective arrangements for command, control, and coordination of forces assigned to a unified command or joint airborne force are essential in the attainment of the assigned mission.

(1) *Command.* Command is exercised by a unified commander in accordance with UNAAF (Chapter III, Section II, Subsections 1, 2, and 3), which prescribes joint doctrine appropriate to the command of joint forces and respective services.

(2) *Coordination.* The responsibility—in a unified command or a joint airborne task force—for the coordination of joint air-ground operations is shared equally by the Army and Air Force component commanders. They have parallel systems with appropriate elements for coordination of mutually supporting operations.

(3) *Control.* Control of assigned air and ground resources is exercised through control arrangements and systems compatible to the respective commander's mission.

b. Joint Airborne Task Forces (JTF). Tactical air forces or elements may be assigned as a part of an Air Force component command of a joint task force. When assigned to a joint task force, all Air Force forces or elements are placed under the command of the Air Force component commander.

c. Air-Ground Operations System (AGOS) in an Airborne JTF. The AGOS is comprised of the army air-ground system (AAGS) and the tactical air control system (TACS). In general, the TACS is the system used by the Air Force for tactical control and coordination of air operations; and, the AAGS is the system used by the Army to coordinate requests for tactical air support with the appropriate TACS elements and within the Army. These two systems, employed jointly, provide the primary means for coordination of tactical air operations with land operations. Each of these systems possesses the flexibility required for adaptation to either large or small scale joint airborne operations in varying intensities of warfare.

(1) The Army air-ground system is employed to provide for the processing of requests for tactical air support, rapid exchange of battle information, and, in general, to provide the means through which coordination can be achieved in air-ground operations. The AAGS begins at the Army component command level and extends down through all Army combat echelons.

(2) The tactical air control system begins with the tactical air control center (TACC)—located in the Air Force component command post complex—

and extends through all operating elements which have been assigned to the TACS. By means of this system, the Air Force component commander (AFCC) can shift, redeploy, and concentrate his force to meet the most pressing requirements. The TACS provides inherent capability for centralized control of air resources and decentralized execution of operations when required. It provides for centralized direction, rapid coordination, close integration of operations, mobility, flexibility, alternate elements, and dispersion. This single system is employed to control counter air (including air defense), air interdiction, close air support, tactical air reconnaissance, tactical airlift, special air warfare and other air operations.

d. The Air Force and Army component commanders will normally establish USAF airlift control elements (ALCEs)—which are TACS elements—and Army departure/arrival airfield control groups (DACGs/AACGs)—which are AAGS elements—in support of joint airborne operations. The DACG/AACG and the ALCE are extensions of the Army and Air Force component control systems and as such will provide for the exercise of control of the operations of their respective services on airfields during deployment, employment and/or redeployment operations. Because of the close and continuous coordination required between the ALCE and DACG/AACG, they should be collocated.

e. The ALCEs and DACGs/AACGs will be established at departure and arrival airfields prior to the arrival of participating units. The size and composition of each ALCE and DACG/AACG depends upon the location and scope of the activity contemplated. The normally collocated ALCE and DACG/AACG represents the focal point for information concerning decisions affecting the conduct of the loading operations. When in operation, these Army and Air Force elements and groups will constitute the airlift coordination facility at the departure/arrival airfields for coordination of joint airlift matters at the particular airbase.

2–3. Army Component Organization

a. The Army component command post may be divided into main, rear, and, sometimes, tactical echelons. The main echelon is the principal facility through which the commander exercises command and where staff supervision, direction, and coordination is exercised over combat and combat support operations. Staff supervision, direction and coordination of combat service support are usually exercised through a rear echelon. The Army component commander may establish an advanced tactical command echelon in close proximity to the area where decisive combat action is anticipated. This is usually a small, highly mobile element which can shift location rapidly with the progress of the battle, and which may, on order, establish a new main command post location. The Army component commander remains mobile and places himself, at various stages of the operation, at the echelon of his command post from which he can exercise the greatest influence over the most critical operations currently in progress.

b. The tactical operations center (TOC) is a facility of the main echelon. Here are grouped representatives of general and special staff sections concerned with current combat and combat support operations. These staff personnel assist the commander by providing current information on tactical operations and on the tactical support available by making recommendations for command decisions, by taking action within established policies, and by issuing implementing instructions. The Army component TOC normally includes a fire support coordination element (FSCE), tactical air support element (TASE), Army aviation element (AAE), air defense element (ADE), engineer element (ENGRE), chemical-biological-radiological element (CBRE), communications-electronics element (CEE), combat service support element (CSSE), civil affairs element (CIV AFF ELM) and other staff section representation as may be appropriate. The direct air support center (DASC)/tactical air control party (TACP), though not technically a part of the TOC, are required and will collocate and coordinate closely with the TOC elements.

c. Departure Airfield Control Group (DACG). The mission of the DACG is to coordinate and control the out-loading of Army units for deployment or employment operations. The DACG normally is organized from resources which are not required to accompany the task force. A DACG is required for each departure airfield used.

d. Arrival Airfield Control Group (AACG). The mission of the AACG parallels that of the DACG, oriented, however, on coordinating and controlling off-loading operations. When established, AACG will be prepositioned at the arrival airfield, if practicable; otherwise, it normally will move to the arrival airfield in the lead elements of the airlift formation(s).

2–4. Air Force Component Organization

a. General.

(1) Joint airborne operations are conducted in conjunction with other ground and air actions, and the Air Force forces involved will either already be established in the area or will have been introduced as augmenting forces. The Air Force component commander commands Air Force forces, retaining or delegating authority to his subordinate commanders as the situation dictates (fig. 2–1).

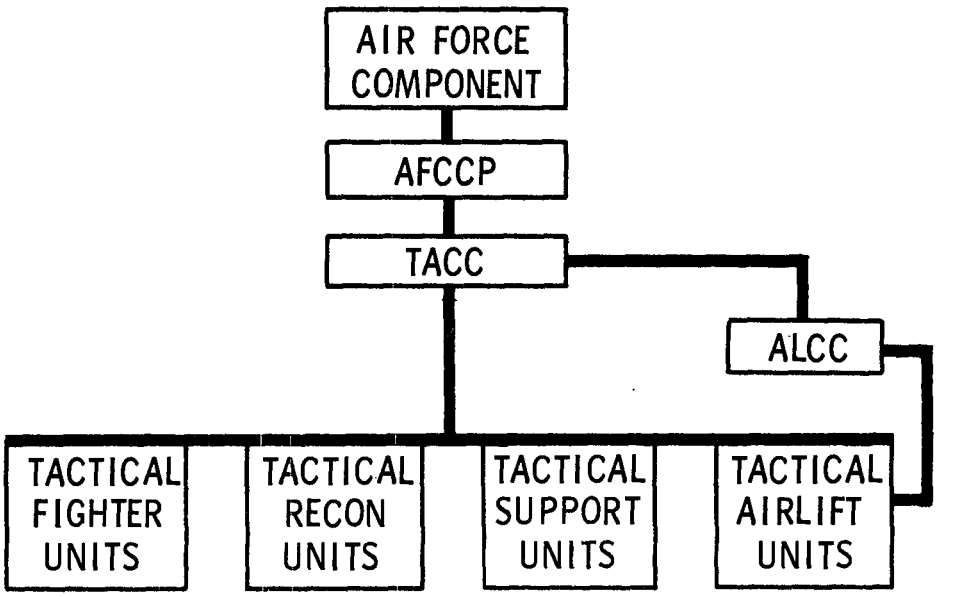


Figure 2–1. A type Air Force component organization.

(2) *Air Operations Responsibilities in a Joint Airborne Operation*

(*a*) The Air Force component commander (AFCC) prepares for the deployment and employment of Air Force elements to perform tactical air operations for the airborne JTF, to include the air tasks of counter air, interdiction, tactical air support (close air support, tactical air reconnaissance, tactical, combat and logistic airlift) and special air warfare operations as required. The AFCC plans will also provide for local base defense of airfields, weather support, other services' support of air elements, and the establishment of a tactical air control system (TACS).

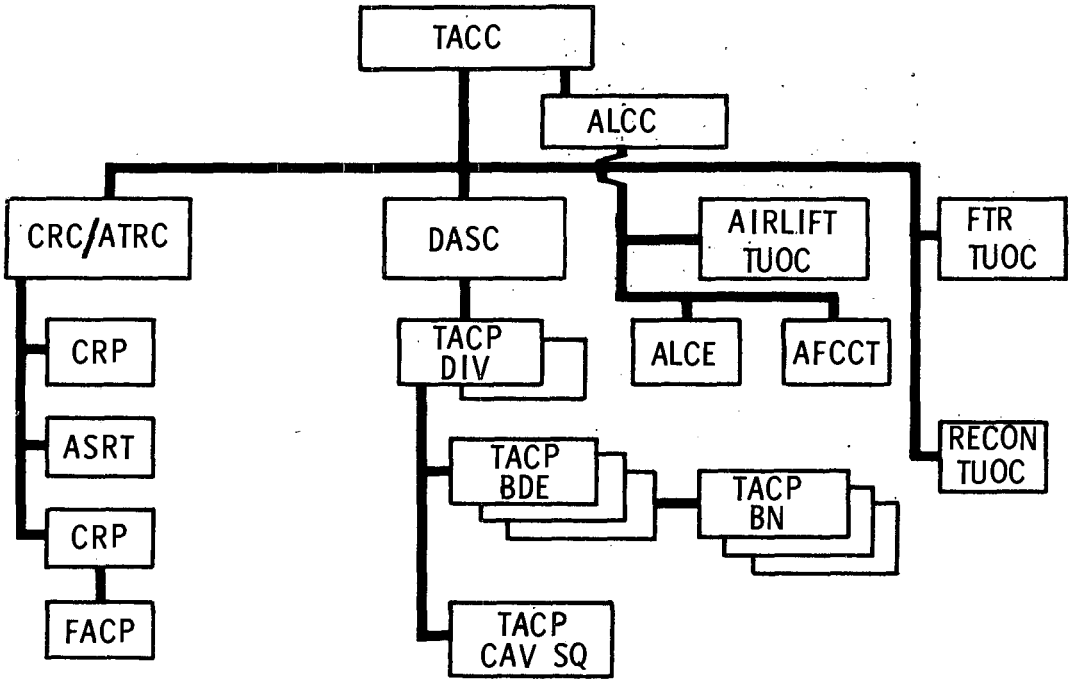
(*b*) The tactical air control system provides the Air Force component commander with the organization and equipment necessary to plan, direct, and control tactical air operations

and to coordinate air operations with other components. It is made up of the control agencies and varied communications—electronic facilities which provide the means for centralized control of air resources, yet permit decentralized execution of specific tasks and required operations. The Air Force component exercises control of the TACS through the deputy for operations. The system with its varied personnel and equipment is designed to provide maximum flexibility so that it may be tailored to any given tactical situation (fig. 2–2).

(*c*) Key TACS elements required by the AFCC in an airborne operation are—

1. *Tactical Air Control Center (TACC).* The TACC is the air operations element wherein the Air Force component commander plans, controls, and coordinates the employment of tactical air forces within an assigned area of operations. The TACC normally will be located in close proximity to the Air Force component command post; however, operational requirements may dictate the need for an advanced or alternate TACC which may be located as a separate element. The TACC is the center for all air control functions in the area of operations. The fundamental principle of TACC operations is the concept of centralized control of the total tactical air effort by the TACC, with decentralized responsibility for execution of necessary air functions. Coordination and advice on requests for tactical air support for the land force normally are accomplished through the DASC or ALCC or TACP(s), as appropriate; and execution of scramble authority for the air defense tasks normally is decentralized to the CRC. Communication is provided with higher and lateral headquarters, subordinate units, and agencies within the tactical air control system, as well as with the appropriate surface-force headquarters and agencies. Appropriate liaison elements from other forces are located at the TACC to facilitate direction of air-ground operations. (See AFM 2–7 for detailed TACC responsibilities and Air Force air request net procedures.)

2. *Airlift Control Center (ALCC).* The ALCC is an element of the TACS and is subordinate to the TACC. The director of the TACC normally decentralizes the execution responsibility for the conduct of continuous tactical airlift operations to the ALCC. The ALCC is the TACS element primarily concerned with the detailed execution of tactical airlift operations. This centralization of airlift information is essential for effective coordination of plans and operations, and for maximum economy in the employment of resources. All essential information is presented so as to permit rapid translation into terms of total requirements versus capabilities under varying situations and conditions. Since the tactical airlift force supports all services involved in a joint operation, service representatives (liaison officers) are positioned in the ALCC to accomplish the necessary liaison and coordination for their own service components. The ALCC can be a section within the TACC or operated as a separately located element. Although an element of the TACS, when required, the ALCC may be located within the command post complex of the airlift force commander. In each case, the ALCC, an integral part of the TACS, is subordinate to and operationally connected with



TACC - TACTICAL AIR CONTROL CENTER
ALCC - AIRLIFT CONTROL CENTER
CRC - CONTROL AND REPORTING CENTER
ATRC - AIR TRAFFIC REGULATION CENTER
CRP - CONTROL AND REPORTING POST
ASRT - AIR SUPPORT RADAR TEAM
FACP - FORWARD AIR CONTROL POST
DASC - DIRECT AIR SUPPORT CENTER
TACP - TACTICAL AIR CONTROL PARTY

DIV - DIVISION
BDE - BRIGADE
BN - BATTALION
CAV SQ - CAVALRY SQUADRON
TUOC - TACTICAL UNIT OPERATIONS CENTER
ALCE - AIRLIFT CONTROL ELEMENT
AFCCT - AIRFORCE COMBAT CONTROL TEAM
FTR - FIGHTER
RECON - RECONNAISSANCE

Figure 2–2. A typical tactical air control system.

the TACC to permit integration of tactical airlift operations with the overall air effort. This arrangement minimizes interference with other friendly forces and insures the proper response to the directives and policy of the Air Force component commander.

3. *Airlift Control Element (ALCE).* The ALCE is a TACS element through which the AFCC maintains control of assigned airlift forces and insures their effective employment and utilization. An ALCE is directly subordinate to the ALCC and is established, when required, at departure, en route, and arrival airfields and landing zones used by tactical airlift units. Its size and composition vary with the location and amount of activity. The Air Force commander is responsible for providing and designating a location for an airlift

coordination facility at each departure and arrival airfield prior to the arrival of participating units. This facility is the ALCE which includes liaison representation of the unit or units being transported. Land and Air Force command representatives are provided in the ALCE, and intelligence support also may be provided. The size and composition of the ALCE varies, depending upon the location and amount of activity anticipated. Regardless of the size of the facility, its two basic functions are operations and support. The ALCE maintains operational control over Air Force units and all airlift participating in an operation while on the ground at the ALCE site and coordinates all operational aspects of the mission. The ALCE is responsible for aircraft movement control, communications, supervision of loading and off-loading teams, coordination of aeromedical evacuation, and for continuous liaison with all interested agencies to insure that the operation is proceeding according to plan. Marshaling of aircraft is a particularly vital function of the ALCE. It is the responsibility of liaison officers in the ALCE to maintain close contact with their units for any development which might affect the operation.

4. *Air Force Combat Control Teams (AFCCT).* As a TACS element, the AFCCT is subordinate to the ALCC or ALCE. It provides limited weather observations, installs and operates necessary navigational aids and communications equipment, and controls air traffic in the air head area until mobile AFCS communications, navigational aids and flight facilities arrive. The AFCCT is composed of jump qualified Air Force personnel organized, trained, and equipped to locate, identify, and mark drop, landing and extraction zones.

5. *Tactical Unit Operations Center (TUOC).* Within each tactical unit command post is a TUOC facility which is the operational nerve center of the headquarters. Through it, the unit commander controls his resources, directs the operations, and receives his orders and combat plans from the Air Force component commander. The TUOC is provided with communications to the TACC, CRC, and DASCs, and in the case of airlift units, to the ALCC.

6. *Direct Air Support Center (DASC).* The DASC is a highly mobile air transportable Air Force TACS element designed to operate with the appropriate Army tactical operations center (TOC). It is subordinate to the TACC. A DASC may be collocated with a field army; however, it is normally collocated with each deployed corps, or with a division conducting independent operations. The principal function of the DASC is to provide a fast reaction capability to satisfy requests from the ground forces for close air support, tactical air reconnaissance support, and tactical airlift support. The TACC allocates sorties to the DASC to satisfy requests for immediate tactical air support. For this immediate tactical air support, the TACC passes scramble and control authority over aircraft designated to carry out the sorties so allocated. The TACC may also allocate sorties to the DASC to commit and/or control preplanned missions as the situation requires. The DASC is the TACS element primarily concerned with exchange of information, coordina-

tion, and detailed execution of required tactical air support operations. DASCs are manned for 24-hour operation and possess a leapfrog capability to allow continuous operation during fluid tactical situations. Provision is made for Army G2/G3 air representatives in the DASC. When appropriate, other services and Army staff agencies will be represented on an as-required basis. The DASC is provided internal communications and the communications necessary to maintain direct contact with the TACPs, aircraft in-flight and other elements of TACS. Additionally, DASC communications are extended to appropriate Army elements. Requests for immediate tactical air support are transmitted over the Air Force air request net directly from tactical air control parties to the DASC. Upon receipt of the request, Army and Air Force concurrent planning and coordination commence. This concurrent action permits the director of the DASC to initiate planning through the appropriate DASC branch (close air support branch, tactical air reconnaissance, and tactical airlift branch) for the employment of tactical air without delay once the Army validates the requirement.

7. *Airborne Direct Air Support Center (Abn DASC).* Under certain circumstances, such as the initial phase of an airborne assault, there may be an indeterminate period before a DASC becomes operational in the objective area. An interim capability to process requests for air support and direct the necessary air effort may be provided by an Abn DASC, which will continue in operation until the land DASC assumes control or the objective has been secured. Additionally, an Abn DASC may be employed during operations that are of an extremely short duration and which do not warrant establishing a ground DASC. The Abn DASC aircraft will be equipped with the communications and operations facilities necessary to communicate with the TACS and the Army tactical units. The staff will consist of appropriate Air Force personnel and Army representatives. During operations that involve Navy or Marine Corps forces, a Navy or Marine Corps liaison officer also will be required.

8. *Airborne Warning and Control System (AWACS).* An airborne capability to be used in lieu of or to augment ground TACS elements is essential. The AWACS provides this capability. The AWACS is an aircraft with a command and control system installed that is subordinate to the TACC—either airborne or ground based—if a TACC is activated. The AWACS aircraft may be used as an Abn ACP, TACC, DASC, CRC, CRP; or it may be used as a communications and intelligence relay facility.

b. Principles for Organization of Tactical Airlift Forces in an Airborne Operation.

(1) Overall plans for air operations involving tactical airlift forces normally are prepared at the Air Force component level; whereas, detailed planning and mission execution responsibilities normally are delegated to the airlift force commander. Tactical airlift forces, like other elements of the tactical air forces, are assigned to the Air Force component commanders of unified commands. The size of the force provided a given unified commander is influenced by many considerations, including the urgency of the situation, magnitude

of the requirement, and size of the area. Regardless of the size of the tactical airlift force, the internal organizational structure of the force remains essentially the same. Direction and control of tactical airlift forces are vested in the overall Air Force component commander, who establishes subordinate tactical airlift organizations, assigns units and tasks, and delegates the required control authority. The degree and level to which this control authority is delegated is dependent upon the scope of the operation and the tactical situation. Normally the Air Force component commander will assign Air Force tactical airlift resources to his designated airlift force commander, who will exercise control of these resources through an airlift control center (ALCC). Execution responsibilities may be further delegated to the ALCE and AFCCT. In the case of the ALCE, the AFCC may require a single Air Force officer to assume dual responsibilities—i.e., as the Director, ALCE, to exercise TACS control responsibilities and as the Commander, ALCE, to exercise assigned command functions. In this situation tactical air control system responsibilities and operational channels continue through the ALCC to the TACC; whereas, command channels are direct from the ALCE commander to the commander of the airlift force. Detailed planning, operation, and movement control functions of composite Air Force forces of all sizes and types of operations normally are consolidated at the headquarters of the Air Force component commander. Regardless of the size, composition, or mission objective of the force, the airlift forces normally are commanded by an Air Force airlift commander. This airlift force commander reports directly to the overall AFCC and provides the necessary airlift expertise for the operation. In this connection, tactical air control of airlift operations is exercised by the AFCC through the TACS. Airlift forces are authorized direct coordination with other participating forces as specified by the Air Force component commander for mission execution.

(2) Centralized airlift force organization and command structures are designed to permit a concentration of capabilities from over a wide area on a single objective or to attain multiple objectives from a concentration of areas and forces. Coordination of effort for accomplishment of the overall mission is carried out as directed by the Air Force component commander.

c. Management of Resources. Management of all resources within an area of operations is the responsibility of the joint force commander, and all forces respond to his direction. Based on his broad plan of action and the enemy threat, the joint force commander establishes mission priorities or directs force apportionment, which determine where and how the weight of effort of his forces will be applied. Within this guidance, the component commanders allocate their resources to accomplish specific tasks which further the joint force commander's plan. This same principle applies in a joint airborne operation. (For details pertaining to allocation, apportionment, assignment, or attachment of airlift forces, see FM 100–27/AFM 2–50.)

CHAPTER 3

TACTICAL PLANNING AND PREPARATION

3–1. General

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

b. Coordination between the logistical support agencies of the participating Army and Air Force elements and other supporting forces is initiated early and is detailed and continuous. Direct liaison is established between appropriate headquarters during the initial planning stage.

c. The amount of time available for planning and preparing for an airborne assault is related directly to the tempo of the overall operation. The amount of time required is influenced strongly by the state of readiness of the forces to be employed. Rapid planning for specific joint operations is facilitated by established, jointly approved operating procedures.

3–2. Preliminary Planning

a. Planning for airborne operations normally is initiated at the unified command level. Outlined studies and concepts of employment are prepared continuously to cover possible locations and missions for future employment of airborne forces in the area of operations.

b. Detailed planning for the conduct of specific airborne operations normally is performed by the subordinate commands involved.

3–3. The Initial Directive

a. When it has been determined that an airborne operations is to be conducted, a directive is furnished to participating units on a need-to-know basis by the commander ordering the operation. This initial directive normally contains the following information:

(1) Mission.
(2) Command structure for the operation.
(3) The time of initiation and approximate duration of the operation.
(4) Available intelligence.
(5) Plans and instructions for insuring secrecy.
(6) Tentative troop list.
(7) Fire support available from other agencies, to include nuclear fire support.
(8) Active and passive air defense measures.
(9) General landing area.
(10) Allocation of airlift and general location of departure air facilities and intermediate final staging areas.
(11) Necessary logistical information and instructions, to include special ammunition load.
(12) Communications instructions.
(13) Special equipment authorized.
(14) Specific authorization for deviation from established joint standing operating procedures, if appropriate.
(15) Waivers, such as those involved in air movement of hazardous cargo, if required.
(16) Instructions for postponing, cancelling, recalling or changing to alternate plans.
(17) Instructions for linkup or withdrawal, if applicable.
(18) Nuclear, biological, and chemical weapons allocations.

(19) Guidance for the conduct of civil affairs operations.

(20) Local evasion and escape procedures.

b. Necessary information is provided to achieve required coordination among Army, Air Force, and Navy forces in the area of operations.

c. The cover and deception plan of the unified command/joint force headquarters indicates to the component force commanders those measures which they will execute to conceal the operation or to deceive the enemy as to our real intentions.

3–4. Uniservice Actions

a. The receipt of a directive for an airborne operation requires the immediate initiation of studies and estimates by the subordinate commands concerned. The purpose of this initial planning is to assemble pertinent data for joint planning and decisions to follow.

b. Planning for an airborne operation is best developed inversely from the objective area back to the existing disposition, in the following sequence:

(1) Ground tactical plan, to include determination of strength and composition of the forces required to accomplish assigned tasks, and a supporting logistical plan.

(2) Landing plan in consonance with the ground tactical plan, which indicates the sequence and method of delivery, and the place of arrival of troops, and materiel.

(3) Air movement plan in consonance with the landing plan.

(4) Marshaling plan in consonance with the air movement plan.

c. The ground tactical plan is prepared as soon as possible since other planning depends upon it.

d. The nature and location of drop, landing and extraction zones are key considerations in formulating the plans for landing and the ground tactical plan. Drop and landing zones must be large enough to accommodate assault forces and provide for an initial disposition of troops which facilitates seizure of assigned objectives. Assault units should be landed on or as close to their objectives or positions as possible. Use of battalion-size drop and landing zones permits rapid assembly and reorganization. However, some company task force-size drop and landing zones may be required.

3–5. Initial Studies and Estimates

a. The Army component commander of the unified command, in coordination with the Air Force component commander, makes the following applicable studies and estimates based upon the directive received:

(1) Analysis of mission, available intelligence, and determination of additional intelligence required.

(2) General ground tactical plan for initial assault, subsequent operations, and linkup or withdrawal, as applicable.

(3) Task organization, strengths, and requirements for additional units, and departure order priority.

(4) Requirements for additional combat support means, including tactical air support and nuclear weapons.

(5) Recommended time for initiation of the assault.

(6) Detailed analysis of possible drop, landing and extraction zones, to include enemy opposition, indigenous civilian attitudes, obstacles, nature of terrain, elevation, desired axes of approach, and an estimate of the engineer construction effort required.

(7) Movement data for all supplies, personnel and equipment to be air transported, divided into forces for airdrop and air landing.

(8) Air defense requirements.

(9) Plans for the movement of followup forces.

(10) Estimate of communications-electronics and logistical support requirements, to include materials handling equipment.

(11) Organization and control of logistical support and buildup.

(12) Training and rehearsal requirements.

(13) Army assault team employment.

(14) Medical support requirements and medical plan.

(15) Integration of organic and/or attached Army aviation means and facilities into the overall tactical plan.

b. The Air Force component commander of the unified command, in coordination with the Army component commander, makes the following applicable studies and estimates based upon the directive received:

(1) Analysis of mission, available intelligence, and determination of additional intelligence required.

(2) Airlift units available for all phases, to include air terminal and aeromedical evacuation operations, to include requirements for casualty staging.

(3) Available facilities in the mounting area, to include possible departure airfields, staging areas, and logistical and communications support.

(4) Meteorological studies, including long range forecasts.

(5) Detailed analysis of possible drop, landing and extraction zones, to include information of the enemy and civilian population, type soil, nature of terrain, elevation, clear zones, best axes of approach, and an estimate of the engineer construction effort required.

(6) Requirement for navigational aids and communications-electronics.

(7) Recommended time for initiation of the assault.

(8) Air Force combat control team employment.

(9) General air movement plans to and from the objective area.

(10) Allowable cargo load for each type of aircraft under pertinent flight profiles.

(11) Types of aircraft required and approximate number of sorties required in each phase.

(12) Tactical air support requirements.

(13) Air defense requirements.

(14) Additional units or support required.

(15) Training and rehearsal requirements.

(16) Follow-on aerial resupply requirements.

(17) Estimate of maintenance and supply support requirements, to include materials handling equipment in the objective area.

c. Assault plans (ground tactical and air movement) 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 chemical, biological, or nuclear weapons; or failure of communications. Normally, an alternate assault plan is prepared for each serial scheduled for a particular drop, landing or extraction zone. Special provisions are made to disseminate the order to execute an alternate plan and to provide necessary logistical support.

3–6. Intelligence Planning

a. Intelligence planning is influenced by the following considerations:

(1) The unified commander provides most of the information and intelligence during the planning phase.

(2) Details of coordination and the organization of all intelligence agencies are centrally planned before specific intelligence operations begin.

(3) Requirements for intelligence not furnished by the unified command must be generated early to insure adequate time for development.

(4) Detailed terrain analyses are made, with special emphasis upon areas suitable for drop, landing, and extraction zones; construction of airstrips; and the preparation of ground tactical barriers. Attention must be given to conditions that may be created by friendly nuclear fires.

(5) Favorable and unfavorable weather conditions and their effect upon operations must be anticipated.

(6) Counterintelligence measures must be rigidly enforced to assure the surprise vital to success of the mission.

(7) Detailed briefing of all personnel, down to and including the individual soldier and airman, is a requirement.

b. The following must be carefully estimated:

(1) The degree of assistance or resistance expected from political or paramilitary groups or organizations.

(2) The availability of indigenous resources for support of the particular operation or projected operations.

(3) The attitude of the civilian population in the objective area.

(4) Enemy capabilities to—

(*a*) Employ chemical and biological agents, nuclear and other weapons against the airborne force in the departure area, en route, and in the objective area.

(*b*) Employ electronic countermeasures.

(*c*) Redispose forces in the objective area prior to the airborne assault, with particular attention to armor and air defense.

(*d*) Attack the airborne force during landing and reorganization.

(*e*) Reinforce his defense or attack.

(*f*) Regain air superiority or conduct air assault operations against ground forces.

c. Reconnaissance of the objective area that must be conducted by aerial means should be determined and expressed as a plan early in the initial stage of the airborne operation and implemented as soon as feasible. To insure adequate coverage of the entire operational area, requirements of subordinate units must be considered in this initial planning phase. Aerial reconnaissance must be oriented to verify previous information concerning the objective area, and to locate enemy units, likely assembly areas and avenues of approach that could be used by enemy forces to counter the airborne operation. Reconnaissance of the objective area must be continuous to provide current information throughout the planning phase, but should be controlled to prevent a premature disclosure of the selected objective landing areas.

d. Briefing aids are prepared in sufficient time to be available during marshaling. Maps, airphotos, slides, terrain models, movies, charts, sketches, diagrams, and sandtables are used. Heavy requirements for maps and airphotos are to be expected for supporting the required detailed planning in the many subordinate units. Large scale annotated airphotos are desirable to locate antiairborne obstacles and defenses.

3–7. Communications-Electronics Planning

a. Communication plans are coordinated in order to integrate the communication facilities of the forces involved. These forces include the tactical airlift and the Army combat units; the Tactical Air Force, Navy, and Army units providing supporting fires; the next higher headquarters; the commander designated to assume command of forces in the objective area; and friendly advancing units with whom contact is expected in the objective area. When a joint task force conducts an airborne operation, a joint communication plan is prepared and coordinated. Communication plans for airborne forces cover the communication equipment and supplies to be air landed or airdropped and the sequence of their delivery, to include equipment to replace losses expected in the assault.

b. The unified command communications officer plans for the accomplishment of the following communications-electronics functions:

(1) Assignment and allocation of all call words/call signs and radio frequencies for use between the unified command/joint force headquarters (when established) and assigned/attached forces, or between forces of the Army, Air Force, or Navy components employed.

(2) Preparation of joint communications-electronics operations instructions (JCEOI).

(3) Coordination with military security agencies for communication support as required.

(4) Coordination of procurement of essential communication equipment and facilities required.

(5) Collateral planning with the joint staff of the unified command on electronic warfare operations, logistical base communication requirements in the departure and objective areas, and communication equipment resupply.

(6) Coordinate with the State Department to obtain information on State Department communications-electronics facilities operating in the area.

c. The unified command/joint force staff communications officer plans the communications to be established throughout the operation and recommends the service to be responsible. These plans include—

(1) Communications-electronics during air movement.

(2) An assault net for early operations in the objective area.

(3) Transition from assault net operations to normal communications nets.

(4) Communications from the objective area to participating and support forces headquarters; lateral communications between the component force headquarters, and communications to U.S. State Department agencies as required.

(5) Formulating, publishing, and distributing SOI, SSI and JCEOI.

(6) Relay-type communications for dissemination of intelligence or mission change to Army troop commanders while in-flight to the objective area.

3–8. Logistical/Administrative Planning

a. Normally, logistical support of airborne operations is furnished on a uniservice basis. Cross-service agreements are expanded or developed as necessary to provide for the common support of participating forces. JCS Pub 3 provides a compilation of basic logistics policies and guidance for joint operations and JCS Pub 2 sets forth principles and procedures for joint forces.

b. Airborne operations require airfields and air landing facilities within the operational radius of proposed objective areas, as well as camps or bivouacs in the mounting area. Air landing facilities also may be required within the objective area.

c. Morale, religious and personal welfare aspects of an operation must be considered and joint facilities, e.g., postal and recreational, should be used wherever possible.

3–9. Fire Support Planning

a. Supporting fires may be furnished by artillery, aircraft, and naval vessels. Employment of nuclear weapons in the assault may allow 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 to attack under support of nonnuclear fires. Employment of nonpersistent chemical agents in the assault may permit effective engagement of targets when immediate casualties are desired without creation of obstacles or ground contamination. Persistent chemical agents normally are not employed against targets in the objective area because of the possible prolonged chemical agent hazard and interference with friendly forces in the defense of an objective area. Thorough coordination of all available fire support means is a vital planning consideration. In all cases, but particularly in counter-insurgency situations and in operations to liberate allied territory, fire support planning must take into consideration the location, numbers, and configuration of the civilian populace so as to minimize unavoidable casualties without jeopardizing the successful accomplishment of the mission.

b. The fire support plan is as discussed in (1) and (2) below.

(1) The fire support plan normally is provided as an annex to the force operation order. Some of the appendixes which may be required are—

(*a*) Tactical air support plan.

(*b*) Artillery fire support plan, to in-

clude fires of air defense weapons employed in a ground support role.

(*c*) Chemical fire support plan.

(*d*) Air defense artillery support plan.

(*e*) Naval gunfire support plan.

(*f*) Nuclear fire support plan.

(*g*) Other plans, instructions, or information as appropriate.

(2) The fire support coordination element (FSCE) of the tactical operations center (TOC) is responsible for preparation and/or coordination of force fire support plans. The FSCE is further responsible during the operational phase for the coordinated application of fire support, but the details of that application are the responsibility of the fire support agencies concerned.

c. Close air support of airborne operations is integrated with the overall tactical air operations within the area. Principal missions in support of airborne operations are—

(1) Air escort for airlift aircraft.

(2) Tactical air reconnaissance 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 air support of Army forces in the objective area.

(6) Counterair operations.

3–10. Joint Planning

a. From the time a pending operation is announced until it is completed or abandoned, coordination and conferences between participating echelons of Air Force and Army units are continuous. Each operational detail must be coordinated, staffed, and approved prior to initiating operations. Conflicts must be resolved by the unified/joint force commander.

b. At the earliest practicable date after receipt of a directive, and after completion of initial studies, joint planning is begun by the commanders concerned. The purpose of this planning is to arrive at firm decisions on all important phases of the operation. These decisions form the basis for completion of joint planning and the preparation of operation orders. Decisions include the following as applicable:

(1) *General.*

(*a*) The mission.

(*b*) Intelligence information available and additional information required for planning, including aerial reconnaissance.

(*c*) Task organization and adequacy of troops.

(*d*) Approval of specific drop, landing and extraction zones and approaches thereto.

(*e*) Selection of departure and staging airfields and marshaling campsites.

(*f*) Time for initiation of air movement based upon the tactical plan, meteorological forecasts, and other pertinent factors.

(*g*) Review of the allocation of aircraft by number, type, and allowable cargo load for each type, to include abort replacement aircraft.

(*h*) Composition and priorities of serials and designation of departure airfields and drop, landing and extraction zones.

(*i*) Air Force combat control team (AFCCT) and Army assault team (AAT), sometimes called joint airborne advance party (JAAP), method and time of entry into objective areas.

(*j*) Details necessary for preparation of the air movement table.

(*k*) Plans for tactical air support, nuclear support, and deception and diversionary measures.

(*l*) Special security measures.

(*m*) Procedures for cancellation, postponement, recall, or change to alternate plans.

(*n*) Exchange of liaison personnel.

(*o*) Joint training, rehearsal, and briefing plans.

(*p*) Drop airspeeds, altitudes, and briefing plans.

(*q*) Both active and passive air defense measures.

(*r*) Communications-electronics plans, to include standardization of signals, SOI, SSI, and JCEOI.

(*s*) Provisions for aerial resupply and evacuation, to include the handling and control of all classes of supply.

(*t*) Plans for engineer work required to improve existing, or to construct additional, air landing facilities.

(*u*) Provisions for medical support.

(*v*) Contingency plans in the event aircraft are downed or forced to land en route.

(2) *Arrangements at departure and staging facilities.*

(*a*) Time of arrival of units.

(*b*) Loading plan.

(*c*) Provisions for special loading equipment and facilities.

(*d*) Ground traffic regulation and control.

(*e*) Coordination facilities (combat airlift support units and departure airfield control groups).

(*f*) Station times and joint briefing plans.

(*g*) Dispersal and parking plans.

(*h*) Provisions for emergency resupply.

(*i*) Provisions for air defense.

(*j*) Security plans.

(*k*) Provisions for medical support.

(3) *Arrangements in objective area.*

(*a*) Fire support plans, to include tactical air and nuclear.

(*b*) Seizure and clearing of landing areas.

(*c*) Air and ground traffic regulation and control.

(*d*) Construction, rehabilitation, and maintenance of air landing facilities.

(*e*) Procedures for air terminal operations.

(*f*) Unloading of aircraft.

(*g*) Movement of troops and equipment from landing areas to assembly areas.

(*h*) Provisions for air defense.

(*i*) Evacuation of patients.

(*j*) Responsibilities of each service for logistical support, to include the organization to handle resupply and supply buildup operation.

(*k*) Alternate plans, which permit deviations from the primary plan, or new courses of action to be implemented at any time during the operation.

(*l*) Tactical air reconnaissance.

(*m*) Procedures for evasion and escape.

(*n*) Evacuation of prisoners of war, captured materiel, and civilian internees.

(*o*) Provision of medical support.

(*p*) Graves registration responsibilities.

(*q*) Postal services.

(*r*) Morale and recreation.

(*s*) Chaplain support.

c. At the conclusion of joint planning, the senior headquarters ordering the operation publishes the operations order or publishes a letter of instruction to a subordinate joint airborne force which publishes the operation order. Service component commanders complete plans and prepare their own operations orders. Subsequent joint conferences are held as required until planning is complete and necessary orders issued. Participating Army and Air Force units at each level plan concurrently to

achieve maximum coordination. The necessity for continuous liaison, mutual interchange of information, and frequent coordinating conferences emphasize the desirability of locating planning staffs in close proximity to each other.

3–11. Preparation

a. Rehearsals. Prior to specific airborne operations, every effort is made to conduct rehearsals which will parallel as closely as possible the conditions expected in the actual operation. The requirement for rapid planning, security, or speed in execution of specific operation may prohibit rehearsals.

b. Liaison.

(1) The close coordination and detailed planning required in conducting an airborne operation necessitates the exchange of liaison officers at the earliest practicable time.

(2) Upon receipt of a directive to conduct an airborne operation, the appropriate commanders exchange liaison officers. As soon as practicable, liaison officers may rejoin parent organizations.

(3) Liaison officers attend joint conferences to become fully acquainted with agreements reached by commanders and with the overall operation plan.

(4) After joint planning begins, liaison officers have the following duties:

(*a*) Advise their respective commanders as to the time, place, personnel required, and material to be covered at all joint meetings.

(*b*) Arrange for the procurement of equipment or facilities from their command which are required by the command to which attached.

(*c*) Examine all parallel orders concerning the mission and advise their commanders of any discrepancies which might affect the accomplishment of the mission.

(*d*) Make the required distribution of completed loading manifests within their units.

(*e*) Prepare required reports.

(*f*) Obtain copies of marshaling plans and parking diagrams for the information of their unit.

(5) Selected liaison personnel representing Army units have the following additional duties:

(*a*) Brief guides furnished by their units on airfield traffic procedures and locations of aircraft to be loaded. (At dispersed locations, liaison representatives are located at the specific coordination facilities to perform this function.)

(*b*) Insure that proper disposition is made of Army personnel and equipment remaining in returning aircraft.

c. Air Defense. Airheads are particularly vulnerable to enemy air attack and consideration in planning must be given to providing adequate air defense of the operation. Army air defense artillery units and Air Force aircraft used to defend forces engaged in airborne operations must complement each other in order to provide the maximum level of protection. Plans must provide for coordinated air defense and airspace utilization as a joint effort in accordance with the provisions of JCS Pub 8. Plans for airborne operations place Army air defense artillery under the control of the ground commander for deployment to and within the airhead according to tactical requirements. Further responsibility and authority for air defense of the operation is delegated as appropriate by the theater commander, area or region air defense commander or joint force commander as applicable.

d. Unconventional Warfare Forces. Guerrillas operating in the projected airborne objective area and directed by U.S. unconventional warfare forces can assist the airborne force by interdicting enemy movement in and near the objective area; attacking enemy command, communications, and supply installations; and executing supporting attacks and deception plans. However, it must be recognized that the overall utility of the force con-

ducting guerrilla warfare may be severely reduced following linkup with the airborne forces. These forces also assist in evasion and escape and collection of information. Unconventional warfare forces can infiltrate and exfiltrate personnel and equipment by airdrop or air landed operations. Although guerrilla assistance, directed by U.S. unconventional warfare forces, is integrated into tactical planning, to include alternate plans, the successful execution of primary and alternate plans is not contingent upon such assistance. Command relationships between the airborne force and U.S. unconventional warfare forces operating in the airborne objective area are discussed in service manuals (app. A).

CHAPTER 4

COMBAT SERVICE SUPPORT PLANNING AND PROCEDURES

4–1. Logistics

Logistic planning within joint forces is carried out concurrently with tactical planning.

a. Responsibilities.

(1) *Joint commander.* The unified command/joint force commander is responsible for effective coordinated logistic support within his command. He is responsible for assuring that statements of requirements are prepared and submitted in accordance with existing directives. He is responsible to insure that stated requirements for categories of items of common supply cover the needs of all forces, and that duplication is eliminated.

(2) *Component commanders.* The component commanders are responsible for the logistic support commands. They communicate directly with appropriate headquarters on all logistical matters, except those which the unified command/joint force commander directs be forwarded through him. Each keeps the unified command/joint force commander informed of the status of important logistics matters affecting readiness of his force.

b. Planning Considerations. Considerations that affect logistical planning include the—

(1) Number and location of marshaling camps and composition of forces to be marshaled therein.

(2) Aircraft loading characteristics and allocation.

(3) Materials handling equipment available.

(4) Proximity to lines of communication (LOC) available transportation and distance from supply points.

(5) Nature and amount of accompanying supplies and equipment and requirements for followup and routine supplies, to include the transition to routine supply and the buildup to planned stock levels.

(6) Initial airhead patient evacuation policy.

(7) Airfields and air landing facilities available in the departure area and in the objective area to include engineer effort and equipment requirements for necessary improvement or new construction where existing facilities are inadequate or insufficient.

(8) Supplies, equipment, manpower, and materials required in the objective area.

(9) Policy for evacuation of prisoners of war and materiel.

(10) Provisions for disposal of the dead.

(11) Estimates of the medical workload.

(12) Policy for treatment of casualties among indigenous and/or allied personnel.

c. 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 handling capability of the airborne units in the objective area, availability and carrying capacity of tactical airlift aircraft, projected date of linkup or withdrawal, anticipated weather, and enemy capabilities. Unused cabin 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 facilitates allocation and shifting of logistical means to support planned or unexpected situations. Phases of supply used in airborne operations are accompany, followup and routine—

(1) Accompanying supplies are those supplies taken into the airhead by units at their time of entry. Accompanying supplies are issued to units prior to marshaling 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.

(2) 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.

(3) Routine supplies are delivered as a result of normal requisitioning procedures, replace supplies which have been expended, or build up reserve stocks.

Provisions are made in planning for the emergency resupply of units in the objective area.

d. Type of Loading.

(1) Combat loading distributes supplies among aircraft in such manner that equipment and supplies essential to initiation of combat are readily accessible to units on landing, and all of one item of supply is not lost on the abort or loss of one aircraft. Particularly critical equipment may be duplicated to safeguard against loss or damage.

(2) Followup and routine supply loading should be planned and arranged to provide optimum support to the force in the objective area and in a manner most compatible with unloading and delivery within the objective area. The available airlift is used as effectively and efficiently as the force requirements in the objective area permit.

e. Delivery of Supplies. Prior to the availability of improved air landing facilities in the airhead, supplies are delivered to using units by airdrop, low altitude extraction, or assault air landing on landing zones. Followup supplies are prepared for delivery and delivered in a manner compatible with the tactical situation and the handling and transportation capabilities of the Army tactical commander. The Army tactical commander directs the recovery of air delivered supplies and equipment not designated as an Air Force responsibility. Priority considerations in the use of available airlift are first to the need of the force in the objective area, and secondly, to the effective and efficient utilization of available airlift.

f. Transportation. An all-air LOC to the objective area normally will exist during the early stages of an airborne operation. Transportation accordingly will be limited within the airhead and local resources must be exploited to the maximum. Parachute delivery of supplies will be preplanned or take place on call; early operation of air landing zones has high priority to insure logistical support of the force.

g. Other Services. Minimum service elements accompanying assault forces into the airhead, as most essential services required by assault units are either performed in the marshaling areas or deferred until the followup echelon is delivered to the objective area. In sustained operations, additional service elements may be phased into the objective area with other buildup units.

(1) *Maintenance.* To minimize requirements in the objective area, intensive maintenance is performed prior to departure to insure the highest standard of operational readiness of all equipment. Maintenance units provide support during marshaling as required.

Maintenance during the assault phase normally is performed by maintenance personnel organic to the assault units. Required maintenance units enter the objective area in the followup echelon.

(2) *Collection and classification of materiel.* Abandoned or captured materiel, both United States and foreign, serviceable and unserviceable, represents an important source for replenishment of materiel assets. Many of these items can be returned to supply channels for issue or to maintenance units for repair or cannibalization. Captured materiel requiring evacuation by air is designated, processed, and prepared for air movement in accordance with instructions from higher headquarters. In short duration operations, damaged materiel is evacuated only when airlift is available that would otherwise be returning to the departure area without a full payload. In long duration operations, a damaged materiel evacuation policy is developed by the unified command/joint force commander in concert with component commanders.

4–2. Personnel Administration and Civil Affairs

a. General. Personnel administration and civil affairs planning for an airborne operation are generally the same as for normal ground operations.

b. Strengths, Records, and Reports. A record is kept of all force personnel participating in the airborne assault and those remaining in the departure area. After the assault landings have been made, the units (Army and Air Force) submit strength reports as prescribed in the force operating procedures.

c. Overstrength. Estimated Army and Air Force personnel losses likely to be sustained during the initial stages of the operation normally include those for the air movement and assault phases. Overstrength personnel, those to replace expected initial losses, should be received in time to permit orientation and training with the airborne force prior to the operation.

d. Replacements.

(1) *Individual replacements.* Individual replacements are requested in the normal manner.

(2) *Unit replacements.* Unit replacements normally are held in the departure area under the control of the unified command/joint force headquarters for commitment as required.

e. Graves Registration Service. The senior Army component commander in the airhead is given the authority to establish temporary burial facilities as required.

f. Civil Affairs (CA). The assault force is provided civil affairs personnel if required. A portion of the civil affairs section may enter the objective area during the assault phase.

g. Evacuation. Evacuation of casualties from the airhead is discussed in paragraph 11–2.

CHAPTER 5

SECURITY AND COUNTERINTELLIGENCE

5–1. General

a. The fundamental purpose of security measures is to deny the enemy all information relating to a planned airborne operation and to detect and neutralize all his efforts to obtain information concerning the operation.

b. The principles of surprise, mobility, and speed of execution are most vital to the success of an airborne operation. The counterintelligence measures taken to safeguard troops, equipment, and plans involved are vitally important. The success of major battles, and possibly the entire campaign, can be placed in serious jeopardy by the compromise of security information. Consequently, all information pertaining to airborne operations is usually highly classified, at least until the air movement phase is completed.

c. Plans are developed and measures employed to protect forces from enemy observation, air attack, ground attack, nuclear attack, airborne attack, guerrilla action, and infiltration. Specially trained and equipped airborne forces are high priority targets of enemy intelligence efforts because of their relatively small number, distinctive characteristics, and the necessity for bringing these forces together, if only for a short period prior to an operation. The assembling of transport aircraft, movement to departure sites, and associated activities pertaining to marshaling and air movement are difficult to conceal. Preventing disclosure of information concerning these activities becomes increasingly important when the enemy has a nuclear weapon capability. Compensating factors include the capability of airborne forces to move rapidly from dispersed locations and the fact that airborne operations normally are launched from dispersed bases deep in friendly territory. When feasible, Army airborne forces and Air Force tactical airlift units are contiguously located at dispersed air landing facilities. Airborne operatons can then be launched rapidly at any time, without the necessity for major movements during mounting, which may compromise an operation.

5–2. Responsibilities

a. The security and counterintelligence requirements of airborne operations dictate that the commanders at all echelons of the participating forces establish and enforce strict internal security measures. These measures must be maintained until completion of the operation or until appropriate announcements or releases are made through official channels.

b. The unified command/joint force commander establishes those security measures which must be taken by the units of the component services during each phase of the airborne operation.

c. The commander charged with supporting the marshaling of airborne units provides necessary counterintelligence support in and around marshaling areas.

d. All commanders insure that proper security measures, to include communications security, are coordinated and enforced by transient units and permanent parties at departure sites and marshaling camps.

e. Close liaison among all commands involved is essential to insure uniformity of security plans.

f. At a time specified by the unified command/joint force commander, all Army and Air Force units participating or supporting the airborne operation are restricted to designated

areas until the operation is either executed or canceled. Personnel hospitalized during or after briefings are isolated until compromise of information they possess can no longer constitute a security risk.

g. Briefings are conducted at the latest practicable time preceding the operation and in locations which can be closely guarded.

h. Marked maps, operation orders, overlays, or similar items are not 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. JCEOI, SOI and SSI with assault elements must be temporary and abbreviated.

i. In the event the operation is postponed, personnel are returned to designated areas and security measures are maintained until further instructions are received.

j. An adequate emergency destruction plan for classified material, to include cryptographic devices, is maintained.

5–3. Passive Defense

a. Airlift aircraft are vulnerable to sabotage and enemy air and ground fire. It is, therefore, particularly important to closely observe all passive defense measures which minimize the effect of enemy action. Because of the importance of airlift, and its direct bearing on the capability and maneuverability of other units, concentrations of airlift aircraft in marshaling areas, staging bases, and within an airhead provide lucrative targets for the enemy. Consideration must be given to establishing several routes of flight/rendezvous points to allow maximum dispersal of aircraft during the en route portion of the air movement phase, yet providing rendezvous points near drop, landing and the extraction zones to insure delivery in mass as required.

b. Because of the threat of mass destruction weapons, and enemy air activity, adequate dispersal of aircraft and troops in marshaling areas is essential. This dispersion is facilitated by the capability of tactical airlift to operate from temporary, minimum criteria airstrips. The inherent mobility of airborne forces greatly facilitates such dispersion, making it possible to launch a coordinated mass attack from widely dispersed bases within one or more areas of operation.

c. Airborne forces not committed to action pose a strategic threat to the enemy. Concentration of forces during marshaling must be avoided to retain secrecy of impending operations and to deny lucrative targets to the enemy. In order to maintain adequate dispersion, Army forces—

(1) When movement is necessary, move rapidly under cover of darkness, at the latest practicable time, to dispersed areas in the vicinity of air facilities.

(2) Make all possible preparations for loading prior to arrival at the loading site.

(3) Control movement to loading sites so that the bulk of the personnel arrive after the equipment and supplies are loaded on the aircraft.

5–4. Local Area Security

a. During any period when Army and tactical airlift units are located within the limits of Air Force installations (departure airfields), their unit commanders are responsible to the commander of the departure airfield for the security of their respective areas. The commander of the departure airfield is responsible for the overall security of the airfield. The Army support force commander may be tasked to provide augmenting security forces by the unified/joint force command exercising operational control/command over the Air Force and Army organization involved.

b. Each commander is responsible during marshaling for the security of his respective area. In areas of mutual interest, the commanders concerned coordinate the security requirements and define the responsibilities of each force. Since aircrews are frequently the only Air Force personnel resource available at dispersed departure airfields or staging bases, the Army commander under these conditions normally assumes responsibility for area security, while the Air Force is responsible only for point security, such as aircraft.

5–5. Communications-Electronics

a. Mounting. During the mounting phase it is of utmost importance that the use of communications does not reveal an impending operation. Each commander is responsible for maintaining the appearance of normalcy in communications traffic, both as to volume and type. This is particularly applicable to radio communications. Greater use is made of telephone and messengers than of radio. However, the appearance of normalcy is maintained in telephonic traffic utilizing civil circuits, as in the case of radio traffic. Military circuits are checked thoroughly for security before traffic is increased and additionally, are checked at regular intervals thereafter to maintain security. Additional messenger traffic employs unmarked vehicles, normal traffic being maintained with marked messenger vehicles. The unified command joint force commander will implement a cover and deception plan only upon approval of the Joint Chiefs of Staff.

b. Air Movement. Communications-electronics silence is maintained to the extent possible during the air movement phase. Conditions under which electronic emitters may be activated are detailed and specific.

c. Assault and Subsequent Operations. Once the assault phase is initiated, communications security is practiced as in normal operations and is governed by unit SOP, SOI, and SSI. If a withdrawal by air is planned, or forced by enemy action, special communications security provisions are placed into effect at the time the withdrawal decision is announced.

CHAPTER 6

MARSHALING

6–1. General

a. Marshaling is that phase of the mounting operation during which all units complete final preparations for the airborne assault to include loading aboard aircraft. Whenever possible, airborne units should be located to limit the requirement for preparation of an movement to marshaling camps. However, when required, Army units move during this phase to temporary camps near departure airfields, and load aircraft for the operation. Assault units are marshaled simultaneously. Carefully developed marshaling procedures are essential for the rapid and orderly launching of an airborne operation under conditions of maximum security.

b. The marshaling, or mounting area is the general area in which unit marshaling camps and departure airfields are located. When there are limited numbers of airfields and air landing facilities in the immediate vicinity of marshaling camps, or when requirements for dispersion so dictate, loading may be accomplished on a phased schedule.

c. Instructions governing movement of aircraft are developed during air movement planning and are contained in the air movement annexes of all operation orders. These instructions, together with the aircraft parking plan, govern the Air Force portion of the marshaling operation.

6–2. Planning

a. The unified/joint staff has staff responsibility for planning and supervising marshaling. Coordination is accomplished with the appropriate administrative and logistical support agencies in order that maximum assistance during marshaling is provided. Staff planning in this phase provides for the relief of the airborne forces from all possible administrative and logistical support functions to permit concentration on preparations for the planned operation. Support agencies designated by the unified command/joint force commander should provide the bulk of the administrative assisance to include transportation, communications, housekeeping details (campsite construction operation and maintenance; messing; religious, recreation and other morale services), and local security personnel when required to supplement Air Force security of the departure airfield.

b. The marshaling annex of the Army administrative plan contains detailed instructions for providing facilities and services while units are marshaling; conducting detailed briefings 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 which may be appended to the air movement plan.

6–3. Selection of Camps and Departure Airfields

a. The selection of marshaling camps and departure airfields is based upon the air movement plan and other considerations. To avoid concentration of forces, marshaling camps normally are located at a distance from occupied departure air facilities. While dispersion is necessary to avoid the effects of nuclear weapons, excessive dispersion increases control problems and may diminish the effectiveness of other supporting ground and air operations.

b. The following are the most common factors involved in the selection of marshaling camps and departure airfields. These factors

do not have order of priority. For any particular situation or operation, one or more or any combination of the following factors may become the basis for final selections:

(1) Mission to be accomplished.

(2) The number, location, and type of air facilities available.

(3) Availability of tactical air support.

(4) Communications.

(5) Initial location of participating units.

(6) Vulnerability to enemy action.

(7) Radius of action required.

(8) Logistical support required and available.

(9) Projected duration of the operation.

(10) Unit integrity.

(11) Adequacy of air defense.

(12) Capacity of each airfield to handle sustained operations.

(13) Security requirements.

(14) Health hazards and expected weather and temperature changes.

6–4. Preparation

a. Marshaling is accomplished in the minimum possible time because of security requirements and the threat of enemy employment of nuclear weapons. Units complete maximum preparation prior to marshaling.

b. As early as practicable, units obtain equipment and supplies which are to accompany them into the objective area. To the extent feasible, prepackaged supplies and equipment are issued to the airborne forces to expedite out-loading operations. Inspections are made to determine the status of equipment. Maintenance is preformed and parachutes, aerial delivery containers, and heavy drop loads are prepared.

c. Army use of areas adjacent to runways and parking ramps at departure airfields for establishing command posts, communications centers, warming tents, briefing areas, and equipment and supply handling points will be planned and coordinated by service component staffs. If required final decisions in this matter rest with the unified command/joint force commander.

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

e. Plans for en route feeding, as required, should be a matter of joint component force coordination.

6–5. Dispersal Procedures

a. Depending upon the situation, one of the following dispersed loading procedures is used:

(1) Personnel and equipment are moved to departure airfields where tactical airlift aircraft are already dispersed.

(2) Tactical airlift aircraft fly to on-load airfields, load personnel and equipment, and proceed to dispersal airfields.

(3) Combinations of these procedures are—

(*a*) Aircraft fly to on-load airfields for equipment which is then airlifted to the dispersal airfields where the mission orginates; and

(*b*) Aircraft depart on the mission from dispersal airfields and stop en route to pick up personnel. Loading is accomplished in the minimum time, with a minimum number of aircraft at on-load airfields at any one time.

b. Regardless of the loading procedures utilized, the tactical airlift commander insures that aircraft arrive over the objective area in order and at the times required by the air movement plan.

6–6. Airlift Control Elements (ALCE), Departure Airfield Control Groups (DACG), and Arrival Airfield Control Groups (AACG)

a. The DACG/AACG and the ALCE are Army and Air Force component activities which jointly coordinate and control the operations of their respective services on the airfield. Because of the close and continuous coordination required between these two agencies, they should be collocated.

b. The Air Force commander is responsible for providing and designating a location for an airlift coordination function at departure and arrival airfields prior to the arrival of participating units. This function is performed by the airlift control element (ALCE), described in *c* and *d* below. Command representatives of the Army and Air Force are present at each ALCE at all times during the conduct of an airborne operation. The ALCE may be required to function in a dual capacity in the execution of both command and control responsibilities. Accordingly, the officer in charge of the ALCE may serve two roles—he will serve as the Commander, ALCE when it is operating as a command element of the airlift force; when it is operating as an element of the TACS he will serve as the director of the ALCE.

c. The support function of an ALCE in bare base operations includes those activities which relate to the air facility itself—such as base operations, control tower, and crash rescue operations; vehicular traffic control; space allocation; and other support, pending the organization, if planned, of an airlift control element. Although the ALCE may not be directly responsible for the operation of such activities as messing, billeting, refueling, and transportation on established bases, it provides a centralized location for coordination of these functions. The ALCE is normally the focal point for obtaining maintenance assistance. When the ALCE is located at an operational airbase, the base commander continues normal command functions and provides a liaison officer who will coordinate the requirements for support with appropriate base activities.

d. Each ALCE will be prepared to conduct operations on a 24-hour basis to provide supervisory control and insure effective utilization of tactical airlift forces on assigned missions.

(1) *ALCE Commander Responsibilities.* The ALCE commander will—

(*a*) Establish, control, and operate the ALCE as directed by the airlift commander.

(*b*) Direct, execute, and coordinate mission directives, plans and orders assigned to the ALCE.

(*c*) At established operating bases, coordination with the base commander for use of existing base facilities and equipment required by the ALCE. At bases where facilities are lacking, provide interim housekeeping and station support until an airlift control element is established.

(*d*) Make the required distribution of completed loading manifests.

(*e*) Prepare required reports.

(*f*) Establish office facilities.

(*g*) Furnish copies of parking plan to supported units.

(*h*) Coordinate loading of aircraft.

(*i*) Coordinate disposition of equipment and Army personnel remaining in returning and/or aborted aircraft.

(*j*) Insure that appropriate and adequate briefings for Army and Air Force personnel are conducted.

(2) *Operations.* The ALCE operations section will—

(*a*) Perform base operations and other related operations functions.

(*b*) Coordinate flight clearances.

(*c*) Maintain aircraft traffic logs and operations records.

(*d*) Accomplish aircraft parking and provide parking plan to the departure airfield control group (DACG) or arrival airfield control group (AACG).

(*e*) Monitor intelligence functions.

(3) *Weather section.* The weather section will provide or arrange weather support required by the mission.

(4) *Aeromedical evacuation section.* The aeromedical evacuation section will coordinate and monitor all aeromedical evacuation activities.

(5) *Liaison section.* Representatives of participating units will provide pertinent information requested by the ALCE and coordinate movement activities with their respective units as required.

(6) *Materiel section.* The materiel section is responsible for all materiel services required by the ALCE commander including—

(*a*) POL and aircraft servicing.

(*b*) Aircraft maintenance.

(*c*) Motor vehicles and operators.

(*d*) Messing, billeting and general housekeeping.

(*e*) On- and off-load equipment operators.

(7) *Aerial port section.* The aerial port section represented in the ALCE is responsible for manifesting and supervising all cargo on- and off-loading and inspection of in-plane rigging for the various modes of aerial delivery and air landing, and insuring that all cargo is properly manifested.

(8) *Communications section.* The communications section is responsible for all communications service required by the ALCE commander.

(9) *Intelligence section.* The intelligence section is responsible for all intelligence service required by the ALCE commander including—

(*a*) Assuring that adequate quantities of area intelligence maps and data are available.

(*b*) Conducting the intelligence portion of aircrew briefings and debriefings.

(*c*) Submission of mission reports.

e. The responsibilities of the Departure Airfield Control Group (DACG) are as discussed in (1) through (4) below.

(1) The mission of the DACG is to coordinate and control the out-loading of Army units for deployment or employment operations. The DACG is normally organized from resources which are not required to accompany the task force. A DACG is required for each departure airfield used.

(2) The main function of the DACG is to insure that Army units and their equipment and supplies are moved from the alert holding area to the aircraft and are loaded in accordance with the established air movement plan. Any problems arising at the departure airfield are resolved by coordination between the appropriate sections of the DACG and ALCE. Any problems or differences which cannot be mutually resolved will immediately be brought to the attention of the respective component commanders.

(3) The special functions of the DACG are to maintain a record of each mission number, aircraft tail number, its planned load, its loading time, station time and takeoff time and arrival time and insure Army adherence to the timetable. The DACG coordinates with the ALCE to verify that aircraft are parked in accordance with the parking plan or that when changes occur insure that the supported commander is advised of the changes. The Army force commander is advised when aircraft cargo loads are not fully utilized. The DACG calls aircraft loads forward from alert areas to the call forward area at the proper time to meet the established schedule. With aerial port unit representatives, DACG insures that joint "prior to- and after-loading inspection" are performed. Guiding personnel and equipment to correct aircraft, and insuring that in case of aircraft aborts, loads are transferred to designated spares are also responsibilities of the DACG. The DACG provides the aerial port unit with the required copies of the manifests, and keeps the ALCE informed of the status of the loading operations. In addition, the DACG collects Army supplies and equipment left on the airfield and aircraft.

(4) As a minimum the DACG normally consists of a command section, operations section and such other administrative and supporting sections as are required by the magnitude and

scope of the operation. The DACG is manned for operations commensurate with the size of the force to be outloaded; the number of aircraft to be loaded simultaneously; the time allotted to complete the mission; the distance from the marshaling area to the departure airfield; and the facilities available at the departure airfield to include communications-electronics.

(5) Special attention must be given to insure that all officers and enlisted personnel directly responsible for the proper supervision of the outloading are thoroughly familiar with the loading procedures and capabilities of the aircraft to be loaded. Personnel experienced in airborne operations or air movement operations as appropriate should be selected to fill key positions in the DACG.

f. The responsibilities and functions of the Arrival Airfield Control Group (AACG) are shown in (1) and (2) below.

(1) When the airborne operation involves arrival airfields, an AACG will be established to discharge duties and responsibilities associated with offloading personnel, supplies and equipment at the arrival airfield. Specific responsibilities and functions of the AACG are similar to those of the DACG.

(2) On occasion, the AACG may function as both an out-loading and an offloading coordination and control group. Its relationship to the Air Force ALCE is that of the DACG.

g. Through Army and Air Force liaison officers at the ALCE, information is exchanged regarding—

(1) Air terminal and transport operations.

(2) Army marshaling plans and requirements.

(3) Aeromedical operations.

(4) Weather.

6–7. 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 marshaling camps are used.

b. Considerations. The following critical factors 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) Special transportation may be required to move the rigged load to the aircraft.

(4) The number of standard type hoist devices available may not be adequate and field expedients may frequently be required. Under such circumstances, units construct the various hoist devices needed to lift their organic platform loads.

(5) Inclement weather can delay or completely stop rigging operations.

(6) Adequate detail personnel must be provided to assist in rigging.

(7) Sufficient material handling equipment must be available to handle rigged loads both at the rigging site and airfield.

(8) Lighting facilities must be available for night operations.

(9) Additional aerial delivery kits are required at airfields to insure rejected loads are promptly rerigged.

(10) Liaison representative from out-loading unit is required to effect coordination with rigger personnel.

(11) Detail and rigger personnel should be organized to provide shift work if required.

c. Assembly Line. An assembly line technique may be 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 as the assembly line operation continues.

(3) Fewer hoist devices are required.

(4) Less roller conveyor equipment is required.

6–8. Aircraft Parking Plan

a. A fundamental consideration in parking aircraft at departure airfields is the available ramp space. In addition, the accessibility for loading and the ability to move individual aircraft without moving other aircraft must be considered. Also adequate dispersion must be planned to provide maximum security with the minimum vulnerability. Parking plans will be prepared for each phase of operation.

b. To facilitate identification of individual aircraft for loading, all aircraft are assigned a chalk number in accordance with the air movement table and parking plan. This chalk number is displayed so as to be readily discernable to personnel approaching the aircraft.

c. The ALCE commander furnishes the commander of the unit to be lifted an accurate parking plan which contains the airfield layout, locations of aircraft by chalk number, location of spare aircraft, and access routes.

6–9. Final Preparation

Final preparation include—

a. Planning and conduct of final briefings.

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

c. Provision for 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 and air loading plans.

f. Issue of individual maps, photos, and evasion and escape (E and E) kits.

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

h. Issue of individual assault rations, ammunition, water purification tablets, and necessary medical supplies.

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

6–10. Movement to Aircraft Loading Sites

a. The Army commander assigns priorities for the movement of units, supplies, and equipment to loading sites based upon the time required for loading and the scheduled times of takeoff. The staging area support agency provides required ground transportation which is responsive to the airborne force commander. The DACG is the agency that controls movement during marshaling. 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 briefings and fitting of parachutes.

b. Rapid marshaling requires adequate trucks and materials handling equipment to assist in loading of heavy equipment and supplies for air delivery. Heavy drop loads are prepared as close as possible to loading sites to reduce the requirement for transportation support.

c. Personnel in charge of each aircraft load are briefed in advance concerning the location and route of movement of their respective aircraft.

d. 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 are provided by Army units. A type flow of personnel and cargo is shown in figure 6–1.

6–11. Joint Inspection of Airdropped Loads

A joint inspection of rigged heavy drop loads will be preformed by qualified representatives of the Army and Air Force forces. The inspection will be accomplished by qualified

Army riggers and Air Force loadmasters in two phases—

a. A preloading inspection of the rigged loads to insure compliance with appropriate rigging technical instructions.

b. A postloading inspection, subsequent to securing the load and preparing the extraction and/or release assemblies.

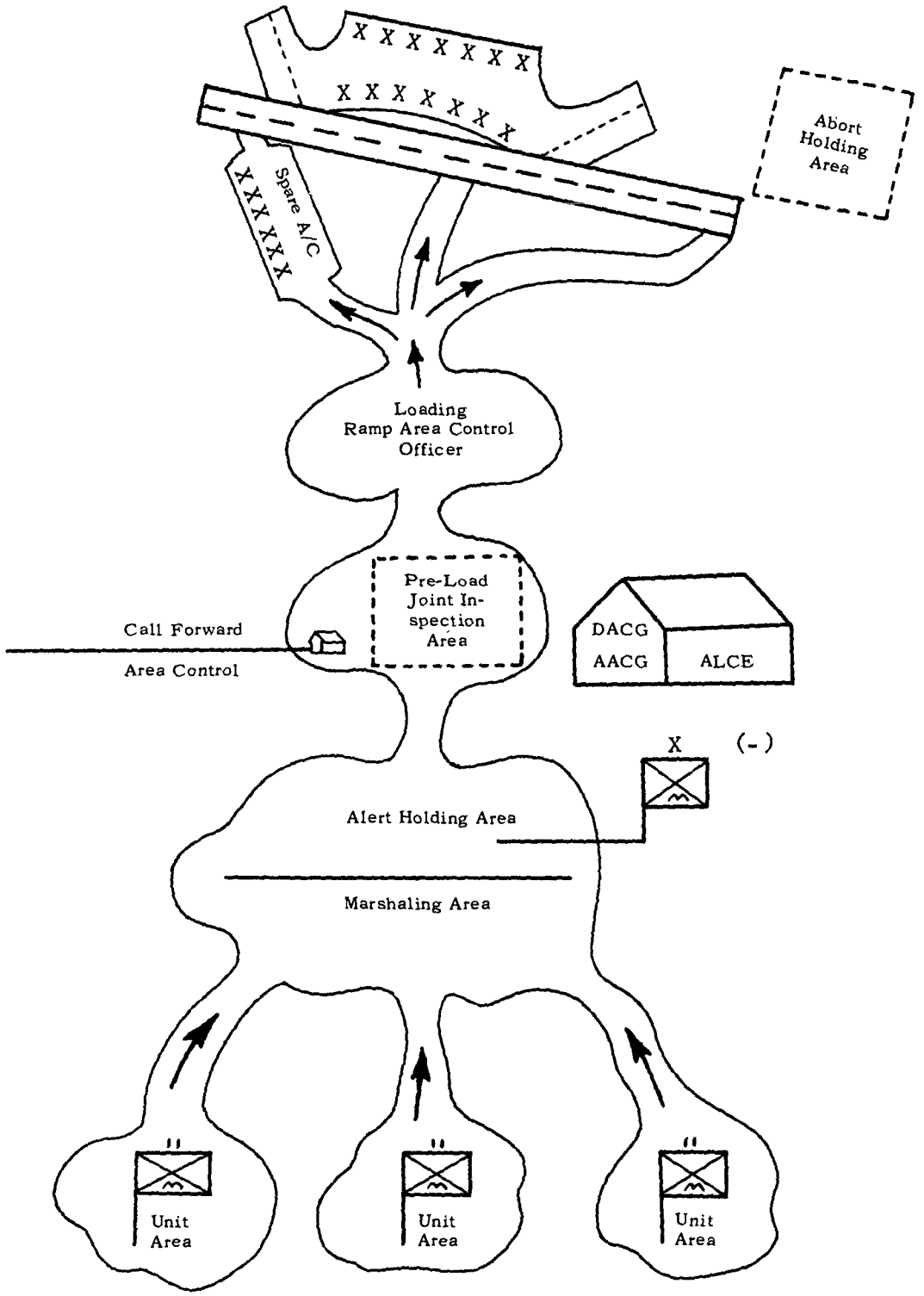


Figure 6–1. A type flow of personnel and cargo diagram.

6–12. Aircraft Inspection

a. In all flights involving airborne operations and prior to loading, each aircraft is inspected by an aircrew member and a member of the force being lifted (jumpmaster in parachute operations) in accordance with established checklists.

b. This preloading inspection is in addition to the standard inspections prescribed by aircraft maintenance or operational handbooks and manuals.

6–13. Aircraft Loading

a. The loading plan formulated in joint conferences contains information regarding the total number of personnel and the total amount of equipment to be airlifted, the allowable cargo loads, and the general sequence of movement. Strict adherence to the air movement table is mandatory. Loading of equipment and supplies is completed in sufficient time to permit postloading inspection, joint pre-takeoff briefing, and personnel boarding by the established station times.

b. Load planning permits adjustment to conform with changes in the number and type of aircraft and variations in the allowable cargo load for individual aircraft.

c. Spare aircraft should be available on-call to insure complete serials in the event of last moment failure of individual aircraft. The times of takeoff of spare aircraft depend upon the situation and are the responsibility of the airlift commander.

6–14. Loading Responsibilities

a. The airlift force commander is responsible for—

(1) Developing the plans for loading, in conjunction with the unit being moved.

(2) Establishing and disseminating instructions for documenting and manifesting all traffic, including casualties to be evacuated.

(3) Providing instructions for loading and unloading of aircraft and for cargo tiedown.

(4) Parking mission aircraft and spares in accordance with the parking plan.

(5) Configuring aircraft in accordance with air loading plan.

(6) Providing loading ramps, aircraft equipment for aeromedical evacuation of casualties, floor conveyors, tiedowns and other auxiliary equipment.

(7) Preparing aircraft for the safe airdrop of parachutists, cargo, equipment, and supplies. Cargo to be ejected in-flight is secured and ejected by Air Force personnel, except containers to be pushed from jump exits by parachutists in conjunction with their own exit.

(8) Insuring the Army personnel have safety belts fastened and are briefed on emergency and safety procedures prior to takeoff.

(9) Providing technical assistance to personnel engaged in loading, lashing, and unloading aircraft. This includes configuring the aircraft for aeromedical evacuation and for loading and unloading casualties.

(10) Verification of the documentation of personnel and equipment loaded on aircraft.

(11) Furnishing and operating materials handling equipment required in aircraft loading and unloading at all sites when such equipment or suitable substitute normally is not organic to the shipping unit, the unit being moved, or the unit accepting deliver, as pertinent.

b. The Army unit commander is responsible for—

(1) Establishing the priority and sequence for the movement of Army personnel, equipment, and supplies.

(2) Preparing cargo for air shipment, to include airdrop.

(3) Marking each major item of equipment to show weight and cubage, and when appropriate, the center of gravity.

(4) Documenting and manifesting all loads of Army personnel, equipment, and supplies.

(5) Directing, monitoring, and accomplishing the movement of ground traffic to the departure airfield or loading area and accepting delivery at destination.

(6) Delivering properly packaged supplies and equipment to the aircraft in accordance with the loading plan.

(7) Loading, tying down, and unloading accompanying door bundles with the technical assistance of Air Force personnel. This includes supplies and equipment which are pushed from jump exits by parachutists immediately before they jump.

(8) Briefing and supervising Army vehicle operators to insure a thorough understanding of airfield traffic procedures and safety precautions to be observed while driving around and near aircraft.

(9) Providing loading teams and vehicles to off-load aborting aircraft and reload onto spare aircraft.

(10) Insuring the Army personnel are seated in the aircraft with seatbelts fastened, prepared for flight and available to Air Force aircrew personnel for briefing at the designated airborne station time.

(11) Providing load spreaders for vehicles as required.

6–15. Briefings

a. General. The many intricate factors connected with a joint airborne operation require that certain joint briefings be conducted in order to insure complete understanding of the operation by all responsible personnel. The size of the operation normally will dictate the number and type of briefings presented which are categorized in (1) through (6) below.

(1) *Commander, unified command/joint force briefing.* A joint briefing will be conducted by the commander, his staff, subordinate force commanders, and their key staff personnel. This briefing will include as a minimum—

(*a*) Unified command/joint force general plan.
(*b*) Mission, objectives, and priorities.
(*c*) Force allocations.
(*d*) Subordinate force commander's plans.
(*e*) Task organizations.
(*f*) Intelligence.
(*g*) Communications.

(2) *Joint briefing.* A briefing conducted jointly by Army and Air Force commanders at each staging or out-loading base for all airborne operations. This briefing is scheduled for personnel of both Army and Air Force units after publication of appropriate operation orders, and includes the mission and objectives of the operation from the standpoint of both the air and ground elements. Personnel to attend this briefing will include tactical commanders and their staffs, and may include the aircraft commanders, navigators, and jumpmasters. These joint briefings will include as a minimum—

(*a*) Objective and priorities.
(*b*) Intelligence.
(*c*) Air Force mission, concept and procedures for conduct of operation.
(*d*) Army mission, concept and procedures for conduct of operation.
(*e*) Weather.
(*f*) Communications-electronics.

(3) *Unit mission briefing.* Combat unit briefings are conducted in addition to the joint briefings. When the dispersed concept is employed, it will be the responsibility of commanders at dispersed bases to conduct detailed mission briefings for all personnel of the airlift and airborne units. Joint representation at all mission briefings should be mandatory to provide com-

plete mutual understanding prior to execution of the mission and a comprehensive coverage of all phases of the mission.

(4) *Final briefing.* Final briefings may be held at the discretion of the service unit commanders just prior to unit assembly and aircraft loading.

(5) *Pre-takeoff briefing.* Prior to station time, the aircraft commander will brief crew and passengers in accordance with the appropriate checklist for the aircraft involved. Adequate survival equipment is carried aboard all aircraft on over-water flights. A thorough briefing is required for all crews and passengers to insure complete understanding of the operation of emergency equipment and the ditching characteristics and procedures of the aircraft.

(6) *Air Force combat control team (AFCCT) and Army assault team (AAT) briefing.* The integrated nature of the work preformed by Air Force 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 air and ground action. Therefore, it is highly desirable that special briefings and such joint training as possible be held by the leaders of the respective teams prior to initiation of the assault.

b. Because of the close coordination required in airborne operations, each service should be represented at all unilateral briefings given by the other service.

6–16. Weather Decision

a. The unified command/joint force commander will make the final decision on operation delay or cancellation of the operation based on the recommendations of the Army and Air Force component commander.

b. The Air Force component commander is responsible for recommending weather decisions pertinent to air movement, air landings, and accuracy of parachute delivery. He coordinates with and considers recommendations of the Army component commander since the influence of weather has varying effects on both the air and ground operation.

c. The Army airborne troop commander is responsible for recommending the decision to cancel or delay parachute drops because of excessive surface winds in the objective area.

d. The announcement of weather decisions should be timed to minimize interference with crew/troop rest.

CHAPTER 7

AIR MOVEMENT

7–1. General

a. Air movement is basically an air operation executed in accordance with jointly prepared plans designed to insure delivery of units to the objective area in the proper sequence and at the time and place required to support the tactical plan. The success of the operation depends heavily upon the cooperation and coordination of all participating units during the planning and preparation phase.

b. The airlift force commander prescribes the system used to expedite takeoff and landing. He designates departure and rendezvous points, and prescribes flight formations, assembly patterns, flight routes, emergency procedures and similar details concerning airfield operations and air movements.

c. Since many technical or tactical considerations may prevent the movements of units to the objective area in mass at the desired time, it may be necessary to phase selected units into subsequent lifts with a smaller number of aircraft conducting multiple lifts to provide the necessary sorties.

d. The allowable cargo load (ACL) for each type aircraft is provided by the Air Force commander early in the planning stage to permit Army forces to complete loading plans. The ACL of an aircraft varies with the distance to be flown, the anticipated condition of departure and landing airfields, meteorological conditions, and the altitudes at which the aircraft must operate.

e. Existing weather conditions may be unfavorable for mass aerial delivery; however, modern airborne navigational equipment and terminal aids permit single-ship deliveries under minimum ceiling and visibility conditions. Adequate delivery of troops and equipment may be accomplished using a corridor-type operation.

f. Air routes selected should be as short as practicable. They are designed to optimize friendly air defense capabilities, to avoid enemy air defense as far as possible, and to utilize terrain features for protective cover as well as navigational and control points. Specific air corridors may be established with both altitude and surface space reserved when required to avoid air traffic congestion and to simplify air defense identification procedures.

7–2. Responsibilities

a. The air movement phase of an airborne operation is an air operation and is the responsibility of the Air Force commander, who must provide for the precise and timely delivery of the Army force to selected drop, landing and extraction zones. The Air Force commander/joint force commander may establish an airborne command post in a suitably equipped transport aircraft for en route and terminal control of forces.

b. The Air Force commander, after coordination with the Army commander, makes the final selection of approaches to drop, landing and extraction zones. The direction of approach over a drop zone is a basic consideration in planning the proper positioning of heavy drop loads, expeditious assembly of personnel after landing, and launching of the ground attack. Therefore, it is essential that the direction of approach not be changed without complete coordination. In planning for the airborne operation, alternate drop, landing and extraction zones as well as alternate approaches, are established for use in the event the situation prevents the use of selected primary zones and approaches.

c. Operations from dispersed departure bases, over multiple routes and with simultaneous delivery at several drop, landing and extraction zones are further complicated by the operations of other air units. This complex condition dictates a requirement for close, highly competent control of air traffic in the objective area during an airborne operation. Such regulation is exercised as a part of the overall area air traffic control responsibility. The distances involved and the duration of the operation may require establishment of special air traffic control facilities to provide necessary extension of detailed coverage.

d. The airlift commander is responsible for establishing required navigational aids and for marking drop, landing and extraction zones with the following general exceptions:

(1) Marking the drop zone (DZ), landing zone (LZ) or extraction zone (EZ) for delivery to isolated units where Air Force control personnel are not available, is the responsibility of the unit receiving delivery.

(2) Mutually agreeable deviations dictated by the tactical situation.

e. The Air Force area of authority around a drop, extraction, or landing zone will encompass the geographic boundary of that zone and such additional area as necessary for efficient control of traffic. In the case of extraction and landing zones, this applies only after the airlift commander or his representative accepts its use.

f. The air control zone will extend sufficient distances to permit traffic control and the use of navigation aids that have been placed upon the respective strip for aircraft operation. This demarcation of authority is established to effect safety of operation and will be determined during the planning phase and adjusted on the sopt as dictated by the tactical situation. On the spot adjustments will be determined by the senior Air Force representative in coordination with the senior Army representative. Areas of disagreement will be resolved between senior service commanders involved or referred to the unified command/joint force commander if required.

g. En route to the objective area, all communications between aircraft or from aircraft back to the departure area are transmitted over Air Force communications, with the exception of those participating aircraft of other services which must use organic communications facilities.

7–3. Air Movement Plan

a. The air movement plan is prepared by the Air Force commander in coordination with the Army commander concerned. Included in the plan are the flight route diagrams and air movement tables. As a minimum the plan must contain all instructions required by subordinate units to insure timely coordination and precise execution of the air movement.

b. The availability, characteristics, and locations of drop, landing and extraction zones are important considerations in formulating the air movement plan. Desirable characteristics are—

(1) Relatively free from antiairborne obstacles and air defenses.

(2) Absence of obstacles to the clear approach and departure of aircraft.

(3) Ease of identification from the air under expected conditions of visibility.

(4) Sufficient capacity for the size force which is to be delivered.

(5) Near to ground objectives.

(6) Adequate cover and concealment for assembly and reorganization near the landing areas.

(7) Near dominating terrain, good road nets, and terrain favorable for defense against armored attack.

(8) Suitability for development of adequate LZ's and EZ's from a construction effort viewpoint.

c. The air movement plan gives participating units detailed instructions on the flight serial composition, aircraft chalk numbers, loading times, station and takeoff times, and

arrival times at drop, landing and extraction zones.

d. Air movement plans are coordinated with all units and commands of other services, which are, or might become, involved in or affected by the operation.

7–4. Countermeasures

Coúntermeasures which may be employed to reduce the capability of the enemy to interfere with air movement are—

a. Dispersion of aircraft, both in time and space while in-flight.

b. Flying at low altitudes.

c. Employment of electronic countermeasures.

d. Diversionary measures.

e. Operations at night and during periods of minimal weather conditions.

CHAPTER 8

AIR FORCE COMBAT CONTROL AND ARMY ASSAULT TEAMS

8–1. General

a. A high degree of navigational and delivery accuracy is required for an airborne force to arrive in an objective area in proper sequence, with each unit landing on its assigned drop or landing zone in accordance with the air movement plan. Terminal guidance aids, ground control measures, surface weather observations, and low-level wind measurements are employed in the objective area to assist and guide incoming aircraft. Air Force combat control teams (AFCCT) are organized, trained, and equipped to provide this assistance and control. Security of these Air Force combat control teams is necessary for the successful mission accomplishment. This security and protection is provided by Army assault teams (AAT). Army assault teams are organized, trained, and equipped to provide security and protection for Air Force combat control teams and to assist Army units in rapid assembly and reorganization after landing.

b. The use of nuclear weapons in an objective area prior to an airborne assault imposes a requirement to accomplish radiological surveys to insure that selected drop, landing and extraction zones are usable.

8–2. Missions

a. The primary mission of Air Force combat control teams is to locate, identify, and mark drop, landing and extraction zones; provide weather observations; operate necessary navigational aids and communication equipment; and control air traffic at drop, landing and extraction zones.

b. The primary mission of Army assault teams is to provide security and protection to the AFCCT until adequate security is provided by the strength and disposition of the landed Army units. If the assault team is relieved, a specific Army unit is designated to continue providing security for the AFCCT. The Army force commander determines when the initial assault security missions are completed, and directs the relieving Army units to establish and maintain contact with the AFCCT leaders. He also notifies the AFCCT leaders of his decision and provides identity and locations of Army units assuming the security responsibilities.

8–3. Deployment (Air Movement)

a. Details pertinent to the deployment, that is the air movement, of those teams are developed during the planning phase of the airborne operation. Because of the risk of compromise involved in deployment of the teams into the objective area prior to the airborne assault, the timing of the deployment and the method of delivery is agreed upon by both the Army and Air Force commanders concerned. The AFCCT must be fully operational in minimum time after reaching drop, landing and extraction zones in order that navigational, identification, air traffic control aids, and other facilities will be available to the maximum number of aircraft.

b. The AFCCT and AAT may be delivered to the objective area by—

(1) Airdrop or air landing in advance of the airborne assault.

(2) Airdrop or air landing in the lead aircraft of the lead serial.

(3) Deployment overland by infiltration.

(4) Water, using submarines or surface craft.

(5) Remaining as stay-behind units during a withdrawal.

c. It is important that the AFCCT maintain unit integrity and are deployed as entities. Necessary airlift of AFCCT and AAT normally is provided in aircraft transporting Army forces. When these teams and their equipment do not comprise full aircraft loads, the remaining personnel spaces may be filled by the Army force commander.

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

(2) For air landed deployment, these teams and their equipment are placed in lead aircraft in order to establish navigational control facilities at the earliest time.

8–4. Jumpmaster Responsibility

a. When AFCCT and AAT personnel parachute from the same aircraft, the senior qualified jumpmaster, by rank, of the AFCCT or AAT performs the jumpmaster duties. The senior qualified member of the other service team acts as the assistant jumpmaster. Other personnel who may parachute with the teams do not perform jumpmaster duties.

b. The team leaders are responsible for preparation of their own load manifests.

8–5. Functions

a. For each airlift mission involving drop, landing or extraction zones, AFCCT perform the following functions, as appropriate:

(1) Deploy into the landing area by the most feasible means as determined by the airlift commander in coordination with the Army force commander.

(2) Mark the drop, landing or extraction zones with appropriate navigational and identification aids.

(3) Establish ground-to-air communication at drop, landing and extraction zones.

(4) Establish communication with designated control agencies.

(5) Relay advice and information to incoming aircraft as to conditions in the landing area which may affect accomplishment of the mission.

(6) Provide designated agencies with surface weather and low-level (up to 1500′) winds aloft observations.

(7) Select or assist in the selection of drop, landing and extraction zones.

(8) Exercise air traffic control over aircraft within the objective area, as directed, until an air traffic control facility can be established in the airhead. Continue air traffic control in the vicinity of specific drop, landing and extraction zones as directed thereafter.

(9) Coordinate with the Air Force casualty staging facility commander to find a suitable location for casualty staging facilities near the taxiway or the off-load area of the landing zone, as required until an ALCE is operational.

(10) Coordinate with the Air Force casualty staging facility commander for the orderly aeromedical evacuation of casualties in the vicinity of the casualty staging facility to permit rapid loading.

(11) Record statistical data concerning air landing, drop, and/or extraction activities.

b. In addition to providing security for the AFCCT, Army assault teams may be directed to perform the following functions:

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

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

(3) Mark unit assembly areas with appropriate panels, flags, lights or other aids as required in the Army operation plans. Smoke, if used, should not conflict with the standard smoke signals used on drop zones.

(4) Assist Army units in assembling and reorganizing after landing.

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

(6) Assist in clearing landing strips.

(7) Furnish terminal guidance assistance to Army aircraft when operating independently of an Air Force controlled landing or drop zone.

c. Briefings of AFCCT and AAT are covered in paragraph 6–15 *a*(6).

CHAPTER 9

PARACHUTE OPERATIONS

9–1. General

a. The great advantage of parachute operations is that they provide rapid, nearly simultaneous, delivery of a force on any terrain which is relatively free of obstacles. Disadvantages are the extensive special training and specialized equipment required, time required for assembly and reorganization after landing, and the weight penalty paid for parachutists and delivery kits.

b. It is essential that airborne troops land on or as close to their objectives as possible. Such forces usually are employed in areas where there are few fixed defenses and few well-organized enemy combat troops. These conditions facilitate rapid seizure of initial objectives. The vulnerability of airdropped troops during landing and reorganization, plus their reduced ground mobility, require a force large enough and having sufficient equipment to carry out the mission.

c. The need for significant mass to seize and hold a ground objective normally requires that the assault be made from aircraft in formation. The loading of airborne forces and equipment should be planned to insure that arrival in the objective area is in the desired sequence for employment in the ground action.

9–2. Responsibilities

a. Although significant decisions are contained in operations plans and orders of the unified command/joint force commander, the airborne troop and airlift commanders immediately concerned with accomplishing the operation are jointly and individually responsible for key recommendations in the final decisions concerning drop zones.

(1) The airborne commander and the airlift commander are jointly responsible for recommending the final selection of drop zones. The airborne commander must make his recommendation based on the suitability of the DZ for parachute operations in consideration of natural and manmade obstructions and rough surfaces which could injure personnel or damage equipment. The airlift commander is responsible for marking the DZ, and locating the point of impact (PI) and timing points. The ground force commander indicates his preference with respect to the orientation of approaches to the selected DZ. In consideration of the ground force commander's preference and all pertinent operational factors, the Air Force commander establishes the approach headings. In the event of disagreement the problem is referred to the unified command/joint force commander who makes the decision.

(2) The airlift commander, in coordination with the airborne commander, determines the type formation to be employed. This determination is influenced by many factors including the size of drop zones, the surrounding terrain features, the tactical scheme of maneuver, and enemy air defenses en route to and at the objective area.

(3) It is the responsibility of the airlift commander to deliver the troops, equipment, and supplies to the selected landing, drop, and extraction zones at the times established in the air movement plan.

(4) The unified/joint force commander will make the final decision to cancel or postpone the operation based upon the recommendations of the Army and Air Force component commanders. When a joint force is not established, the final decision to cancel or postpone the operation is the responsibility of the Army airborne force commander.

b. The ejection of cargo from aircraft in flight is an Air Force responsibility, and ejection systems will be activated only by designated aircrew members. Exception is made in the case of door bundles which are pushed from jump exits by parachutists immediately before their exit from aircraft in flight.

c. Following the exit of airborne personnel, equipment or supplies, Air Force crewmembers are responsible for retrieving static lines into aircraft and returning them to a designated pickup point.

9–3. Separation of Personnel and Equipment

a. Separation times (if standard) and sequence of drop between personnel and equipment will be established by the unified command/joint force commander based on the recommendations of the Army and Air Force component. The terrain and the tactical situation will dictate whether the personnel or heavy-drop serials in airborne assaults will be first to deploy the drop zone(s).

b. Combination drops (tailgating) where parachutists exit from the cargo ramp immediately after the ejection of heavy equipment will be used when required to facilitate assembly of drivers and gun crewmembers with their air-dropped equipment. Caution must be exercised in utilizing the tailgating technique to prevent injuries. Equipment and personnel can also be dropped from separate aircraft on the same DZ in the same time frame if equipment aircraft are sufficiently offset to provide adequate clearance. Such a course of action will have the concurrence of both component commanders and the unified/joint command commander's approval prior to execution.

9–4. Drop Altitudes

a. Minimum altitudes above the highest terrain on the drop zone must be established for parachuting of personnel and air dropping of materiel. The principle of balancing the risk from enemy fire against the possible added safety of higher altitudes requires careful consideration. Drop altitudes will vary with the tactical situation since minimum altitudes for parachuting of personnel will be based on tactical operational requirements measured against the technical operating characteristics of the personnel parachute used. The Army component force commander, in coordination with the airlift commander, will recommend combat personnel and equipment drop altitudes for approval of the unified command/joint force commander. Peacetime training, including field exercises, will be governed by the restrictions prescribed in appendix B.

b. The unified command/joint force commander normally will establish guidance by which variations to established standard drop altitudes may be authorized in operations plans or orders.

9–5. Drop Zone Size

As reflected in prior paragraphs of this manual, the selection of drop zones is made only after detailed and exhaustive joint analysis. The physical characteristics of the available drop zones and surrounding area, the number of items or personnel to be dropped, and the length of the dispersion pattern influence the type formation to be used. Linear dispersion in meters (yards) can be estimated roughly by multiplying the number of personnel in a stick, or the number of items to be dropped, by 70 meters (75 yards). Controlling factors for DZ width are based upon U.S. Air Force considerations. Guidance as to drop zones sizes may also be set out in operations plans or orders of the unified command/joint force commander. The airborne troop and airlift commanders may approve necessary variations from established minimums provided there is joint agreement as to conditions and the extent of variation. Personnel and heavy equipment impact points should be selected to make maximum use of the DZ length and to provide the Army parachute force with the maximum stick jump

time. Separate impact points may be used for heavy equipment as required to facilitate assembly and tactical readiness. In remote areas, as in counterinsurgency operational environments, drop zone sizes may be restricted by dense jungle growth, mountainous areas, deep water or swamps. Although not desirable, it may be necessary to perform multiple passes over the DZ to deliver all parachutists.

9–6. Drop Air Speeds

a. Established drop airspeeds, expressed in knots, will not be exceeded except in cases of aircraft equipment malfunction. Although drop airspeeds vary slightly for different aircraft types, speeds between 125 and 130 knots are established normally as maximum for personnel and cargo drops. Specific drop airspeeds for each type aircraft will be published in appropriate Air Force manuals or technical orders.

b. In order to provide a stable platform for the exit of parachutists, deceleration to prescribed drop airspeed and level flight altitude is completed at least one minute prior to drop time.

9–7. Procedures and Signals

a. The Air Force commander is responsible for insuring that briefings are conducted for parachutists concerning—

(1) Aircraft jump signals.
(2) Timing requirements.
(3) Special situations, as required.
(4) Emergency procedures.

b. Each tactical airlift aircraft has at least one air crewmember assigned as loadmaster. The commander of the airborne unit designates the jumpmaster of each plane load, except as provided in paragraph 8–4 for jointly loaded aircraft. The loadmaster is stationed in the cargo compartment in a position that will permit him to see the jump signal lights. He is near the jumpmaster and maintains continuous interphone contact with the aircraft commander. The loadmaster verbally confirms information received from the aircraft commander and relays instructions to the jumpmaster.

c. Parachute exit doors are opened, removed, or closed by Air Force air crewmembers in accordance with procedures established for the particular type aircraft and for the mission being flown. Standard operating instructions for each type aircraft establish door opening times, where appropriate, and insure that air deflectors and/or doors are open and jump platforms (if used) are in place not later than one minute prior to jump.

d. Door bundles remain tied down until just prior to opening of jump doors and are dropped before or after a stick of parachutist, but are not intermingled with a stick.

e. The aircraft troop seats will be raised by the airborne personnel under the supervision of the loadmaster prior to jumping.

9–8. Inspections

Unified commands/joint forces concerned with airborne operations should prepare aircraft inspection checklists and joint Army and Air Force airdrop inspection forms.

9–9. Wind Velocity

Parachute operations may not be feasible during conditions of very strong or gusty surface winds or when the winds, or wind shear, at drop altitude are excessive. For normal operations, surface winds above 13 knots, or above 30 knots at drop altitudes, are considered excessive. The decision to cancel or discontinue operations because of surface winds is made by the unified/command joint force commander based on the recommendations of the service component force commanders.

CHAPTER 10

AIR LANDED OPERATIONS

10–1. General

a. Certain phases of an airborne operations, or even the entire operation, may be accomplished by the delivery of troops and equipment to the objective area by air landing. This method offers the following advantages:

(1) More economical use of available airlift.

(2) Capability for delivery of larger, heavier items.

(3) A readily available means of evacuation.

(4) A greater degree of tactical integrity and the capability for more rapid employment of units after landing.

(5) The capability of using units with a minimum of special training and specialized equipment.

b. Air landing, however, has the following disadvantages:

(1) Moderately level, unobstructed LZ's with adequate soil trafficability are required.

(2) More time is required for delivery of a given size force than when delivery is by parachute. This is especially so for small restricted landing zones.

(3) An additional engineer workload for improvement or new construction of air landing facilities is generally required.

10–2. Concept of Employment

a. Units capable of being air landed may be deployed from one area of operations to another to meet requirements. Units may be transported to an area of operations by large strategic airlift aircraft and reloaded to tactical airlift aircraft for further deployment to the objective area. If air movement is to be fully exploited, careful plans must be made to accomplish rapid in-transit reloading. Under certain conditions, units configured for combat may be loaded on the tactical airlift aircraft which will deliver them directly to the objective area. Where transloading is necessary, units should be formed into suitable tactical aircraft increments prior to the initial air movement.

b. Air landed operations may be conducted independently of, or in conjunction with, parachute operations. Adequate training and equipment substitution or modification permits many units of the field army to participate in air landed operations.

c. The firepower of nuclear weapons increases the capability to employ air landed units in the initial landing without preceding them by a parachute assault.

d. When air landed operations are executed in conjunction with parachute operations, the initial assault normally is made by parachute.

10–3. Responsibilities

a. Site selection for forward air landing zone (LZ) is as discussed in (1) through (4) below.

(1) The general landing area normally is assigned by the unified or command/joint force commander concerned based upon his appraisal of the overall tactical situation. Acting in concert, the Army and Air Force component commanders and the unified command/joint force engineer will determine in a landing area study the most operationally suitable land-

ing zone sites which can be developed within the agreed Army/Air Force criteria which meet Air Force operational requirements and which meet tactical and construction considerations in terms of terrain, and available time, equipment, and personnel.

(2) Specific siting of the actual airfield in the general area of the airhead and the applicable airfield criteria to be followed is agreed upon by the commander of the constructing engineer unit, the designated representative of the airlift commander, and the AF staff engineer. Should conflict develop, the matter will be referred immediately to the unified command/joint force commander for resolution. Once selected, control of the site remains with the local engineer until the designated representative of the airlift commander accepts use of the LZ. The specific Air Force representative authorized to accept the landing zone for each operation should be stated in operations plans or orders and made known to the engineer responsible for the construction of the site during the planning phase of the operation. This AF representative is to be available at the LZ site during all phases of construction, including final reconnaissance, to assist in adjustments in site selection or airfield criteria which may become necessary.

(3) From a practical standpoint, aircraft may be required to use air landing facilities prior to the completion of construction. In addition to emergency landing situations, such requirements may be established for the delivery of additional construction equipment, emergency supplies or reinforcing units. Such use will be made of airfields under construction only when specifically agreed upon jointly by the commander of the engineer construction unit and the designated representative of the airlift commander. Such use of the facility does not constitute acceptance of the airfield for general use; this constitutes beneficial occupancy only, and the construction effort must be continued to meet the established requirements.

(4) When the established construction requirements are complete and the airlift commander or his previously designated representative accepts the LZ, operational control of the LZ passes to the airlift commander. At that time, the unified command/joint force engineer assures that a minimum force is available to accomplish repair and maintenance of the critical landing surfaces, taxiways, and hardstands. This force may be an Army or Air Force support unit. The composition and size of the maintenance force established will be consistent with the tactical situation, type and location of the LZ, availability of engineer forces, weather, and expected LZ use.

b. The Army force commander establishes the priority and sequence of movement for his personnel, equipment, and supplies based on his tactical plan.

c. Within the allocated resources, the Air Force commander selects the air tactics to be used and designs an air movement flow which most nearly achieves the desired delivery requirement.

d. The control of all air traffic (letdown, traffic pattern, landing, taxiing and takeoff) at LZ's accepted by the Air Force is the responsibility of the Air Force commander. The movement of ground vehicles at these locations as well as the allocation of space for operational support and living areas is also an Air Force responsibility.

10–4. Organization for Movement

a. The tactical integrity of participating units is a major consideration in an air landed operation. In situations where air landed units are expected to engage in combat upon landing, small units are landed organizationally intact with weapons, ammunition, and personnel in the same aircraft whenever possible. Joint planning emphasizes placement as close to ob-

jectives as possible, consistent with availability of landing zones and the operational capability of the tactical aircraft employed. Because of the vulnerability of aircraft on the ground, unloading is accomplished as rapidly as possible.

b. The composition of loads of air landing serials of individual aircraft depends upon the airborne commander's requirements for varying degrees of mass and on the capability of available air facilities to support a given rate of delivery. These factors may also dictate the general sequence of airlift operations in an area.

10–5. Landing Procedures

a. Air landed elements which are preceded by parachute elements follow these elements as closely as possible and land on zones in proximity to parent unit and units they are to support. In resupply operations, supplies and equipment are delivered at a preplanned rate to locations within the objective area which require a minimum of further movement and handling. The speed with which air landed elements are delivered into the objective area depends largely upon the availability, capacity, and security of landing zones or other air facilities.

b. The Air Force and Army commanders prepare plans and provide the means to cope with the problem of disabled aircraft on landing zones. The Army unit commander provides assistance in the movement of disabled aircraft that would otherwise interfere with landing operations.

10–6. Landing Zones and Facilities

a. Although the general landing area normally is assigned by the senior planning headquarters, designation of specific landing zones usually is made in lower units. The selection of landing zones must consider conditions created by friendly nuclear fires. Some desirable characteristics of landing zones are ease of identification from the air; straight, unobstructed approach for aircraft; and proximity to ground objectives. Those landing zones which will be developed into more sophisticated facilities should possess the following additional characteristics:

(1) Area of sufficient size and trafficability to accommodate the number and type of aircraft to be landed.

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

(3) A road net to handle ground vehicular traffic.

(4) Minimum requirements for construction and maintenance.

(5) Areas and facilities for air terminal operations and for holding patients awaiting evacuation.

b. It is necessary that landing zones be classified according to the applicable aircraft and airfield criteria which are furnished the construction unit commander as design and construction guidance. Essential air landing facilities within available construction capabilities must be identified as soon as possible after the beginning of the operation. Minimum facilities normally are provided initially to permit early beneficial occupancy. These minimum facilities must be adequate for safe and efficient landing operations, consistent with the urgency of the requirement. However, where applicable, planning and orders should include provision for later improvement to increase the efficiency of operations and safety factors in consideration of the facility. Planned improvement and expansion of LZ's must be made known to the construction unit commander prior to beginning of construction operations.

c. Landing zone dimensions are established by reference to the basic operating handbook applicable to the types of aircraft involved. Among many factors which must be considered are aircraft ground roll, temperature, humidity, field elevation, nature and conditions of landing surface, and expected maximum takeoff and landing gross weights.

d. Maximum use must be made of existing facilities such as roads and open areas to reduce to a minimum the time and construction effort required. Consideration should be given to layouts that facilitate future expansion and provide maximum deployment and flexibility. As the qualitative and quantitative aspects of an air facility are improved, it becomes increasingly profitable as a target for enemy destruction. Therefore, air landing facilities should be dispersed and of minimum complexity so that they do not present remunerated targets to the enemy.

CHAPTER 11

EVACUATION AND WITHDRAWAL BY AIR

11–1. General

Evacuation by air is a normal function during the conduct of airborne operations. Patients, prisoners of war, civilian internees, other selected personnel, captured enemy materiel, and damaged equipment are evacuated from the airhead in accordance with plans and as the situation requires. The movement of patients out of the airborne objective area normally takes precedence over all other evacuation requirements.

11–2. Medical Support

a. General.

(1) Medical considerations are of paramount importance in airborne operations. Units being transported by air into an objective area can be rendered ineffective in various ways—by disease or injury in the marshaling areas; by various effects of the air transportation itself; by sickness, injury or the effects of heat or altitude in the objective areas; by needless or unsupervised evacuation from the airhead.

(2) Medical plans and preparations in support of the mission are necessary if this is to be prevented. Adequate medcal support of an airborne or air landed operation requires full knowledge of current intelligence and operational plans, adequate time for medical planning and coordination, full command support and the greatest possible integration of the medical services of the participating forces.

b. Planning.

(1) *Medical plan.* A complete medical estimate is required before an adequate medical plan can be prepared. Attention must be given to the medical problems that will arise not only in the airhead but in the marshaling areas and in the arrival airfields and hospitals to which patients will be evacuated from the airhead. Such relatively minor problems as the provision of litterbearers and ramps for unloading patients from aircraft are simple to solve when planned for in advance. They may be serious limiting factors when their need appears suddenly and without warning during an airborne operation.

(2) *Responsibilities.* Doctrine for medical support operations is contained in FM 31–8 (AFM 160–27 and NAVMEDP–5047). Responsibilities for aeromedical evacuation are contained in AR 40–535/AFR 164-1/OPNAVINST 4630.9B/MCO P4630.9. It is imperative that component service surgeons coordinate their planning to insure complete understanding and maximum effectiveness. The Army component force commander is responsible for the provision of medical service within the airhead(s). The Army collects, treats, evacuates, and holds (except for those being processed by Air Force staging facilities patients within the airhead; collects and transports patients to on-load, air landing facilities; and provides patient staging facilities in the airhead until such facilities are provided by the Air Force. The Air Force component commander is responsible for—

(*a*) Provision of a tactical aeromedical evacuation system. This normally includes—

1. An aeromedical evacuation control center (AECC) which is integrated within the airlift command post or tactical air control center.
2. Forward and rear casualty staging facilities (CSF) to render sustaining medical care and to stage, receive, manifest, load and unload patients.
3. In-flight aeromedical evacuation teams to provide in-flight medical care.
4. Aeromedical evacuation liaison officers and liaison teams attached to appropriate Army headquarters to coordinate aeromedical matters.
5. Support teams to provide administrative and supply support of aeromedical operations.

(*b*) Allocation of sufficient return airlift missions to support the tactical aeromedical evacuation system.

(3) *Augmentation and support.* It may be necessary to augment the medical units of the airborne force with specialist personnel and equipment or to support them in the airhead with hospitals and other nondivisional medical units.

(4) *Mounting phase.* Medical personnel of the assault units must prepare themselves, their equipment and their units for combat while in the marshaling areas. For this reason planning must include provision for medical service in the marshaling areas by communications zone personnel or as otherwise designated by the responsible commander. Such service should include dispensary care, evacuation to hospitals especially designated for the reception of sealed-in personnel, preventive medicine and medical supply support. Such relatively simple matters as the provision of safe drinking water and protection from disease-bearing insects or from the elements during this phase of the operation may spell the difference between success or failure in later phases. It is imperative that immunizations be completed, malaria prophylaxis initiated when necessary, and all personnel thoroughly indoctrinated on epidemiological problems peculiar to the areas of operation.

(5) *Air movement phase.* Adequate preperations and the prior indoctrination of troops must be made to prevent disabilities that otherwise would result from fatigue, hunger, dehydration, oxygen lack, changes in atmospheric pressure, noise, motion sickness, lack of acclimatization or altitude sickness.

(6) *Assault phase.* Generally speaking, medical personnel and units accompany and are phased into the airhead with the units they support. Recommendations for the loading of medical personnel and equipment, and for the allocation of aircraft for medical units must be made early enough so that they can give adequate consideration in the preparation of loading plans and air movement tables.

(7) *Subsequent operation phase.*

(*a*) Medical plans for the support of operations during this phase must allow for flexibility. The decision to phase back medical units at this time may require the evacuation of patients who otherwise could be treated and returned to duty within the airhead.

(*b*) Plans for medical support after linkup or during withdrawal should consider every eventuality. Depending upon the situation these must provide for resupply and evacuation from the airhead by land, sea, or air.

c. Evacuation and Hospitalization.

(1) The evacuation policy should be flexible and planned to adjust to any contingency. It is established in advance but is modified as circumstances permit or require. Patients who can be returned to duty within a short period of time usually are not evacuated from the airhead; those who cannot be

returned to duty within a predetermined time are evacuated as soon as possible.

(2) Patients are evacuated from the objective area in airlift aircraft on return flights or by aeromedical evacuation sorties. Such evacuation is not a substitute for adequate professional care. The patient must be stabilized in a suitable medical facility in the airhead before he is evacuated. Such medical installations usually are best located near suitable air landing or other facilities in accordance with the plans for medical evacuation and resupply. Adequate medical sorting before evacuation retains effective personnel within the airhead and prevents unnecessary evacuation from the airhead. Speed of evacuation to rear areas is essential only to relieve conjestion in the forward areas.

(3) The Army airborne unit will designate a medical regulating officer (MRO) who will be responsible for coordinating with the aeromedical evacuation liaison officer (AELO) on the establishment and location of casualty staging facilities (CSF) and the timely arrival at the CSF of patients scheduled for air evacuation. The MRO will receive reports from unit surgeons/medical company commanders on numbers of patients, diagnosis, and priority who are awaiting air evacuation. He will coordinate with the AELO and the CSF on the availability of aircraft and arrange a schedule for the arrival of patients at the CSF. Army MROs, through Air Force AELOs inform the aeromedical evacuation control center (AECC) of the number of patients requiring evacuation. The joint medical regulation officer (JMRO) designates the medical facilities by which patients are to be evacuated.

(4) The AECC is located with the airlift control center (ALCC) which operates and controls the necessary airlift, to include diversions to accomplish the aeromedical evacuation mission. Air movement tables and operations orders are coordinated with the AECC to that resupply aircraft may be designated to return as aeromedical evacuation flights. The need for specific aeromedical airlift in addition to, or in place of, routine returning traffic must be anticipated and reflected in plans.

(5) Responsibilities in the medical plan will be allocated in accordance with availability of medical means at marshaling areas, airfields and airhead(s) for the off-loading of patients and for the provision of the necessary personnel and equipment to unload, hold and care for such patients. These responsibilities must be clearly defined and jointly coordinated. All medical units must be prepared to hold and to care for patients for short periods of time during evacuation delays.

d. Medical Supply.

(1) Allowances must be made for probable losses of medical equipment and supplies during delivery into the objective area. Policy concerning medical supplies for non-U.S. personnel should be stated.

(2) Litters, blankets, splints and other medical items of equipment that accompany patients during evacuation are furnished initially by the Army medical facilities. The Air Force normally provides property exchange between the patient staging facilities and the Army medical facilities in the objective area based upon preestablished requirements for priority automatic air shipment of replacement items into the objective area.

(3) Plans should include estimates for initial accompanying whole blood requirements as well as resupply requirements to insure expeditious and efficient support by the joint whole blood center controlling allocation and dispatch.

e. Responsibilities. Responsibility for detailed medical planning and medical support operations is vested in the surgeons of the respective component services and subject to the approval of the unified command/joint force commander through his command surgeon.

11–3. Prisoners of War; Captured and Damaged Materiel

a. Prisoners of War. Prisoners of war and civilian internees are evacuated from the objective area by the airlift commander in accordance with instructions from unified command/joint force headquarters. The Army processes, stages, and provides guards for the evacuation of prisoners of war. Prisoners of war collecting points normally are located near aid landing facilities to facilitate air evacuation. Prisoners of war are evacuated to predesignated facilities within the departure area. It is essential that tactical interrogations be conducted rapidly and that information obtained be furnished to the force commander prior to evacuation.

b. Captured Materiel. Captured materiel requiring evacuation by air is designated, processed, and prepared for air movement by the Army in accordance with instructions from higher headquarters. The airlift unit is informed by appropriate notation on the manifest of the classification, designation, and destination of the materiel to be evacuated.

c. Damaged Materiel. In short duration operations, damaged materiel is evacuated only when airlift is available that would otherwise be returning to the departure area without a full payload. For long duration operations, a damaged materiel evacuation policy is jointly developed by the Army and Air Force commanders.

11–4. Withdrawal and Restaging

a. Withdrawal, or restaging, of an airborne force may be planned in advance or may become necessary because of enemy action.

b. Withdrawal or restaging by air of units located in hostile territory involves consideration of the following:

(1) Adequacy of aircraft and landing zones.
(2) Local air superiority, or absence of enemy air interference.
(3) Weather in the base and objective areas.
(4) Necessity for surprise and deception.
(5) Adequacy of materials handling equipment and related supplies.

c. The withdrawal of the detachments-left-in-contact constitutes the most critical phase of the operation.

d. A forced decision to withdraw by air must be made sufficiently in advance of the anticipated time of execution to permit adequate planning and coordination.

(1) Normally the unified command/joint force commander directing the conduct of an airborne operation orders the withdrawal on restaging of the force.
(2) The Army commander is responsible for determining the priority of movement of units. He furnishes the airlift commander a list of units by priority, constituted into plane loads and indicating departure points and destinations.
(3) The airlift commander is responsible for air movement control. He establishes required ALCE's within the airhead area to coordinate arrival and departure of aircraft.
(4) The Army Commander establishes loading control centers adjacent to the Air Force support units.
(5) In a planned restaging or withdrawal operation, the Army commander provides trained teams to load and secure equipment with the technical assistance of Air Force personnel. In a forced withdrawal, where such teams are not available in the airhead, the Army commander requests that Army loading teams be airlifted in the first aircraft dispatched to the airhead area.
(6) Designated air defense elements provide air defense protection of the withdrawal or restaging operation.

e. For planned restaging or withdrawals, alternate plans are made to cover various contingencies. Restaging operations or air withdrawals may be preceeded by overland movement to suitable pickup points. When with-

drawal by sea is practicable, naval craft including submarines, may be employed. Operations include plans for alternate beach use. Withdrawals and restaging operations are covered by close air support and by long range missiles, artillery, and naval gunfire when within range of the airhead.

f. In withdrawal actions it may be necessary to evacuate certain key civilian leaders and/or their families prior to the completion of our withdrawal. Key civilian personnel who have exposed their allegiance to our cause or who may be needed upon reentry into the area cannot be allowed to fall into enemy hands.

CHAPTER 12

WEATHER SERVICE

12–1. General

a. Weather exerts a definite and, at times, a decisive influence on military operations. The effective employment of modern military force requires consideration of weather factors from the inception of a plan to its final execution. Operational plans for Air Force and Army units generate a wide variety of requirements for weather service to support airborne planning and operations.

b. Available weather services help commanders exploit the advantages which may be gained from various weather conditions by providing past, current, and anticipated weather for the area of operations. Successful provision and coordination of weather services require weather organizations functionally organized to support the Air Force and Army units.

c. Primarily, weather support is provided by a tactical weather support organization established for that purpose. The organization is composed of teams at all levels of Air Force and Army command requiring direct weather support. In addition, ballistic meteorological support will be provided to artillary firing units by artillery meteorological sections.

12–2. Functions

a. Military weather support provides information for use in planning and conducting operations my making available climatological data and weather forecasts and observations.

b. Meteorological personnel assigned to the tactical weather organization interpret basic weather information and advise commanders and staff on all phases of the weather and possible effects on airborne operations.

c. All weather briefings required by Air Force and Army units are provided ty tactical weather teams.

12–3. Requirements

a. Weather information required when planning and preparing for airborne operations consists primarily of climatological data to assist in selection of courses of action with a high or acceptable probability of success.

b. Weather information for airborne operations includes such general requirements as—

(1) Terminal weather conditions for all departure bases (for use in evaluating effect on aircraft operation and on personnel).

(2) En route weather (for use in evaluating effect on mission, tactics, and in flight operational procedures).

(3) Objective area weather (for use in evaluating effect on airdrop and air landed operations).

(4) Terminal conditions at alternate and return bases.

(5) Area weather conditions (for use in evaluating effect on the enemy's capabilities).

(6) Abnormal precipitation and temperature conditions which would adversely affect operations.

(7) Weather information for use in trafficability forecasts.

(8) Weather information for use in radiological fallout computations.

c. In addition to the above requirements for climatological information and weather forecasts, a need exists for observations of surface and low-level (up to 1,500 feet) winds aloft within the drop zone during the air drops, as well as upper air meteorological data required for artillery ballistic corrections.

12–4. Minimum

a. Weather minimums are established by the unified commander to prescribe the worst weather in which airborne operations will be conducted. These minimum conditions are stated in terms of visibility, ceiling, wind velocity, and hazards to flight.

b. The airdrop troop commander specifies the strongest surface wind that will still permit parachute operations in the objective area. The Air Force commander specifies the minimum ceiling and visibility which must prevail in the departure, en route, and obpective areas, and maximum wind velocity at drop altitude in the objective area.

c. At the time an operation is launched, prevailing and forecast weather should be equal to or better than that specified in established weather minimums. When weather conditions are less favorable than the specified minimums, the operation is either canceled or postponed, or alternate operations are executed.

12–5. Organization and Facilities

a. Weather teams specifically supporting the Army and Air Force units are an integral part of the tactical weather organization. These terms and their facilities must have the same flexibility and mobility as the organizations they serve.

b. To insure adequate weather support to tactical forces, personnel must maintain continuous liaison with the commanders and staffs of the combat organizations they support. Weather team commanders or other weather officers normally are appointed to serve on the special staff of the Air Force and Army commanders as staff weather officers.

12–6. Observations and Data

The Air Force and Army have a continuing requirement for observations over the entire area of operations and adjacent areas. In addition to the data available from its own facilities, the tactical weather organization is provided supplemental weather information from Air Force and Army units, particularly in forward areas of combat zones and over enemy territory. It is highly probable that elements of at least one Army artillery meteorological section will be deployed in the airhead. This type of unit can provide upper air meteorological information not only to the artillery and the tactical weather organization but to the activities responsible for CBR operations and radiological fallout wind prediction.

12–7. Support Requirements

a. Successful weather service depends to a critical extent upon the availability of adequate and reliable communications. Weather forecasts and reports of current weather are highly perishable and must be transmitted from source to user as quickly as possible. Communication facilities for weather teams and for terminating weather circuits at the component commands will be provided for in the unified/joint force general plan.

b. Weather teams are not self-supporting. They are attached to the commander of the organization being served for administrative, medical, and logistical support.

APPENDIX A

REFERENCES

A–1. Joint Chiefs of Staff

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.
JCS Pub 8	Doctrine for Air Defense from Oversea Land Areas.

A–2. Department of the Army

FM 1–15	Division Aviation Battalion and Group.
FM 1–60	Army Aviation Air Traffic Operations—Tactical.
FM 1–100	Army Aviation Utilization.
FM 3–10	Employment of Chemical and Biological Agents.
FM 3–12	Operational Aspects of Radiological Defense.
FM 5–136	Engineer Battalions, Airborne and Airmobile Divisions.
FM 6–20–1	Field Artillery Tactics.
FM 6–20–2	Field Artillery Techniques.
FM 7–11	Rifle Company, Infantry, Airborne, and Mechanized.
FM 7–15	Rifle Platoon and Squads Infantry, Airborne and Mechanized.
FM 7–20	Infantry, Airborne Infantry, and Mechanized Infantry Battalions.
FM 7–30	Infantry, Airborne and Mechanized Division Brigades.
FM 8–15	Division Medical Service, Infantry, Airborne, Mechanized and Armored Divisions.
FM 9–30	Maintenance Battalion, Division Support Command.
FM 10–8	Air Delivery of Supplies and Equipment in the Field Army.
FM 10–50	Supply and Transport Battalion, Division Support Command.
FM 11–57	Signal Battalion, Airborne Division.
FM 12–11	Administration Company, Division and Separate Brigade.
FM 17–36	Division Armored and Air Cavalry Units.
FM 21–76	Survival.
FM 21–77	Evasion and Escape.
FM 30–5	Combat Intelligence.
FM 30–10	Terrain Intelligence.
FM 30–20	Aerial Surveillance—Reconnaissance, Field Army.
FM 31–8	Medical Service in Joint Oversea Operations.
FM 31–15	Operations Against Irregular Forces.
FM 31–16	Counterguerrilla Operations.
FM 31–20	Special Forces Operational Techniques.
FM 31–21	Special Forces Operations.
FM 31–22	U.S. Army Counterinsurgency Forces.
FM 31–70	Basic Cold Weather Manual.
FM 31–71	Northern Operations.

FM 31–73	Advisor Handbook for Counterinsurgency.
(C) FM 32–5	Signal Security (SIGSEC) (U).
FM 33–1	Psychological Operations.
FM 41–5	Joint Manual for Civil Affairs.
FM 41–10	Civil Affairs Operations.
FM 44–1	U.S. Army Air Defense Artillery Employment.
FM 44–2	Air Defense Artillery Employment (Automatic Weapons).
FM 54–2	The Division Support Command.
FM 57–35	Airmobile Operations.
FM 57–38	Pathfinder Operations.
FM 57–100	The Airborne Division.
FM 61–100	The Division.
(S) 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.
(C) FM 100–20	Field Service Regulations; Counterinsurgency (U).
FM 101–5	Staff Officers' Field Manual; Staff Organization and Procedure.
FM 101–10–1	Staff Officers' Field Manual; Organization, Technical and Logistical Data.
(C) FM 101–31	Staff Officers' Field Manual; Nuclear Weapons Employment (U).
TM 3–210	Fallout Prediction.
TM 5–330	Planning, Site Selection, and Design of Roads, Airfields, and Heliports in a Theater of Operations.
TM 5–366	Planning and Design for Rapid Airfield Construction in the Theater of Operations.
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 3–16	Employment of Riot Control Agents, Flame, Smoke, and Herbicides in Counterguerrilla Operations.
TC 10–1	Field Expedients for Rigging and Outloading Airdrop Equipment.

A–3. Department of the Air Force

AFR 23–25	Tactical Air Command Air Transport Units.
AFM 2–1	Counterair, Interdiction, Close Air Support.
AFM 2–4	Tactical Airlift.
AFM 2–5	Special Air Warfare.
AFM 2–7	Tactical Air Control System.
AFM 55–119	C-119 Aircrew Operational Procedures.
AFM 55–123	C-123 Aircrew Operational Procedures.
AFM 55–130	C-130 Aircrew Operational Procedures.
AFM 71–4	Packing and Handling of Dangerous Materials for Transportation by Military Aircraft.

A–4. Joint Publications

AFR 76–7/AR 59–106/OPNAVINST 4660.1/MC JSAR 2–56–3000	Air Transportation—Operation of Air Terminals.
AFR 164–1/AR 40–535/OPNAVINST 4630.9B/MCO P4630.9	Worldwide Aeromedical Evacuation.

AFM 2–50/FM 100–27	U.S. Army/U.S. Air Force Doctrine for Tactical Airlift Operations.
(S) AFM 200–3/FM 21–77A/NWP 43(A)	Joint World-Wide Evasion and Escape Manual (U).
FM 101–40/NPW 36(C)/AFM 335–2/LFM 03	Armed Forces Doctrine for Chemical and Biological Weapons Employment and Defense.

APPENDIX B

TRAINING

B–1. Preparation

a. General. Army and Air Force forces should be capable of launching an operation on short notice. Training is designed to minimize planning time and to develop maximum skill in the preparation of equipment for airdrop and air landing, for parachute and air landed assault, and subsequent assembly.

b. Joint Training.

(1) Airborne and tactical airlift 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 Air Force combat control and Army assault teams is accomplished.

(2) Joint command post exercises, field maneuvers, and tests are conducted during each training phase to ascertain progress and insure standardization of procedures. Day and night operations are included.

(3) Joint training is culminated by full scale rehearsals for specific operations whenever practicable.

B–2. Drop Altitudes and Airspeeds

a. Minimum Drop Altitudes.

(1) Personnel on tactical training—1,000 feet above the ground.

(2) Personnel during wartime training—900 feet above the ground.

(3) Basic airborne trainees—1,250 feet above the ground.

(4) Minimum altitudes for airdrop equipment will be determined based on current parachute performance characteristics and joint Army and Air Force agreements.

b. Drop Airspeeds. Specific drop airspeeds for each type of aircraft are published in appropriate Air Force and Army manuals and technical manuals and technical orders. Speeds between 125 and 130 knots are normally designated as maximum for personnel, and 125 and 150 knots for equipment.

B–3. Drop Zone Size Criteria

a. The following safe drop zone sizes are approximate guides for planning and apply to operations in which personnel are airdropped. These criteria and examples provide approximate guides for planning.

(1) *Personnel from a single aircraft.* The safe DZ size for one parachutist from a single aircraft is 600 x 600 yards (550 x 550 meters); for each additional parachutist in a stick, add 75 yards (70 meters) to the length.
Example: Find the approximate safe DZ length for a 20-man stick: 600 x 600 yards (550 x 550 meters) for 1 parachutist; 1,425 yards (1,310 meters) for 19 additional men. Safe DZ size 600 x 2,025 yards (550 x 1,860 meters) for a 20-man stick. (No larger DZ is required when more than one stick of the same or smaller number jump simultaneously.)

(2) *Personnel from an element or larger formation.* For a drop from an element or larger formation, add 100 yards (90 meters) to the DZ width specified for a single aircraft drop.

Example: Find the safe size DZ for 20-man sticks from six aircraft flying two, three aircraft elements: 700 x

600 yards (640 x 550 meters) for 1 man from each aircraft; 1,425 yards (1,310 meters) for 19 additional men. Safe DZ size 700 x 2,025 yards (640 x 1,860 meters) for a 20-man stick.

b. The following safe DZ sizes apply to operations in which equipment is dropped. These criteria and examples provide approximate guides for planning.

(1) *Equipment for single aircraft.* The safe-size DZ for one heavy equipment platform dropped from a single aircraft is 600 x 1,000 yards (550 x 915 meters). For each additional platform add 400 yards (365 meters) to the required DZ length.

Example: Two platforms require: 600 x 1,000 yards (550 x 915 meters); 400 yards (365 meters) for 2 platforms. Safe DZ size 600 x 1,400 yards (550 x 1,280 meters) for 2 platforms.

(2) *Equipment from an element or larger formation.* For a drop from an element or larger formation, the DZ width is increased 100 yards (90 meters) to 700 x 1,000 yards (640 x 915 meters) for one platform from each airplane. For each additional platform in any one of the aircraft, add 400 yards (365 meters) to the DZ length required for a single aircraft drop.

B–4. Safety and Emergency Procedures

a. General.

(1) The concentration of activity and the conditions under which airborne operations normally are conducted demand additional attention by all personnel to the safety of operations. The procedures and precautions continued in the following paragraphs are always important and necessary; however, particular emphasis is required under the unusual pressures and operating conditions of the airborne operation. The observance of safety is the continuous responsibility of each individual.

(2) Although safety may be of paramount importance during training operations and exercises in combat operations, it does not take priority over accomplishment of necessary tasks. Safety measures must be considered from the standpoint of their overall effect upon mission accomplishment. Requirements which merely minimize, rather than prevent, accidents may require resources which could be more profitably used elsewhere. True safety results from effective training, prudence and alertness.

b. Objective Area.

(1) Factors which might adversely affect safety are thoroughly evaluated at all levels during planning and preparation for an airborne operation. This consideration of safety of operations continues from planning to the end of the mission and must be the concern of each individual.

(2) Safety considerations in the objective area are—

(*a*) Surface wind direction and velocity.

(*b*) Control of vehicles and personnel on and near the drop or landing zones.

(*c*) Aircraft parking or taxiing on or near drop or landing zones.

(*d*) Availability of medical and aeromedical evacuation facilities.

(*e*) Drop and landing zone marking, emergency signals and primary and alternate communications.

(*f*) Emergency crews for rescue operations and equipment for clearing landing zones of crashed or damaged aircraft.

(*g*) Helicopters flying near the DZ or parked on or near the DZ with rotors turning.

c. Air Force Drop/Landing/Extraction Zone Control Officers.

(1) *Landing zone control officers.* During all training operations and exercises, a qualified Air Force landing zone con-

trol officer (LZO) will be positioned at each zone. The LZO will—

(*a*) Insure that suitable fire equipment and crash ambulances are prepositioned at landing zones prior to beginning of airlanded operations.

(*b*) Represent the airlift commander.

(*c*) Supervise all Air Force personnel on the landing zone.

(*d*) Maintain close liaison with the Army unit commander or his representative.

(*e*) Observe and evaluate all factors which might adversely affect the safety and efficiency of the operations.

(*f*) In the event conditions make landing operations unsafe, the LZO will direct the Air Force combat control team (AFCCT) to insure that—

1. The information is relayed to the appropriate Air Force commander as soon as possible.

2. A red smoke, red flare, red aldis lamp, or other established "no land" signal is displayed on the landing zone.

(2) *Drop zone control officers.* A qualified drop zone control officer (DZO) will be on each drop zone during training operations and exercises. The functions of the DZO are to—

(*a*) Represent the airlift commander.

(*b*) Supervise all Air Force personnel on the drop zone.

(*c*) Observe drop operations.

(*d*) Evaluate all factors which might adversely affect safety.

(*e*) In the event conditions make paradrop operations unsafe, the DZO will direct the Air Force combat control team (AFCCT) to assure that the information is relayed to the appropriate Air Force commander as soon as possible and that red smoke, red flare, red aldis lamp, or other established "no drop" signal is displayed on the drop zone.

(*f*) If conditions make drops unsafe, cancel the drops and advise the combat control team of the cancellation.

(*g*) Drop zone control officer will direct the use of AFCCT equipment.

(*h*) Cancel drops when requested to do so by the Army drop zone safety officer.

(*i*) Keep the Army drop zone safety officer advised as to the velocity of ground winds on the drop zone.

(*j*) Prepare the necessary log and reports for submission to the ALCE or the appropriate Air Force commander.

d. Army Drop Zone Safety Officer. During training operations, the airborne commander will furnish a drop zone safety officer (DZSO) who will be responsible to—

(1) Insure that adequate Army medical coverage is available on the drop zone prior to all drops.

(2) See that necessary emergency crews and equipment are present for rescuing personnel from water landings or from high tension wire and tree landings, as appropriate.

(3) Clear drop zone of all Army personnel and equipment not required for control or medical facilities.

(4) Restrict spectators to an area clear of the drop zone.

(5) Determine when conditions on the drop zone are hazardous to jumping and make the decision to suspend or cancel jumping. He will make his decision known to the Air Force drop zone control officer and request that jumping be suspended or canceled. This decision should, if possible, be made not less than three minutes prior to drop time.

(6) Coordinate evacuation of injured personnel.

GLOSSARY

Terms not defined herein are defined in JCS Pub 1.

Administrative plan—A plan covering supply, transportation, maintenance, evacuation, hospitalization, personnel, and other administrative details.

Airborne troop commander—The senior commander of all Army airborne units engaged in a specific airborne operation.

Airborne units—Army units organized, equipped, and trained primarily for making assault landings from the air.

Air column—Two or more serials following a lead formation over the same flight route.

Air Force combat control team (AFCCT)—A team of Air Force personnel organized, trained, and equipped to establish and operate navigational or terminal guidance aids, communications, and aircraft control facilities within the objective area of an airborne operation.

Airhead line—A control line generally coinciding with the forward edge of the battle area used in an airborne objective area. The line generally traces the most defensible terrain around the airborne objective(s) within which the airborne force may conduct defensive operations, or from which offensive operations may be launched. It is primarily used to control maneuver forces and supporting fires.

Air landed operation—An operation involving air movement in which personnel and supplies are air landed at a designated destination for further deployment of units and personnel and further distribution of supplies.

Airlift commander—The senior Air Force commander of all airlift units engaged in a specific airborne operation.

Airlift control center (ALCC)—A part of the command and control system of the airlift force commander. The focal point for communications and the source of command and direction for the tactical airlift forces. Normally within or adjacent to the tactical air control center.

Airlift control element (ALCE)—A functional tactical airlift organization established to provide support to air elements at an air facility. Normally, it includes an operations function such as movement control and communications, a support function which relates to the air facility itself, and a liaison function with appropriate airborne or other air units.

Air traffic control—The control of air traffic to promote its safe, orderly, and expeditious movement.

Army assault team (AAT)—A small airborne infantry unit assigned on a mission basis during airborne assault operations to accompany and provide security to an Air Force combat control team (AFCCT) in the execution of the AFCCT mission.

Call forward (system) (area)—Army control system used at aircraft loading and unloading sites to avoid congestion, to assure an orderly flow of traffic and loading or unloading in minimum time, and to prevent formation of remunerative targets for enemy attack. The system provides separate loading or unloading facilities for personnel and each category of equipment and supplies.

Chalk number—A number affixed to an aircraft used to identify and designate its position primarily to facilitate loading or unloading.

Combat service support (army)—Assistance given to troops in the area of logistical, personnel, and civil affairs support. Includes appropriate staff planning, personnel management, interior management of units, sup-

ply support, service support, and civil affairs activities.

Computed air release point (CARP)—A computed air position at which parachutists, equipment, or supplies are released to land on a specified point of impact.

Corridor operation—An operation in which aircraft are dispatched over one route with a specified time interval between aircraft.

Departure area—The general area encompassing all base camps, bivouacs, departure airfields, and air landing facilities. (See marshaling area.)

Departure site(s)—Individual airfields and/or air landing facilities which are used by an airborne force to launch an airborne operation.

Extraction zone—A specified ground area upon which equipment or supplies are delivered by means of a uniservice or jointly approved extraction technique from an aircraft in flight in close proximity to the ground.

Followup supply—That supply which is prepackaged for automatic or on-call delivery direct to forces in the objective area.

Formation (Air Force)—A groupment of aircraft flying in visual or electronic reference to the lead aircraft.

In-place time—The time at which an aircraft is at a designated location.

Landing plan—Indicates the sequence, method of delivery, and place of arrival of troops and materiel.

Loading packet—An assembly of personnel, equipment, and supplies constituting a load for a particular type aircraft.

Loading time—A specified time, established jointly by the airlift and Army commanders concerned, at which aircraft are available for loading and loading is to begin.

Loadmaster—An Air Force technician qualified to plan loads, operate materials handling and auxiliary equipment, and to supervise loading and unloading of aircraft.

Marshaling area—The general area in which units camp and from which the air movement is initiated; where aircraft are positioned, concentrated, or parked for on- or off-loading (also staging area).

Marshaling plan—A plan by which units participating in an airborne operation move to temporary camps in the vicinity of departure airfields, complete preparations for combat, and prepare for loading.

On-load-base—An air facility at which aircraft are to be loaded with personnel/materiel.

Phase back—The term used in connection with the echelonment of an airborne unit for an airborne operation. It means that an element of the force or equipment that was scheduled to enter the objective area at a particular time in the operation must enter the objective area at a time later than that originally planned.

Point of impact (PI)—The point of intended landing on a drop zone for the first parachutist or equipment/supply bundle. (Paradrop landing point.)

Routine Supply—Supply which consists of replacement and consumption supplies delivered to the airhead in bulk, based on actual need for distribution by normal supply procedures plus reserve supplies to build up to the desired level.

Section (Air Force)—A subdivision of a tactical airlift formation—normally nine aircraft.

Serial (Air Force)—Any number of aircraft under one commander, usually conveying one air-transportable unit or subunit to the same objective.

Station time (Air Force)—A specified time at which aircrew, passengers, and materiel are to be in the aircraft and prepared for flight. Passengers will be seated and loads tied down. Aircrews will have completed briefing and aircraft preflight inspection prior to station time. Normally station time will be 30 minutes prior to takeoff time.

Station time (airborne)—A specified time when troops will be seated in the aircraft with seatbelts fastened and prepared for flight. This time normally will be 5 minutes prior to Air Force station time.

Tactical airlift—The delivery and recovery of personnel, equipment, and supplies to, within, or from an objective area. Delivery must be made by airdrop, air landing or by extrac-

tion. Tactical airlift is also employed in support of resupply missions, special air warfare operations, special operations, and air evacuation of casualties from forward areas.

By Order of the Secretary of the Army:

HAROLD K. JOHNSON,
General, United States Army,
Chief of Staff.

Official:

KENNETH G. WICKHAM,
Major General, United States Army,
The Adjutant General.

J. P. McCONNELL, *General, USAF*
Chief of Staff

Official:

R. J. PUGH, *Colonel, USAF*
Director of Administrative Services

Distribution:

Army: To be distributed in accordance with DA Form 12–11 requirements for Army Forces in Joint Airborne Operations.

Air Force: S.

☆ U. S. GOVERNMENT PRINTING OFFICE : 1971 O - 430-506(6357A)