

Joint Publication 3-17



**Joint Doctrine and  
Joint Tactics, Techniques, and  
Procedures for Air Mobility  
Operations**



14 August 2002



# PREFACE

## 1. Scope

This publication provides joint doctrine and tactics, techniques, and procedures for planning and employing air mobility support of joint operations. This publication includes guidance for air mobility operations across the full range of military operations, to include airland delivery, airdrop, air refueling, and the movement of airborne and air assault forces. This publication also covers the authority and responsibilities of combatant commanders, subordinate joint force commanders (JFCs), component commanders, and all agencies involved in the air deployment, employment, redeployment, and sustainment of a joint force. Further, the publication provides guidance on planning, coordinating, and conducting air mobility operations.

## 2. Purpose

This publication has been prepared under the direction of the Chairman of the Joint Chiefs of Staff. It sets forth doctrine and selected joint tactics, techniques, and procedures (JTTP) to govern the joint activities and performance of the Armed Forces of the United States in joint operations and provides the doctrinal basis for US military involvement in multinational and interagency operations. It provides military guidance for the exercise of authority by combatant commanders and other JFCs and prescribes doctrine and selected tactics, techniques, and procedures for joint operations and training. It provides military guidance for use by the Armed Forces in

preparing their appropriate plans. It is not the intent of this publication to restrict the authority of the JFC from organizing the force and executing the mission in a manner the JFC deems most appropriate to ensure unity of effort in the accomplishment of the overall mission.

## 3. Application

a. Doctrine and selected tactics, techniques, and procedures and guidance established in this publication apply to the commanders of combatant commands, subunified commands, joint task forces, and subordinate components of these commands. These principles and guidance also may apply when significant forces of one Service are attached to forces of another Service or when significant forces of one Service support forces of another Service.

b. The guidance in this publication is authoritative; as such, this doctrine (or JTTP) will be followed except when, in the judgment of the commander, exceptional circumstances dictate otherwise. If conflicts arise between the contents of this publication and the contents of Service publications, this publication will take precedence for the activities of joint forces unless the Chairman of the Joint Chiefs of Staff, normally in coordination with the other members of the Joint Chiefs of Staff, has provided more current and specific guidance. Commanders of forces operating as part of a multinational (alliance or coalition) military command should follow multinational doctrine and

procedures ratified by the United States. For doctrine and procedures not ratified by the United States, commanders should evaluate and follow the multinational command's

doctrine and procedures, where applicable and consistent with US law, regulations, and doctrine.

For the Chairman of the Joint Chiefs of Staff:



JOHN P. ABIZAID  
Lieutenant General, USA  
Director, Joint Staff

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## EXECUTIVE SUMMARY

### COMMANDER'S OVERVIEW

- **Discusses the National Air Mobility System**
  - **Discusses the Assignment, Apportionment, Allocation, and Tasking of Air Mobility Forces**
  - **Addresses Command and Control Considerations for Joint Air Mobility Operations**
  - **Explains Airlift Operations, Including Airland and Airdrop Methods of Delivery**
  - **Discusses Air Mobility Refueling Operations**
  - **Discusses Air Mobility Support Operations**
  - **Outlines Some Overarching Air Mobility Planning Considerations**
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### Air Mobility and the National Air Mobility System

*Air mobility forces are a national resource and air mobility operations represent a rapid means to project and sustain power across the globe in support of vital, important, and humanitarian US national interests.*

To deter threats against or assist in the defense or pursuit of US interests, the United States maintains forces, organizations, and processes necessary to conduct and sustain air mobility operations globally, rapidly, and on a scale not matched by any other nation. Rapid global mobility is the timely movement, positioning, and sustainment of military forces and capabilities across the range of military operations. The leverage provided by rapid global mobility has been and continues to be of great value to the United States at all levels and types of combat and noncombat operations. The National Air Mobility System (NAMS) is a broad and comprehensive system that provides the President and Secretary of Defense and combatant commanders with rapid global mobility. The NAMS elements are organized as intertheater (strategic), intratheater (theater), and organic air mobility forces. The NAMS functions, accomplished by the US Air Force Mobility Air Forces (MAF), are airlift, air refueling and air mobility support. The NAMS consists of forces from United States Transportation Command, the geographic combatant commanders, and Commander, North American

Aerospace Defense Command. In addition, each of the Services possesses some organic air mobility capability.

### Assignment, Apportionment, Allocation, and Tasking of Air Mobility Forces

*Any organization in a joint force may request air mobility support.*

Airlift movements include **the air transportation of any distinct increment of passengers or materiel between the CONUS and one or more theaters by intertheater airlift forces, or within theater boundaries by intratheater airlift forces** or by forces augmenting them. The combatant commander or subordinant joint force commander may elect to apportion the total expected air mobility effort that should be devoted to the various users for a given period of time. A **request for airlift support** should be fulfilled based on: (1) operational necessity; (2) availability and suitability of alternate surface transportation modes; (3) the Chairman of the Joint Chiefs of Staff priority system; and (4) the combatant commander's apportionment. **There are three categories of requests: planned, immediate, and emergency.** Validation is the assessment of the feasibility and value of an airlift requirement. **Army, Marine Corps, Air Force, Navy, and special operations forces (SOF) components are responsible for controlling their airlift movements.** These actions include performing and arranging to: (1) bring units and materiel to departure terminals; (2) prepare those resources for air movement; (3) provide support services to transient and arriving units; (4) receive and transport units and materiel from arrival terminals; and (5) prepare all manifests, movement documents, and reports related to the movement. The goal is to move **component resources expeditiously, with effective use of limited air mobility resources and minimum exposure to hostile actions.**

### Command and Control of Air Mobility Operations

*Command and control of air mobility forces by combatant commanders (typically United States Transportation Command and the geographic combatant commanders) is based on the principle of centralized control and decentralized execution.*

Through **centralized control**, commanders provide guidance and organization to the air mobility effort. **Decentralized execution** provides flexibility and versatility for subordinate commanders to use initiative in accomplishing their missions. To be fully effective, this method of control and execution requires flexible, responsive, secure, interoperable, and survivable command and control systems. A primary **air mobility** role of the **Air Force** is to provide airlift and air refueling support to all Services. **Combatant commanders** should rely on their **Air Force component commanders** to supply the manpower with the expertise to plan and control airlift and air refueling operations. Within the **air operations**

**center**, the **air mobility division** plans, coordinates, and manages the execution of theater air mobility operations. The **Theater Air Control System** consists of organization, personnel, procedures, and equipment that enable the Air Force component commander to exercise centralized control of assigned and attached forces while decentralizing execution of missions. The Theater Air Control System consists of ground based (fixed and mobile) and airborne elements. The **Service Secretaries** organize, train, equip, and provide organic air mobility forces to support their respective Service functions. The **Secretary of the Air Force** organizes, trains, equips, and provides common-user airlift forces to support all the military Services, other Department of Defense (DOD) components, and US Government (USG) agencies. The **Secretary of Defense** directs the assignment of these common-user airlift forces to the Commander, US Transportation Command (USTRANSCOM) and other combatant commanders. While the USTRANSCOM is the primary source of common-user airlift for DOD agencies and, as authorized, for other agencies of the USG, several geographic combatant commanders have been assigned airlift assets to provide common-user airlift primarily in support of operations within their geographic area of responsibility. A characteristic of common-user airlift is the transfer of funds from the agency receiving the airlift through the Transportation Working Capital Fund to reimburse the cost of the airlift. Such a transfer is not normally done for Service-unique or other sources of specialized organic airlift.

### Airlift Operational Considerations

*Airlift operations require extensive planning, preparation, and coordination.*

**All commanders must plan the orderly movement to and from unit areas** and the efficient onload and offload of aircraft. Air mobility planners use the Joint Operation Planning and Execution System (JOPES), an integrated command and control (C2) system, for deliberate and crisis action planning and execution. The combatant commander requests airlift for the **deployment and redeployment** phases of an operation through the JOPES process. USTRANSCOM supports **sustainment operations** through channel service, military air express service, and special assignment airlift missions. When intertheater airlift requirements strain or exceed capability, the Joint Transportation Board could be convened. USTRANSCOM is responsible for providing in-transit visibility of forces embarked on both intertheater and intratheater lift. The **Global Transportation Network** integrates movement information provided by the combatant commanders, Services, and agencies to allow airlift customers

the ability to track unit movements and sustainment operations globally. The Civil Reserve Air Fleet (**CRAF**) is designed to augment airlift capability. CRAF augments airlift capability with US civil aircraft, aircrews, and support structure during CRAF activation. The **interface between USTRANSCOM's and Air Mobility Command's C2 system and the intratheater airlift C2 system** is important as it must not only provide information for transshipping passengers and cargo, but it also must deconflict intertheater airlift movements with other intratheater air movements. Aeromedical evacuation is the movement of patients under medical supervision to and between medical treatment facilities by air transportation. Commander, USTRANSCOM is the DOD manager for intertheater AE and global medical regulation.

*Detailed planning for the conduct of specific operations is performed by the participating component commands.*

Combatant commander responsibilities include **planning, developing intelligence, assembling participating forces, accomplishing training, and establishing security measures**. From the time an operation is announced until it ends, **participating echelons should coordinate and confer continuously**. The time available to plan and prepare an operation is directly related to the tempo of the overall operation. **Detailed planning** for the conduct of specific operations is performed by the participating component commands. Air movement planning is developed from the objective area back to the existing disposition of forces (backward planning). The sequence is as follows: overall tactical plan, landing plan, air movement plan, and marshalling plan. **The mission, operational concepts, rules of engagement and logistic planning** are the most important considerations that influence the entire operation. Areas such as landing, air movement, intelligence, threat at the deployed AOR, operations security and counterintelligence, operations in a weapons of mass destruction environment, command, control, communications, and computers systems, materiel collection and classification, enemy prisoners of war, medical support, weather, marshalling, and withdrawal or restaging all must be considered in the planning stages.

### Airland and Airdrop Operations

*In most situations, airland is the preferred method of airlift delivery.*

Airland delivery requires suitable airfields and relatively low threat levels. When planning airland operations, consideration should be given, but not limited, to the tactical situation; mission requirements; air direct delivery; and command, control, communications, computer, and intelligence interfaces within and among the Service components. Depending on the tactical situation, **planners may consider delivery of**

**personnel and equipment by airdrop.** Airdrop planners should include consideration of the factors listed for airland operations, as well as those unique to airdrop operations. **Operations deep into adversary battlespace** require an extensive amount of time to plan and coordinate, as well as a high level of training. Planners should develop contingency plans to counter expected threats.

## Air Refueling Operations

*Air refueling acts as a force enabler, a force multiplier, and/or a force extender.*

**Air refueling, the refueling of an aircraft in flight by another aircraft,** supports the national military strategy across the range of military operations including the Single Integrated Operational Plan (SIOP). Air refueling allows air assets to rapidly reach any trouble spot around the world with less dependence on forward staging bases. Air refueling acts as a **force enabler**, permitting aircraft to operate beyond their unrefueled ranges. It also acts as a **force multiplier** by permitting larger payloads and added endurance, significantly increasing the combat potential of the receiver aircraft. **Force extension** is often used when air refueling aircraft supporting aircraft deployments are carrying cargo as well as refueling other aircraft (dual role). Since takeoff fuel is limited by the amount of payload carried, air refueling aircraft operating in a dual role may require force extension.

## Air Mobility Support Operations

*The global air mobility support system provides responsive, worldwide support to airlift and air refueling operations.*

Successful employment of the mobility air forces is contingent upon establishing and maintaining a global air mobility support system (GAMSS) that enables the deployment, employment, sustainment, and redeployment of forces throughout the range of military operations. The GAMSS provides responsive, worldwide support to airlift and air refueling operations. The GAMSS is flexible, expanding or contracting according to the requirements for operations support. It permits continuous, global C2 over the MAF, providing commanders with real-time information on the status of missions and assets as well as the location and disposition of transported personnel and materiel. The mobile forces that make up the GAMSS must be able to deploy and commence support operations with the same speed and efficiency as the forces they support. Without this, support will “lag” behind the operations tempo necessary to meet the combatant commander’s requirements and result in delays of critical forces and supplies that may be key to prosecuting the JFC’s mission.

GAMSS forces are drawn from active duty, Air Force Reserve Component (AFRC) and Air National Guard (ANG) units. The vast majority of active duty GAMSS units are assigned to USTRANSCOM, and support both functional and geographic combatant commanders. Both the ANG and the AFRC provide forces to augment active duty GAMSS units. AFRC and ANG personnel are experienced operators and train to the same standard as active duty forces.

Specifically, the deployable elements of the GAMSS are: **tanker airlift control elements** (TALCEs), which are mobile organizations responsible for providing continuous on-site management of mobility airfield operations; **mission support teams** (MSTs), which are smaller TALCE-like organizations capable of providing similar support on a smaller scale; **mission support elements** (MSEs) that provide a specific mission support capability in direct support of airfield operations; **special tactics teams**, which often deploy at the same time as GAMSS forces and provide the dynamic link between the surface forces and the air assets that deliver, sustain, and recover them; and global reach communications elements that provide robust command, control, and communications capabilities to the deployed GAMSS mission.

The fixed en route portion of the GAMSS is composed of CONUS and overseas en route locations that are sized, manned, and equipped to support peacetime air mobility operations, passengers, and patients. Air mobility operations groups (AMOGs) and their component air mobility squadrons (AMSs) provide this en route support. The AMOG provides logistics, intelligence, and air transportation planning to meet mission requirements. AMS organizations are situated at key overseas en route locations to operate air terminal facilities.

When conducting deployed operations under the global reach laydown strategy, predominantly CONUS-based resources are teamed together to form deployable elements or teams. A composite of personnel and equipment, appropriately sized and tailored, form TALCEs, MSTs, and/or MSEs specifically designed to satisfy a particular operational requirement.

**The three core functions** provided through the GAMSS are command and control, maintenance, and aerial port. All major en route locations will provide these services; however, other support capabilities that directly impact air mobility operational missions (force protection, life support, intelligence, etc.) can be added to these basic functions to complement this system at an en route location.. The level of support can be tailored to

match the workload requirements at any particular en route location. Consequently, the mobile forces of the GAMSS can provide a method for establishing support capabilities at existing or formerly “bare-base” locations; tailoring the level of support provided at a location; and adding additional support capabilities at a location to complement the three basic functions.

### Air Mobility Planning Considerations

*Planning air mobility operations is a complicated process involving a few basic principles and numerous interdependent considerations.*

The judicious use of air mobility assets requires attention to several planning and support issues which are fundamental to efficient and effective air mobility operations. These issues impact tanker and airlift employment all the way from the apportionment and allocation stage through final execution. It is important to remember that air mobility assets are tasked against missions supporting the entire spectrum of national, strategic, and theater objectives. Air mobility support is apportioned to Service components based on aircrew training requirements, user training requirements, and operational missions not associated with contingencies. During contingencies, priorities can significantly limit the amount of air mobility support available at the strategic level, where other contingencies or conflicts also require air mobility forces, and at the operational level where different airpower functions compete for limited available air mobility support.

The entire airlift operation requires detailed planning including, but not limited to, some basic considerations. Successful airlift operations are often dependent on a network of **facilities**, such as air terminals, small austere airfields (SAAFs), LZs, and DZs as well as various **facility support forces** and the number and type of **aerial ports available** within the theater. Further, the theater operational situation may necessitate the establishment of an **intermediate staging base** outside of the combat zone or operational area prior to inserting the forces. In addition, a robust automated **in-transit visibility** system is a critical combatant commander management tool and is key to efficient and effective support of airlift operations. All echelons must also plan for **air base defense** to protect airlift aircraft, aircrews, support personnel, and base facilities. Air mobility plans must also integrate **joint airspace control** measures, since congested airspace, exposure to adversary treats, and potential fratricide are major concerns. It is also important to consider that, depending on the threat, airlift operations often require secure **air corridors or operating areas**, as well as active and/or passive **threat countermeasures**. Additionally, the amount of cargo and

distances involved in intertheater airlift operations make **air refueling** an attractive option in most situations, and an essential option in others. Finally, **operations security and communications** security are both critical to the success of airlift operations.

Planning air mobility operations is a complicated process involving a few basic principles and numerous interdependent considerations. This responsibility includes performing and arranging to bring units and materiel to departure terminals; preparing those resources for air movement; providing support services (meals, medical, billeting, and other appropriate services) to transient and arriving units; receiving and transporting units and materiel from arrival terminals; and preparing all manifests, movement documents, and reports related to the actual movement. When considering air refueling operations and a significant number of receivers requiring probe-and-drogue type refueling intermixed with receivers requiring boom-type refueling, then planners should consider using tankers capable of both types of refueling on the same mission. Planners must also consider whether planned operations will emphasize total offload capability for only a few receivers or a rapid refueling capability for multiple receivers. Finally, if special operations activity is planned, air refueling planners must ensure that aircraft capable and crews trained in those operations are available.

The marshalling plan provides the administrative and logistic procedures by which units complete final preparations. The marshalling area is usually located near departure camps and airfields to conserve resources and reduce the opportunity for observation. The Air Force component portion of the marshalling operation is developed during air movement planning and consists of **instructions regulating aircraft movement** and the **aircraft parking plan**. The JFC staff coordinates with administrative and logistic agencies for maximum support during marshalling. **The unit logistics officer prepares the marshalling plan.** For security reasons, marshalling should be accomplished quickly. The deploying unit's movement to aircraft loading sites, preparation of platform loads, cross-loading, and arrival airfield operations must all be planned and executed properly.

The JFC initiates airborne and air assault operations with a planning order to participating units. The order is distributed through normal command channels and pertinent information is issued to subordinate units. To allow efficient planning, the order should specify missions, outline the command structure, and identify participating ground and air forces. Airborne and air assault commanders begin planning operations with a visualization of the ground tactical plan and develop it through a reverse-planning sequence. The reverse-planning sequence can be viewed as a four-step process for airborne operations, while air assault operations may be considered a five-step planning process. Regardless of the planning steps, they both involve loading forces on aircraft, moving them to the objective area, landing, and initiating the ground tactical plan. From an air mobility aspect, planning for either of these types of operations is complex and requires direct liaison and coordination between the logistic support agencies of the participating components and other supporting forces.

### CONCLUSION

This publication specifies joint doctrine and joint tactics, techniques, and procedures for the planning and employment of air mobility support for joint operations. It covers the authority and responsibilities of combatant commanders, component commanders, and all agencies involved in the deployment and sustainment of a joint force across the range of military operations. It provides guidance for the request, apportionment, and use of this support during the deliberate or crisis action planning and implementation processes.

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# CHAPTER I

## GENERAL OVERVIEW

*“Nine times out of ten an army has been destroyed because its supply lines have been severed.”*

**Gen. Douglas MacArthur, General of the Army  
Remarks to the Joint Chiefs of Staff, 1950**

### 1. Basic Concepts

This publication provides joint doctrine and joint tactics, techniques, and procedures (JTTP) for the conduct of air mobility operations. These operations are conducted to transport military forces and materiel (and other authorized personnel and materiel) on behalf of the President and Secretary of Defense, combatant commanders, and other authorized users. Air mobility is a network of systems that combines airlift, air refueling, and air mobility support assets, processes, and procedures into an integrated whole. This publication describes the importance of air mobility to US national strategy. It defines the methods for categorizing airlift and air refueling while showing the importance of the air mobility support forces. It describes the overall command and control (C2) relationships for air mobility, the methods of employing airlift and air refueling, lists sources of air mobility forces, and covers planning considerations for air mobility. The Secretary of the Air Force organizes, trains, equips, and provides air mobility forces to support all the Military Services, other Department of Defense (DOD) components, and US Government (USG) agencies. The Secretary of Defense (SecDef) directs the assignment of these air mobility forces to the Commander, US Transportation Command (USTRANSCOM) and other combatant commanders. Air mobility forces are limited and thus must be applied where they can make the greatest contribution to the most critical requirements. Air mobility forces are a national

resource and air mobility operations represent a rapid means to project and sustain power across the globe in support of US national interests. Defined and categorized in the National Security Strategy and the National Military Strategy, the United States’ vital, important, and humanitarian interests reflect the Nation’s values. The United States will act because its values demand it. Examples include: responding to natural and human disasters; responding to violations of human rights; supporting democratization and civil control of the military; assisting humanitarian demining operations; promoting sustainable development; and relieving destitution. To deter threats against or to assist in the defense or pursuit of these interests, the United States maintains forces, organizations, and processes necessary to conduct air mobility operations globally, rapidly, and on a scale not matched by any other nation. The Air Force provides **rapid global mobility** to the Defense Transportation System (DTS). **Rapid global mobility is the timely movement, positioning, and sustainment of military forces and capabilities across the range of military operations.** The leverage provided by rapid global mobility has been and continues to be of great value to the United States at all levels and types of combat and noncombat operations. Air mobility enables commanders to simultaneously exploit mass, maneuver, and surprise and operate at the strategic, operational, and tactical levels of war.

*“Operation DESERT SHIELD was the fastest build up and movement of combat power across greater distances in less time than at any other time in history. It was an absolutely gigantic accomplishment, and I can’t give credit enough to the logisticians and transporters who were able to pull this off.”*

**General H. Norman Schwartzkopf,  
USA Commander in Chief  
US Central Command**

a. **Rapid global mobility** uniquely contributes to the entire range of operations by expanding a commander’s options when using military force either in a lethal or nonlethal manner. Since air mobility forces enhance other forces’ combat power and flexibility, either by extending their range, bolstering their staying power, or providing them with greater maneuverability, the commander’s options for using either lethal or nonlethal force are multiplied.

b. Because air mobility forces are vital to operational success, joint force commanders (JFCs) count on true unity of effort and integration of all air mobility forces to meet validated demands or requirements. Commanders can only integrate these forces if each subordinate functional or Service component commander and supporting geographic or functional combatant commander clearly identifies all air mobility forces available for tasking. These identified forces may be assigned or attached to a joint force, be made available for tasking by other combatant commanders or Service component commanders, or be accessible through a supported-supporting relationship. Regardless of their source, proper use of these air mobility forces is the responsibility of the supported combatant commander, the Air Force component commander (AFCC) or Commander, USTRANSCOM. Both combatant and component commanders must integrate the air

mobility flow within and between theaters to produce synergistic results. Planners should consider the various operational characteristics, the missions at hand, and the guidance of the President and Secretary of Defense, and the Joint Chiefs of Staff (JCS). To effectively employ air mobility assets, American military commanders and planners and all users of US air mobility forces must understand the DTS and the National Air Mobility System (NAMS).

*The DTS is discussed in detail in Joint Publication (JP) 4-01, Joint Doctrine for the Defense Transportation System.*

## 2. National Air Mobility System

The NAMS is a broad and comprehensive system that provides the President and Secretary of Defense and combatant commanders with rapid global mobility. In recognition of the long-term strategic priorities of the President and Secretary of Defense and functions assigned under the US Code (USC), the Department of Defense has organized NAMS elements under its control as intertheater (strategic), intratheater (theater), and organic forces by drawing upon the specialized contributions of its civil and military components. Together, these functions, forces, and components provide the President and Secretary of Defense and combatant commanders with the ability to conduct air mobility operations in support of US national interests.

a. **National Air Mobility System Functions.** Functions assigned to the Department of Defense under USC are accomplished by the US Air Force (USAF) Mobility Air Forces (MAF). The MAF are those forces assigned to combatant commands that provide rapid global mobility and conduct air mobility operations. The MAF must be able to execute its missions in the face of threatened or actual use of weapons of mass

destruction (WMD). The MAF's three core functions are airlift, air refueling, and air mobility support.

- **Airlift** forces conduct operations through the air to transport personnel and materiel in support of strategic, operational, and tactical objectives and to deliver these personnel and materiel via airland or airdrop methods.
- **Air refueling** forces conduct operations through the air to transport and transfer fuel to designated receivers in support of strategic, operational, and tactical objectives.
- **Air mobility support** forces comprise a Global Air Mobility Support System (GAMSS) that provides responsive, worldwide support to airlift and air refueling operations. This system consists of permanent (but limited) en route support locations and deployable forces capable of augmenting the fixed

en route locations or establishing new en route locations.

**b. National Air Mobility System Forces.**

The NAMS consists of forces that perform intertheater, intratheater, and organic mobility operations. United States Transportation Command (USTRANSCOM), the geographic combatant commanders, and Commander in Chief, North American Aerospace Defense Command possess air mobility assets that are capable of performing both intertheater and intratheater operations. Each of the Services also possesses some organic air mobility capability (see Figure I-1). While specific assets can operate in any domain, the "owning" commands are responsible for developing the C2 capabilities to manage assets operating within their geographic or functional span of control.

- Air mobility forces under combatant command (command authority) (COCOM) of either USTRANSCOM or the geographic combatant commanders

## THREE DISTINCT AIR MOBILITY FORCES

- ➔ Those forces under the combatant command (command authority) of the Commander, US Transportation Command.
- ➔ Those forces under the combatant command (command authority) of the geographic combatant commanders, such as the Commander, US European Command and Commander, US Pacific Command.
- ➔ Each Service's organic air mobility forces that primarily provide specialized internal support.

Figure I-1. Three Distinct Air Mobility Forces



*The C-17 is an example of a common-user airlift asset.*

provide common-user assets to conduct operations between or within theaters.

- **The bulk of intertheater air mobility operations** is conducted in response to requests from the combatant commands and Services in accordance with (IAW) guidelines set by the President and Secretary of Defense. Air Mobility Command (AMC), as the Air Force component of USTRANSCOM, is capable of conducting and controlling intertheater air mobility operations across the globe. A unique aspect of these operations is their reliance upon the GAMSS and the worldwide C2 capabilities of the AMC Tanker/Airlift Control Center (TACC).

- The GAMSS is comprised of permanent (but limited) en route support locations and mobile forces that deploy under the global reach laydown (GRL) strategy. The permanent en route support locations are manned to handle day-to-day peacetime operations. The deployable GAMSS forces can be tailored to augment permanent locations during large-scale contingencies or to establish en route support at new locations where this support does not

exist. GAMSS forces enable USTRANSCOM to establish a global network of support locations (terminals) and, in turn, an air bridge. The air bridge is comprised of specialized air lines of communications (ALOCs) typically established between terminals inside the continental US (CONUS) and outside the continental US (OCONUS). GAMSS forces, by augmenting permanent terminals or establishing new ones, enable airlift aircraft to move the common-user's personnel, equipment, and supplies to the desired location. Airlift, air refueling, and GAMSS forces are limited assets that must be used with significant forethought if the President and Secretary of Defense taskings are to be met IAW the Chairman of the Joint Chiefs of Staff (CJCS) prioritization system.

- The AMC TACC is the C2 node for most intertheater operations. As the sole C2 node capable of directing and providing oversight for MAF anywhere around the globe, it provides the essential services required by these forces to operate. Specifically, the TACC is able to receive validated common-user requests from the USTRANSCOM

Mobility Control Center (MCC), task the appropriate unit, plan the mission, and provide continuous communications connectivity between intertheater forces, the common-user, and supporting GAMSS forces.

- **The intratheater air mobility forces**, under the COCOM of designated geographic combatant commanders or the operational control (OPCON) or tactical control (TACON) of designated subordinate commanders, provide common-user resources to conduct operations within the theater or joint operations area (JOA). Intratheater air mobility operations are conducted in response to taskings from a combatant commander or designated subordinate commander and primarily fill theater operational requirements. Successful movement and delivery of personnel, materiel, and fuel depend on very close and timely coordination between intertheater and intratheater forces and in-transit visibility (ITV) of assets moving between theaters. This crucial interaction is fostered by specific C2 arrangements and MAF apportionment both prior to and after a joint task force (JTF) has been established.

- Prior to a JTF being established, intratheater movements are usually controlled through a theater-specific C2 node, and requirements are met by allocating theater-assigned forces. In the US European Command and the US Pacific Command, this node is an Air Mobility Operations Control Center (AMOCC); its functions are similar to those of the AMC TACC. The AMOCC's theater focus provides the key to smoothing interactions between intertheater and intratheater forces. The AMOCC has vast theater expertise and familiarity and, when established, is best able to assess theater requirements, to

allocate forces to meet those requirements and, when needed, to seek USTRANSCOM augmentation. Intertheater missions are typically flown to major airfields (terminals) often referred to as "hubs." From these hubs transported personnel or cargo is then distributed by intratheater forces to other terminals, referred to as "spokes" within the theater's area of responsibility (AOR) or the JTF's JOA.

*Chapter IV, "Airlift," will provide more details on hub and spoke operations.*

- When a JTF is established, movements are usually controlled through a JTF-specific C2 node that interfaces with both the AMOCC and AMC TACC. The JTF-specific C2 node is the joint air operations center (JAOC). The Director of Mobility Forces (DIRMOBFOR) must ensure that the TACC, AMOCC, and the air operations center (AOC) and air mobility division (AMD) are working closely together to meet all approved requirements. Requirements are met through employment of the combatant commander's theater-assigned forces, USTRANSCOM forces, or forces assigned, attached, and made available to the commander, joint task force (CJTF) for tasking.

- When requirements exceed the capability of assigned or attached forces, the JTF MAF may be augmented. The supported combatant commander may attach additional theater-assigned forces to the CJTF. Additional forces may be assigned to, attached to, or made available to the supported combatant commander. The Secretary of Defense may attach USTRANSCOM forces to the supported combatant commander, or Commander, USTRANSCOM may support the combatant commander by making air mobility capability available as a



*Theater airlift operations in support of military operations other than war require planners and operators to be prepared to support a wide range of activities.*

supporting combatant commander. Regardless of the source, intratheater air mobility forces assigned, attached, or made available to a subordinate joint force should be organized under a Commander, Air Force Forces (COMAFFOR) as appropriate and directed by DIRMOBFOR through an AOC for optimum allocation, efficiency, and effectiveness. The COMAFFOR, joint force air component commander (JFACC) (if designated), and DIRMOBFOR must ensure that intratheater air mobility forces are organized to properly interact with other intratheater and intertheater forces.

- **Organic air mobility forces** primarily provide specialized airlift and air refueling to Service users. Normally, these forces exist as elements of Service or functional component aviation arms and are assigned directly to their primary user organizations. These forces, if assigned to a combatant command, operate under the COCOM of that combatant commander. While these forces are not typically under the direct control of the Air Force component commanders, their capabilities and

resources should be identified to the AMC TACC commander, AMOCC commander and, when a JTF is established, the COMAFFOR, JFACC, and/or DIRMOBFOR. In special circumstances under the latter case, these forces may be utilized to augment intratheater forces and accomplish tasks on behalf of their Service.

c. **National Air Mobility System Components.** The NAMS draws its forces and capabilities from both the civil and military air mobility components. Forces and capabilities apportioned to USTRANSCOM, geographic combatant commands, and the Services are determined by each organization's requirements for the specialized contributions of each NAMS component. Each component contributes unique capabilities, such as airlifting outsized or oversized cargo or air refueling other aircraft, or contributes greater efficiencies, such as passenger or small cargo express delivery, that collectively give the NAMS its overall ability to meet the Nation's needs.

- **Increasingly, the President and Secretary of Defense and DOD rely on the Civil National Air Mobility System**

**Component to accomplish air mobility operations in support of vital, important, and humanitarian interests.** It is therefore prudent for all combatant commanders and subordinate commanders to maximize the interoperability of military and civil assets. The civil component is comprised of civilian airlift carriers who have signed up as members of the Civil Reserve Air Fleet (CRAF). The CRAF is a voluntary contractual program where civil carriers agree to augment military airlift during a crisis in exchange for peacetime defense business. During peacetime, regional contingencies, and major exercises, CRAF carriers voluntarily contract to fulfill personnel and cargo movement requirements. CRAF carriers are contracted daily to fly various categories of airlift, to include channel airlift, special assignment airlift missions (SAAMs), exercise support, contingency support, and charter airlift. This augmentation is crucial to all common-users since it allows USTRANSCOM to continue to meet routine scheduled and surge commitments simultaneously. If needed during a large-scale contingency, airframes pledged to the CRAF are activated in three progressive stages with each stage providing additional airlift capacity. These stages include, **Stage I** — Committed Expansion (Regional Crisis or Small-Scale Contingency), **Stage II** — Defense Airlift Emergency (Major Theater War), and **Stage III** — National Emergency (Multiple Theater Wars and National Mobilization). **Commander, USTRANSCOM, with SecDef approval, is the activation authority for each stage of the CRAF.** The Department of Defense tasks the minimum percentage of assets in each stage necessary to augment military airlift to meet crisis requirements. During activation, USTRANSCOM, in coordination with the civil carriers,

exercises mission control over the civil aircraft. Planners should be aware that CRAF will not operate in a chemical-biological contaminated environment.

- **Just as the civil component provides specialized capabilities to the President and Secretary of Defense, so too does the Military National Air Mobility System Component.** This component is subdivided into “active duty” and “reserve” or “guard” portions. Regardless of their designation, all military component forces provide the same capabilities.
- Active duty forces conduct routine and contingency missions in support of all common-user requirements. Commanders have full access to these forces, and they are continuously available for immediate worldwide tasking. Most CONUS-based active duty air mobility forces are under the COCOM of Commander, USTRANSCOM, and in turn, OPCON of Commander, USTRANSCOM’s Air Force component, AMC. A small number of air mobility forces in the CONUS are under the COCOM of Commander, US Joint Forces Command (USJFCOM). Similarly, theater-based active duty air mobility forces are under the COCOM of their geographic combatant commander (e.g., Commander, US European Command [USEUCOM]) and, in turn, under OPCON of their respective Air Force component (e.g., Commander, United States Air Forces, Europe).
- **The Air Force Reserve Command (AFRC) and the Air National Guard (ANG) provide vital airlift, air refueling, and air mobility support capabilities to the DTS.** Their forces possess the same capabilities as active duty forces, and in some cases, unique capabilities not found in the active force (e.g., LC-130). They complement active

duty forces during peacetime through a volunteer system. During contingencies or other national emergencies, where requirements exceed the capability gained by volunteerism, these forces may be brought to active duty status either by federalizing guard forces or activating reserve forces. Approximately 50 percent of the air mobility capabilities are resident in the AFRC and ANG. AFRC and ANG personnel are experienced operators and train to the same standards as their active duty counterparts.

*Reserve component mobilization is addressed in JP 4-05.1, Joint Tactics, Techniques, and Procedures for Manpower Mobilization and Demobilization Operations: Reserve Component (RC) Callup.*

d. **Air Mobility Operations.** Air mobility operations are conducted on behalf of common and specialized users. Users can significantly increase the success of these operations if they clearly understand air mobility's unique characteristics: how air mobility forces are assigned, apportioned, and how they augment one another; how key user considerations are determined; how mission categories are funded; and how MAF tasks are performed for the President and Secretary of Defense, commanders, and specialized users.

- **Air mobility is a valuable force enhancer and should be employed with great care.** Its flexibility and vulnerability make it a responsive, but potentially costly, asset to use. The flexibility of the NAMS may, however, be constrained by its logistic support requirements and its dependence on ground equipment for some operations (which may not be available in desired locations or configurations). Properly organized, trained, and equipped air mobility forces can usually be shifted

rapidly between missions and terminals. For example, planes and crews dispersed on sustainment missions throughout an AOR can be concentrated for a large formation employment mission. Modern aircraft offer increased mission flexibility because they can be quickly reconfigured for a variety of loads (palletized and unpalletized cargo, rolling stock, passengers, and airdrop or extraction loads) or different types of in-flight refueling missions.

- **Operating the air mobility force at its optimal capacity each day should not undermine its timely reaction to unforeseen emergencies or the shifting priorities of a theater campaign.** Attempts to bank air mobility forces for later missions are usually ill advised because holding them in reserve entails the certain loss of irrecoverable daily transportation productivity.
- **Air mobility aircraft are vulnerable to air and surface attacks.** Similarly, GAMSS units and command elements are organized to provide only for their local security. These vulnerabilities usually mean that optimal air mobility operations are most effective in a low-threat environment. Ideally, friendly air defense forces should protect large-scale or high frequency operations. Air mobility forces can operate in higher threat environments by using aircraft equipped with defensive systems, by using other assets to protect them, or by accepting a possible combination of operational penalties: higher loss rates and reduced efficiency.
- The AMC Phoenix Raven (PR) program is designed to ensure adequate protection for AMC aircraft transiting airfields where security is unknown or deemed inadequate to counter local threats. PR teams will deter, detect, and counter

threats to AMC personnel and aircraft by performing close-in aircraft security; advising aircrews on force protection measures, accomplishing airfield assessments to document existing security measures and vulnerabilities and assist aircrew members in the performance of their duties, when not performing PR duties. PR teams should be considered for all types of AMC airlift missions, including contingencies, exercises, or deployments.

- **Limited air mobility forces may not be able to fill all of the demands placed on them.** The scarcity of air mobility assets is a consequence of both their high cost (particularly of aircraft) and of limitations on the dimensions and weight of cargo that individual aircraft or ground support units can handle. Effective and well-coordinated allocation of these assets requires careful prioritization, especially in the face of changing mission requirements. This becomes crucial when distances are long or in the absence of a well-developed surface infrastructure. When time is critical, airlift may be the only choice to ensure the success of high-priority missions. The central problem of theater planning is maximizing air mobility operations for immediate requirements, while also maximizing its contribution to the long-term requirements of the overall campaign. Planners and operators should weigh the immediate needs of the user against the overall requirements and priorities of the JFC. As a general guideline, airlift forces should not be tasked for movements that can be handled by surface transportation assets.
- **The operational and logistic characteristics of air mobility forces require the commanders operating them to accomplish at least four fundamental tasks.**

- Basic priorities of the air mobility effort should reflect national priorities and the plans of the commanders they support.
- Total air mobility capacity, usually expressed in tons or sorties, should be monitored on a frequent basis.
- Air mobility forces should be specifically tasked, properly supported, and monitored to achieve desired objectives.
- All air mobility forces should plan and execute their specific missions and transmit required statistical data back up through the logistic and operational systems.

Generally speaking, tasks one and two are accomplished largely within the joint force staff (operations directorate [J-3] and/or logistics directorate [J-4]), while tasks three and four are accomplished largely within the C2 and operating echelons of USTRANSCOM, geographic combatant commands, and JTFs.

e. **In-transit Visibility.** ITV provides geographic combatant commanders, subordinate JFCs, and deploying forces with total asset visibility, a critical element of executing operations IAW joint guidance contained in “Joint Vision 2020.” ITV is achieved through the integration of data in the Global Transportation Network (GTN) as provided by the use of C2 systems, automated information systems (AISs), and automatic identification technology (AIT). These systems are used to process and track the identity, status, and location of DOD unit and nonunit cargo, passenger, patients, and lift assets at each node, from origin to destination, in peacetime, contingencies, and war. Critical elements of planning and executing movements that are visible in GTN include identification of AIS that are integrated and

feed GTN and assignment of AIS responsibilities. The three major functional areas provided by GTN are ITV, C2 operations, and C2 planning and analysis.

f. **Planning Considerations.** Common users directly benefit from understanding the air mobility infrastructure, choosing the correct method of delivery, and correctly determining whether their requirements can best be served through routine or surge operations. Each of these choices influence the type of support received by the requesting user, but they also have an impact on the entire NAMS. Therefore users, when submitting their requests, must not only make their choices on an objective analysis of their exact needs, but must also remain flexible as their desires must be balanced against the CJCS priority system and other common-user needs. There are a variety of terminals that will be used to conduct air mobility operations.

- **Air Lines of Communications and Air Terminals.** Establishing ALOCs between air terminals is the key to **rapid global mobility**. The MAF provides rapid global mobility to its users by establishing ALOCs between air terminals. ALOCs are air routings connecting a military force with a base of operations that maximize load and fuel efficiencies for airlift, air refueling, and receiver aircraft while providing a structure to the airflow. An effective ALOC structure rests on the proper mix of stage and air bridge operations. “Lily pad” operations are typified as missions that originate from a CONUS terminal, delay en route at an intermediate location for refueling, crew stage, and/or crew rest, and terminate at an OCONUS terminal. Air bridge operations are defined as flights between CONUS and OCONUS terminals where the receiver aircraft’s range is augmented by in-flight refueling on designated air refueling (AR) tracks. These established routings,

air terminals, and AR tracks allow commanders to effectively and efficiently move and position aircraft, cargo, or personnel. Terminals serving ALOCs include ground-based locations where personnel and materiel are either loaded or offloaded. AR tracks are a series of specified points (usually along a receiver’s route of flight) where refueling and receiver aircraft conduct in-flight refueling operations. This applies to tankers refueling cargo aircraft, refueling bombers on a global power mission, or assisting in the movement of fighters as part of an aerospace expeditionary force deployment. Commanders must understand the unique characteristics of each of these components of the ALOC.

- **An aerial port is an air terminal located on an airfield that has been designated for the sustained air movement of personnel and materiel. An aerial port serves as an authorized aerial port of embarkation (APOE) or aerial port of debarkation (APOD) in the country in which it is located.** An airfield is an area prepared to accommodate the landing and takeoff of aircraft, (including any buildings, installations, and equipment). Some air mobility aircraft are capable of operating on unimproved surfaces, but for large operations it is more effective to establish APODs and APOEs on prepared airfields. Prepared airfields are usually pre-existing facilities, with hard-surface runways, extensive ground operations areas (for taxiing, parking, cargo handling, and other appropriate uses), and support infrastructure required for sustained operations. These attributes usually make prepared airfields the best available locations for air mobility main bases and the best available terminal for deployment, redeployment, and large-scale employment operations. These attributes limit the number and location

of these types of terminals. As a result, commanders should expect these terminals to be targeted by adversary forces.

- **A landing zone (LZ) is any specified zone used for the landing of aircraft.**

LZs are usually less sophisticated than airfields, with facilities meeting only the minimum requirements of anticipated operations by specific aircraft. They may vary from isolated dirt strips with no off-runway aircraft-handling areas to hard surface airfields with limited support infrastructure. The main advantage of LZs is that in many cases it is possible to find or construct them near the operating area of supported forces. A close-by, but less sophisticated LZ may offer fewer delays in providing airlift resupply to forward-deployed troops or assistance to humanitarian operations. Due to their isolation and possible proximity to threats, operating at these terminals requires significant planning.

- **A drop zone (DZ) is a specific area upon which airborne troops, equipment, or supplies are airdropped.** Although DZs are normally on relatively open, flat terrain, they may be situated on almost any site (including water) suited in size and shape for the intact delivery and recovery of the airdropped personnel and materiel. The main advantage of a DZ is the ability to deliver forces or materiel when an LZ or airfield cannot be constructed either because of expense, time constraints, security risks, political sensitivities, or terrain. Similar to LZs, their isolation and possible proximity to threats makes security more difficult. Operations at DZs require significant planning because of limited on-ground support and likely threats to the aircraft and support personnel.

g. **Airlift Delivery Methods.** There are two basic modes of airlift: airland or airdrop. The delivery method is based on user requirements; availability; adequacy; security of airfields, LZs, and DZs near the objective area; and aircraft capability.

- **Airland is the most frequently used airlift delivery method.** It permits delivery of larger loads with less risk of cargo loss or damage than the airdrop method. Airland operations encompass all situations where personnel and cargo are unloaded and offloaded while the aircraft is on the ground. Although crews normally accomplish offloading from a stationary aircraft, procedures exist to “combat offload” from moving aircraft when necessary to reduce ground time or when sufficient materials handling equipment (MHE) is not available.
- **Airdrop includes all methods of delivering personnel, equipment, and supplies from an airborne aircraft.** This enables commanders to project combat power into areas lacking suitable or secure airfields. Airdrop enables commanders to capitalize on the element of surprise because of the speed of delivery and the vast number of potential objective areas where forces can be employed. However, the additional weight and space required for parachute rigging and cushioning material reduces the amount of cargo or personnel each aircraft can deliver. The most common means of rigging equipment and supplies for airdrop are the heavy equipment method, container delivery system (CDS), and door bundles.

*The various tactics, techniques, and procedures (TTP) associated with each delivery method is discussed in Chapter IV, “Airlift.”*

h. **Air Refueling Delivery Methods.** Air refueling is an integral part of US airpower across the range of military operations. It significantly expands the employment options available to a commander by increasing the range, payload, and flexibility of air forces. Therefore, air refueling is an essential capability in the conduct of air operations worldwide and is especially important when overseas basing is limited or not available. Receiver requirements dictate how much fuel will be offloaded, where the refueling will take place, and when the rendezvous will occur. The receiver aircraft's performance characteristics will dictate air refueling speed, altitude, and allowable maneuvering during the refueling.

- **Air Refueling Tracks and Anchors.**

Air refueling is normally conducted in one of two types of airspace: an anchor area or along an AR track.

- In anchor areas, the tanker flies an oval racetrack pattern within defined airspace while waiting for receiver aircraft to arrive. Once joined with the receiver, the tanker then flies in an expanded racetrack pattern while refueling the receiver. Anchor air refueling is normally used for intratheater operations where airspace is

confined or where receivers operate in a central location. Anchor areas are best suited for small, highly maneuverable aircraft, especially in marginal weather conditions.

- An AR track is typically a series of navigation checkpoints located between a start and end AR point, with corresponding airspace dedicated around that route. Air refueling along an AR track is the preferred method for intertheater operations, and tracks will normally be used along the receiver's route of flight to maximize effectiveness. The tanker rendezvous can be accomplished in two ways. The tanker can orbit at a designated point along the track awaiting the receiver's arrival, or the tanker and receiver can be preplanned to simultaneously arrive at a designated rendezvous point.

- **Air Refueling Systems.** Air refueling is conducted using one of two systems: boom or drogue.

- Most USAF and some US allied aircraft use boom refueling. In boom refueling, the tanker aircraft inserts its AR boom into the receiver aircraft's AR



*A KC-135 boom type aircraft refueling an F-15E.*

receptacle. Boom refueling allows for the rapid transfer of fuel under high pressure to the receiver. This is especially important when passing large quantities of fuel to either large receiver aircraft or multiple fighter-type aircraft. Most USAF tanker aircraft are boom equipped. [The only USAF aircraft that use drogue refueling are rotary-wing craft.]

•• United States Special Operations Command (USSOCOM), the United States Navy (USN), United States Marine Corps (USMC) forces, and most allied aircraft use drogue refueling. In drogue refueling, a hose and basket system is reeled into the air by the tanker aircraft. Receiver aircraft then “plug” the basket with an external probe. Due to hose limitations, drogue refueling is slower than boom refueling. For most KC-135 tanker aircraft, the drogue assembly must be externally mounted on the boom prior to flight. Therefore, once airborne, most KC-135s can only perform one type of refueling. USSOCOM, USN, and USMC tanker aircraft are only drogue-equipped. Finally, KC-10 refueling aircraft are dual boom and drogue equipped and can refuel via both methods on the same

mission, although they cannot do this simultaneously.

i. **Scheduling Categories.** For scheduling purposes, air mobility missions are conducted on either a recurrent or surge basis. Recurrent operations establish a scheduled flow of individual aircraft to make the most of available aircraft and GAMSS assets. Surge operations allow for the rapid and substantial movement of cargo and personnel because a large number of assets are committed toward the operation but can only be sustained for a short period of time. Surge operations may disrupt the efficiency of the NAMS, require significant regeneration time, and complicate the interactions of intertheater and intratheater forces. Combatant commanders use the Joint Operation Planning and Execution System (JOPES) to request airlift support for deployment, sustainment, or redeployment. The combatant commander requests airlift for the deployment and redeployment phases of an operation through the JOPES process. The supported commander, in coordination with supporting commanders and Services, establishes movement requirements and develops time-phased force and deployment data (TPFDD) in JOPES. USTRANSCOM, in turn, extracts the movement requirements from the TPFDD, validates the mode of



*US Navy receiver aircraft using drogue air refueling procedures.*

transportation, and forwards the tasking to its components for movement. Intertheater airlift sustainment involves the movement of replacement supplies, equipment, personnel, and units.

*Detailed procedures are outlined in JP 3-35, Joint Deployment and Redeployment Operations.*

j. **Mission Funding Categories.** The use of air mobility aircraft is funded either through the Transportation Working Capital Fund (TWCF) or operations and maintenance (O&M) funds. The TWCF program consists of a fee paid by the user to USTRANSCOM or the geographic combatant commander that conducts the mission. O&M funding occurs out of the Service component budget with no charge levied directly against the user. The various types of missions flown by the NAMS are designed and scheduled according to their funding category.

- **Channel airlift missions provide common-user airlift service on a scheduled basis between two or more predesignated points.** There are two types of channel airlift: requirements and frequency channels. A requirements channel serves two or more locations on a scheduled basis depending upon the volume of traffic; a frequency channel is time-based and serves two or more locations at regular intervals. Requirement channels only fly if cargo requirements dictate while frequency channels offer geographic combatant commanders a regular and predictable cargo and passenger schedule. Requirement channel users reimburse the TWCF based on weight of cargo. Frequency channel users guarantee a minimum utilization rate for the type of aircraft purchased and also reimburses the TWCF based on the weight of cargo.
- The vast majority of airlift sustainment will move on channel missions. During a contingency, **USTRANSCOM is prepared to establish, at the request of the supported combatant commander, an express service to move “war stopper” items rapidly to the AOR.** The supported combatant commander will direct what portion of CJCS-allocated strategic lift will be used for air mobility express (AMX) and will allocate space on express aircraft by pallet positions to each component. For AMX to be effective, the supported combatant commander must establish a theater distribution system to deliver express cargo from APODs to its final destination.
- **Special assignment airlift missions are airlift missions that require special consideration due to the number of passengers involved,** weight or size of cargo, urgency of movement, sensitivity, or other valid factors that preclude the use of channel airlift. SAAMs support DOD users as well as other government agencies such as the United States Secret Service, Federal Bureau of Investigation, and Drug Enforcement Agency. Users reimburse the TWCF at a SAAM rate based on mission flying time, to include positioning and depositioning legs.
- **Special airlift missions (SAMs) transport the President of the United States, Vice President, cabinet members, and other high-ranking United States and foreign government officials on distinguished visitor (DV) configured airlift aircraft.** DV status determines the funding sources and payment protocols.
- **Contingency missions operate in direct support of an operation order**

(OPORD), disaster, or emergency. Users reimburse the TWCF based on mission flying time, to include positioning and depositioning legs. These movement requirements will be identified in a TPFDD listing within JOPES.

- **CJCS exercise missions** operate in support of CJCS-directed exercises. The users reimburse the TWCF based on mission flying time. These movement requirements will also be identified in a TPFDD.
- **Air refueling missions** provide in-flight refueling to users; for example, CORONET AR missions support fighter deployments and redeployments, foreign military sales, aircraft transfers, and unit moves. Refueling flying hours are paid by O&M funds, but the serviced unit pays for the fuel transferred.
- **Training missions** flown for currency and proficiency are paid from Service O&M funds.
- **Joint airborne/air transportability training (JA/ATT) missions** are part of a JCS-directed, AMC-, or theater Air Force component command-managed program that provides basic airborne and combat airlift continuation and proficiency training conducted in support of DOD agencies. These missions include airdrop, air assault, aircraft load training, air refueling, and Service school support. JA/ATT missions are paid by O&M funds that are specifically allocated for joint training.
- **Service organic air mobility missions** flown by assets organic to a particular Service to meet their own requirements are paid from Service O&M funds. Examples of Service organic air mobility include Navy airlift aircraft conducting

resupply missions from APODs to forward logistics sites and delivery to ships; Army aviation aircraft moving troops and supplies on the battlefield; and Marine Corps tankers refueling USMC aircraft.

k. **Air Mobility Tasks.** For operational planning purposes, most airlift and air refueling missions perform one of six basic tasks: deployment, employment, routine sustainment, combat sustainment, redeployment, or force extraction. Each of these tasks is different and has specific applications to distinct phases of a campaign or operation. This categorization is useful because it relates directly to the problem of maximizing air mobility support to immediate requirements as well as maximizing air mobility's contribution to the long-term requirements of the JFC's campaign.

- Deployment operations involve the movement of personnel, units, and materiel into, between, or within an AOR or JOA. Ideally, deployment operations should occur in a low-threat environment. If these operations must occur in a higher threat environment, tactics, escort requirements, and objective area support requirements could reduce the throughput of the overall air mobility system and limit airlift capacity or air refueling offload amounts. Commanders should also consider the backhaul capacity of the air mobility forces. Using this capacity for rearward movement of personnel, patients, materiel, and repairable items or the repositioning or redeployment of units can save additional missions from being scheduled or diverted.

*Deployment and redeployment are covered in detail in JP 3-35, Joint Deployment and Redeployment Operations.*

- **Air mobility forces conduct employment missions when they airlift units, cargo, or personnel or refuel aircraft during combat operations.** Airlift forces can move combat-loaded units to maximize their readiness for immediate combat operations. Given the assumption of immediate combat, user requirements should dictate scheduling and load planning. However, the threat or peculiarities of large-scale operations may dictate adjustments to the user's plans or operations to accommodate the allowable cabin load (ACL) limitations, tactical procedures, and defensive support requirements of the airlift force. Air refueling missions also primarily serve combat air assets directly engaging in combat operations. Fuel loads, flight profiles, and orbits should be determined by combat aircraft requirements. However, threats may dictate modifications to the optimum plan in order to protect these limited resources. All air mobility forces can support surge employment operations during the initial stages of a conflict or when required. Commanders should consider the impact that surge operations would have on sustainment and force extraction missions. Backhaul is difficult during this type of mission, as the situation typically limits ground and loiter times and should be limited except for the rearward movement of essential personnel, wounded personnel, or other friendly evacuees.
- **Routine sustainment air mobility missions involve the administrative movement of materiel and personnel to reinforce or resupply forces already deployed or employed in operations.** Routine sustainment missions also include missions flown in support of military and nonmilitary organizations involved in humanitarian relief operations. These operations normally

deliver the user's requirements with the minimum expenditure of air mobility resources. Routine sustainment planning usually assumes that user requirements and the general air and ground security situation allow some flexibility in the actual delivery times of specific loads. Flight schedules and load plans are made to maximize throughput from available ACLs and support resources. When practical, routine sustainment should be planned to utilize backhaul capacity. Depending on theater and user priorities, typical backhaul loads might include wounded personnel, other friendly evacuees, enemy prisoners of war (EPWs), and excess or repairable weapons and materiel of moderate to high value.

- **Combat sustainment air mobility operations involve the movement of supplies, materiel, and personnel to reinforce or resupply units already engaged in combat.** Combat sustainment planning usually assumes that requirements and threat situations limit flexibility of delivery times, locations, and configurations of specific loads. Flight schedules and load plans usually are driven by combat requirements rather than to maximize the utilization of ACLs. Given the exceptional risks involved for scarce and perhaps irreplaceable air mobility assets, combat sustainment requests normally should be restricted to absolutely essential requirements. Only essential backhaul requirements justify the increased risks to air mobility assets involved in these operations.
- **Redeployment air mobility operations involve the combat or administrative air movement of personnel, units, and materiel from deployed positions within or between an AOR and JOA.** Redeployment operations are conducted

to move the maximum force in the minimum time or with the fewest resources possible. They normally require a low-threat situation. If circumstances permit, backhaul should be accomplished with whatever capacity is not used by the primary movement.

- **Force extraction operations involve the combat air movement of personnel, units, and materiel from positions in the immediate vicinity of adversary forces.** The purpose of these movements may range from withdrawal operations to the lateral movement of forces to new operating locations. These operations generally are planned to accomplish a movement with the minimum expenditure of air mobility resources.

However, in higher threat situations it also may be necessary to preserve the combat capabilities of departing units for as long as possible at the departure terminal, while building them up as rapidly as possible at the arrival terminal. In such cases, operational requirements may be more important than the efficient use of ACLs. In the latter stages of a complete extraction of friendly forces from a combat area, planners should provide suitable operational assets to protect both the forces being extracted and the air mobility forces engaged in their movement. Extractions are logistic backhaul operations. Commanders must evaluate the risk of extracting materiel as compared to the impact of abandonment and replacement.

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## CHAPTER II

# ASSIGNMENT, APPORTIONMENT, ALLOCATION, AND ATTACHMENT OF AIR MOBILITY FORCES

*“Victory is the beautiful, bright-colored flower. Transportation is the stem without which it could never have blossomed.”*

**Winston Churchill**

The Department of Defense, with cooperation from the civil sector, exerts oversight authority over the NAMS. Given MAF asset limitations and the insatiable demands for rapid global mobility, the Secretary of Defense assigns assets to combatant commands and Services based on national priorities. These assets are then apportioned and made available to both common and specialized users IAW command priorities and requirements. If available MAF assets are insufficient for meeting user requirements, individual commanders may request augmentation of their assets from other sources.

### 1. Command Relationships and Air Mobility Asset Prioritization

**It is critical that air mobility planners and operators understand the command relationships and control authorities associated with the employment of US forces. By using standardized terminology and structures whenever possible, commanders facilitate rapid transition from peace to contingency and wartime operations.**

*Definitions for command relationships are located in the glossary and in JP 0-2, Unified Action Armed Forces (UNAAF).*

**Unity of command is a fundamental principle of war.** Unity of command leads to unity of effort, and since every objective remains under one responsible commander,

all forces cooperate and coordinate toward a commonly recognized objective. It is vital that unity of command within the theaters be maintained while preserving the Nation’s capability for dominant maneuver through rapid global mobility. Equally important, commanders must apply the limited amount of air mobility to meet the competing demands of the theaters, understanding that more than one theater is placing demands on the air mobility system at any one time. They do this through established processes and distinct mechanisms. These mechanisms are force assignment, force apportionment, force allocation, and force attachment. Forces may be made available for specific movements or limited time periods, and direct support complemented by a DOD-wide airlift priority system. Forces, not command relationships, are transferred between commands. When forces are transferred, the command relationship over those forces must be specified (i.e., what the gaining commander will exercise and what the losing commander will relinquish).

### 2. Assignment

The Secretary of Defense assigns assets from each NAMS component to combatant commanders, both functional and geographic, to achieve the highest possible levels of efficiency and responsiveness in meeting user requirements. The **Service Secretaries** organize, train, equip, and provide air mobility forces to support their respective Service functions. The **Secretary of Defense** directs the assignment of common-user airlift forces

to Commander, USTRANSCOM and other combatant commanders.

a. **Assigned forces** are units or personnel placed in an organization where such **placement is permanent** or for an unknown period of time, or when the broadest level of command and control is required or desired.

b. **Commander, USTRANSCOM** has COCOM (limited to training and readiness oversight prior to activation or federalization for Air Reserve Component forces) over assigned air mobility forces.

c. **Geographic combatant commanders** have COCOM over assigned air mobility forces, both common-user and Service organic. They normally delegate OPCON of theater-assigned and attached common-user air mobility assets to the AFCC. They may also delegate OPCON to other subordinate commanders as specified in JP 0-2, *Unified Action Armed Forces (UNAAF)*.

d. **Peacetime common-user airlift force assignment** is reflected in SecDef Memorandum *Forces for Unified Commands*.

### 3. Apportionment

**Air mobility is a limited national resource.** MAF forces are apportioned to perform intertheater, intratheater, and Service missions based upon President and Secretary of Defense priorities. Intertheater and intratheater assets are apportioned for deliberate planning in the Joint Strategic Capabilities Plan and then tasked to perform missions IAW the DOD Transportation Movement Priority System. Service assets are apportioned and tasked IAW Service-specific priority systems.

### 4. Allocation

a. **Allocation and the Joint Movement Center (JMC).** During execution, allocation

is the translation of the JCS's apportionment into the total daily air mobility capacity or sorties available for each user or operation. Because unanticipated and high priority requirements demand continual adjustments of the air mobility effort, JFCs usually assign daily allocation responsibilities to their J-4s. They, in turn, typically pass the tasking to their JMCs. In keeping with their general responsibilities as outlined in JP 4-01.3, *Joint Tactics, Techniques, and Procedures for Movement Control*, JMCs usually:

- Interface with JOPES to monitor and effect changes to the deployment of forces, equipment, and supplies.
- Analyze user capabilities to ship, receive, handle cargo and passengers, and recommend solutions to shortfalls.
- Advise the J-4 on transportation matters that would adversely affect combat contingency operations.
- Serve as the liaison with the host nation(s) (HNs) and coalition partners for transportation issues.
- Disseminate information concerning HN transportation systems, facilities, equipment, and personnel.
- Coordinate noncombatant evacuation operation (NEO) movement support.

Failure to abide by the established DOD or theater priority system can cause an inflation of subordinate requests and loss of control over the air mobility system.

b. **Joint Transportation Board.** When intertheater air mobility requirements strain or exceed capability, the Joint Transportation Board (JTB) may be convened. The JTB may be convened by the Chairman of the Joint Chiefs of Staff during wartime and contingencies to ensure that President and

Secretary of Defense requirements for common-user transportation resources assigned or available to the Department of Defense are allocated to optimize mission accomplishment of DOD objectives. Combatant commanders should establish a theater JTB to resolve similar issues.

*For further information see JP 3-35, Joint Deployment and Redeployment Operations; JP 4-01, Joint Doctrine for the Defense Transportation System; and JP 4-01.4, Joint Tactics, Techniques, and Procedures for Joint Theater Distribution.*

### 5. Attachment and Support

#### a. Attachment

- At times, a combatant commander's requirements may exceed the capabilities of the assigned forces. In such situations, the Secretary of Defense may elect to transfer forces from a supporting combatant commander through attachment to a supported combatant commander. Attachment is a temporary transfer of forces between combatant commanders. Whenever forces are attached, the Secretary of Defense will specify the degree of command authority the gaining commander will exercise and the losing commander will relinquish. Commanders can only integrate those forces if each subordinate functional or Service component commander and supporting geographic or functional combatant commander clearly identifies all air mobility forces available for tasking. Typically, supported combatant commanders who gain forces through attachment will exercise OPCON over those forces, and normally delegate this authority to their subordinate commanders as necessary.

- TACON may be delegated to and exercised by commanders at any echelon at or below the level of combatant command (JP 0-2, *Unified Action Armed Forces (UNAAF)*). Where appropriate, the JFC and COMAFFOR should be given TACON over the assets that are attached or made available for tasking to integrate the additional capabilities provided to the joint force. Commanders may delegate TACON within a joint command. However, consistent with title 10, USC, the Unified Command Plan, and JP 0-2, *Unified Action Armed Forces (UNAAF)*, TACON transfers between combatant commands must be approved by the Secretary of Defense.

#### b. Support

- Where neither assignment nor attachment is appropriate, forces may function in support of the supported combatant commander. In this case, a supported and supporting relationship is established between the supported combatant commander and the supporting combatant commander. In all cases, the Secretary of Defense will define applicable command relationships.
- The very nature of a CONUS-based force strategy dictates that commanders establish a mechanism for continuing support of the theater-assigned or subordinate command-attached forces. Support is normally employed under those circumstances where one commander has been given a mission and requires support from another commander but does not require C2 authority over the supporting forces. This is normally the situation when Commander, USTRANSCOM is providing direct support for a geographic combatant

commander or subordinate JFC. A superior commander may establish a support relationship between subordinate

commanders when one organization should aid, protect, complement, or sustain another force.

## CHAPTER III

# COMMAND AND CONTROL OF AIR MOBILITY OPERATIONS

*"It is no great matter to change tactical plans in a hurry and to send troops off in new directions. But adjusting supply plans to the altered tactical scheme is far more difficult."*

**General Walter Bedell Smith**

### 1. General

**The value of air mobility forces lies in their ability to exploit and enhance the speed, range, flexibility, and versatility inherent in air power.** Centralized control and decentralized execution of air mobility missions are the keys to effective and efficient air mobility operations. Centralized control allows commanders to focus on those priorities that lead to victory, while decentralized execution fosters initiative, situational responsiveness, and tactical flexibility. Although it is not necessary for a single global organization to centrally control all air mobility forces, all commanders should envision air mobility as a global system capable of simultaneously performing intertheater and intratheater missions. Separate but integrated command structures exercise centralized control over USTRANSCOM-assigned and theater-assigned and attached air mobility forces. This arrangement ensures a smooth interaction of the intertheater and intratheater forces. The MAF operate as an integrated system of assets, and satisfy the supported combatant commander's mobility requirements through common procedures that bridge the command structures of theater and CONUS-based forces.

a. **Effective support of the supported combatant commander's mobility requirements demands that theater and CONUS-based forces form a global partnership.** This partnership must operate as an integrated force with common planning, tasking, scheduling, and C2 systems. A

critical element of this partnership is linking centralized control agencies such as the CONUS-based forces' USTRANSCOM MCC and AMC TACC to the theaters' MCCs and AMOCCs and, when either a joint or multinational task force is stood up, the JMC and AOC. These MAF partners exercise centralized control to ensure that the JFC is supported with responsive, capable, and seamless air mobility. A high degree of tasking and execution control is centralized above the wing level with an appropriately experienced air mobility commander to direct forces and respond as a system to JFC mobility requirements. Air mobility commanders practice decentralized execution by delegating execution authority to subordinate commanders. Commanders at the wing, group, squadron, mission, and aircraft levels are vested with the appropriate authority necessary for an effective span of control while fostering initiative, situational responsiveness, and tactical flexibility.

b. Arrangements for the C2 of air mobility forces have varied substantially over time. Organizationally, some have emphasized unity of command at the theater air force level, while others stressed the operational and logistic linkages between intertheater and intratheater systems. Other considerations have included the scope and duration of operations, overarching theater organization, geography, and communications capabilities. Most of these arrangements successfully provided support within a given operational context. The ultimate goal of air mobility C2 is to present a seamless system to commanders, customers, and air mobility

operators in both peace and war. This chapter provides the doctrinal foundation for command, control, and integration of air mobility forces.

### 2. Broad Guidelines for Command Relations

The definition of **command and control** is “**the exercise of authority and direction by a properly designated commander over assigned and attached forces in the accomplishment of the mission. Command and control functions are performed through an arrangement of personnel, equipment, communications, facilities, and procedures employed by a commander in planning, directing, coordinating, and controlling forces and operations in the accomplishment of the mission.**” (JP 1-02, *Department of Defense Dictionary of Military and Associated Terms*). When employing air mobility forces, it is essential that there is a clear understanding of the associated command relationships and control processes affecting the effective application of these forces. C2 of air mobility forces is a particularly complex task. This is because air mobility operates in three very distinct operational environments; between theaters (intertheater), within a theater (intratheater), and intratheater strictly within a JTF’s JOA. These environments do not exist independently of each other, and the fact that they must be integrated further complicates the C2 task.

### 3. Command and Control

**There are three independent C2 structures that, when integrated, constitute the global air mobility C2 system.** They are the **intertheater, intratheater, and JTF systems.**

a. **Intertheater Air Mobility Operations.** Intertheater air mobility operations are generally global in nature and service the

CONUS-to-theater air mobility needs of the supported commander. **Commander, USTRANSCOM-assigned air mobility assets execute the vast majority of intertheater airlift missions. C2 of these air mobility assets is normally exercised through AMC’s TACC.** The TACC plans, coordinates, schedules, tasks, and executes air mobility missions worldwide. The TACC is the single tasking and execution agency for all activities involving AMC-assigned forces operating to fulfill Commander, USTRANSCOM-directed requirements. Exceptions to this are the C2 of CONUS operational support airlift (OSA) mission, which are directed by USTRANSCOM Joint Operational Support Airlift Center and Special DV missions flown and controlled by the 89th Airlift Wing. Intertheater operations may also include movements between CONUS and one or more theaters, or between two geographic combatant commanders’ theaters (e.g., a movement from Ramstein AB, Germany [USEUCOM] to Tirana, Albania [JTF NOBLE ANVIL]). In most cases, assets assigned or attached to Commander, USTRANSCOM will perform these movements. However, in the case of the movement between two theaters, where theater-assigned air mobility assets are employed, the geographic combatant commander who owns the forces retains COCOM. Specific command relationships for air mobility forces should be established in a manner that best supports the joint tasking and the circumstances of the operation.

- **The Deployment Order.** The deployment order signed by the Secretary of Defense is the primary instrument for transferring forces and specifying command relationships between combatant commanders. (Other orders created during the planning process, such as warning, alert, planning, execution, and fragmentary orders, may also specify or shape command relationships, but they do not transfer forces.) The combatant commander establishes command relationships within a combatant



*Airlift can be diverted from strategic operations to support a theater airlift effort on a sortie-by-sortie basis without basing large transports in the theater.*

command. Service and component commanders help tailor command relationships by working through their chains of command to shape the details of orders being drafted by the Joint Staff.

- **Functional Combatant Commands.** Functional combatant commands (such as USTRANSCOM and US Space Command) satisfy mission requirements across multiple AORs and are thus best centrally controlled. For such forces, the functional combatant commander will normally retain OPCON of assigned forces and, with SecDef approval, provide either TACON or enter into a support relationship with the supported combatant commander. In some cases these forces with SecDef approval may be attached to the supported combatant commander if that combatant commander will fully employ them. As an example, tankers are deployed forward in support of a regional operation. If the tankers are totally committed to that operation and are unavailable to perform any other mission, the supported combatant commander should have OPCON over these tankers. If, on the other hand, the tankers are only partially employed in that

operation, and thus are available for other missions, Commander, USTRANSCOM should retain OPCON to optimize overall tanker utilization.

When the supporting commander cannot fulfill the needs of the supported commander, JP 0-2, *Unified Action of the Armed Forces*, states that the establishing authority will be notified by either the supported or the supporting commander. The establishing authority is responsible for determining a solution.

- **Transient Forces.** Transient forces, i.e., forces merely transiting an AOR, are not normally transferred to the geographic combatant commanders. However, they are subject to local force protection and administrative reporting requirements. Combatant commanders with geographic responsibilities shall exercise TACON (for force protection) over all DOD personnel (including their dependents), except for those for whom the Chief of Mission retains security responsibility. Combatant commanders' exercise of TACON (for force protection) applies to all DOD personnel assigned to, temporarily assigned to, transiting

through, or training in the combatant commander's AOR. TACON (for force protection) enables combatant commanders to change, modify, prescribe, and enforce force protection measures for covered forces. Per JP 0-2, *Unified Action Armed Forces (UNAAF)*, “**Transient forces** within the assigned AOR of a combatant commander **are subject to the area commander's orders in some instances**, e.g., for coordination for emergency defense, allocation of local facilities, or force protection. However, transient forces **are not part of the area commander's command**, and the area commander is **not in their normal chain of command.**”

### b. Intratheater Air Mobility Operations.

Intratheater air mobility operations are defined by geographic boundaries and serve a single supported commander's requirements. **Air mobility forces assigned or attached to that commander normally conduct these operations.** When intratheater air mobility requirements exceed the capability of assigned or attached forces, the supported commander may request augmentation from Commander, USTRANSCOM or a geographic combatant commander.

- **Intratheater air mobility operations may be controlled by one of two C2 concepts. In a theater with a durable air mobility mission and permanently assigned air mobility forces, the combatant commander may establish an AMOCC** through which OPCON and TACON of theater-assigned or attached forces is exercised. During normal operations the AMOCC is the theater AFCC's single C2 layer for planning, coordinating, tasking, and executing day-to-day theater air mobility operations. During a contingency or crisis additional C2 nodes may be established. The AMOCC should coordinate with these C2 nodes.

- In a theater in which an AMOCC has not been established, the theater AFCC will normally establish an air mobility control organization (typically, an AOC) within the theater C2 structure to plan, coordinate, task, and execute theater-assigned air mobility assets.

c. **JTF Air Mobility Operations.** During joint operations, it may be necessary to establish a JTF within a combatant



*Intratheater airlift capability provides joint commanders with quick, responsive transportation — a factor that may determine the success or failure of an operation or campaign.*

commander's AOR. This allows the combatant commander to maintain a theater-wide focus and at the same time respond to a regional requirement within the theater. When this occurs, a CJTF will be designated and forces assigned, attached, or made available for this operation. Under this construct, COCOM of mobility forces remains with either Commander, USTRANSCOM or the applicable geographic combatant commander as defined in SecDef Memorandum *Forces for Unified Commands*. However, the COMAFFOR and/or JFACC will normally be delegated OPCON of forces assigned or attached to the JTF. If the CJTF requires additional air mobility forces beyond those that have already been assigned, attached, or made available for tasking, additional augmentation may be requested.

- The CJTF or the COMAFFOR and/or JFACC should appoint a DIRMOBFOR to function as coordinating authority for air mobility with all commands and agencies, both internal and external to the JTF. **The DIRMOBFOR is normally a senior officer who is familiar with the AOR or JOA and possesses an extensive background in air mobility operations.** When established, the DIRMOBFOR serves as the designated agent for all air mobility issues in the AOR or JOA, and for other duties as directed. The DIRMOBFOR exercises coordinating authority between the AOC (or appropriate theater C2 node), the TACC, the AMOCC (when established and when supporting subordinate command objectives), and the JMC, in order to expedite the resolution of air mobility issues. At the discretion of the CJTF or the COMAFFOR and/or JFACC, the DIRMOBFOR may be sourced from the theater's organizations or USTRANSCOM. Additionally, the DIRMOBFOR, when designated, will ensure the effective integration of intertheater and intratheater air mobility operations, and facilitate the conduct of

intratheater air mobility operations on behalf of the COMAFFOR and/or JFACC. Operationally, the DIRMOBFOR normally works directly for the COMAFFOR and/or JFACC while remaining under the administrative control of COMAFFOR or the theater AFCC. The DIRMOBFOR provides direction to the AMD, but must be responsive to the AOC director.

- **The DIRMOBFOR also has distinct responsibilities in relation to JFC staffs.** Air mobility requirements do not originate in the AOC. They originate at the component level and are validated by either the JMC (when established) or by the combatant commander's J-3 in coordination with J-4. This may vary slightly in different theaters. In United States Central Command, for example, the intratheater lift requirements originate in J-4, while the intertheater requirements originate in J-3. Consequently, **an essential role for the DIRMOBFOR is to serve as the principal interface between the AOC and the theater's J-4 and the JMC** to ensure appropriate prioritization of air mobility tasks while balancing requirements and air mobility capability. Specific duties of the DIRMOBFOR include the following.
  - Direct the integration of intertheater air mobility support provided by USTRANSCOM-assigned mobility forces.
  - Direct the tasking of air mobility forces attached or assigned to the JFC.
  - Coordinate the tasking of USTRANSCOM air mobility forces operating in support of the JFC.
  - Coordinate with the AOC director to ensure that all air mobility operations supporting the JFC are fully integrated

into the air assessment, planning, and execution process, and deconflicted with all other air operations.

- Coordinate with AMC TACC, through the air mobility element (AME), all intertheater air mobility missions to ensure the most effective use of these resources in accomplishing the JFC, theater, and USTRANSCOM missions.
- Assist in the integration and coordination of the multinational air mobility plan. This assistance could come in the form of deconfliction of airfield maximum (aircraft) on the ground (MOG) restrictions and coordination with the AMC TACC on US intertheater airflow with multinational air movement.

### 4. Command and Control Structures

The command relationships and C2 structure described here apply during both routine air mobility operations and periods of crisis and wartime operations. The air mobility C2 system relies on consistent processes and the ability to rapidly expand to meet the unique needs of the task at hand. This facilitates the rapid transition from peacetime to contingency or wartime operations.

a. **Routine Operations.** C2 over all US military forces flows from the President. The combatant commanders exercise COCOM over their assigned air mobility forces. To assist in the employment of mobility forces, each of the geographic combatant commanders has a USTRANSCOM transportation liaison officer. Air mobility C2 is a complex process that must bring together the elements of intertheater, intratheater, and existing JTF operations. Close coordination between each element is essential throughout all stages of an operation — planning, coordination, tasking, and execution.

Geographic combatant commanders with assigned air mobility forces have COCOM over those forces and exercise OPCON over those forces through the theater AFCCs. The AFCC will normally delegate OPCON or TACON to the theater AMOCC commander, if an AMOCC is established. For theaters without an AMOCC, a C2 structure should be established to exercise proper C2 of air mobility forces. Figure III-1 illustrates these routine, day-to-day command relationships for controlling air mobility forces.

b. **Establishment of a Joint Task Force.**

When a contingency arises that requires the establishment of a JTF, the supported combatant commander may elect to establish one and appoint the CJTF. The CJTF is authorized to exercise command authority over a joint force to accomplish an assigned mission and will determine appropriate military objectives and set priorities for the entire joint force. Although the CJTF has great latitude in determining command relationships, the COMAFFOR provides unity of command and normally exercises OPCON over all assigned and attached USAF forces. When the USAF provides the preponderance of air forces and the capability to plan task and control joint air operations, the CJTF will typically designate the COMAFFOR as the JFACC. If a geographic combatant commander requires OPCON and/or TACON of augmentation forces, the request must be processed through the Joint Staff for SecDef approval. Figure III-2 depicts these relationships.

c. **Establishment of a JAOC and Associated Air Mobility Command Relationships.** The JFACC requires a C2 organization appropriately sized and tailored to support JTF or subordinate command-related air operations. The JAOC is the air planning and execution focal point for the JTF (or other subordinate command) and is where centralized planning, direction, control, and coordination of air operations occur for which

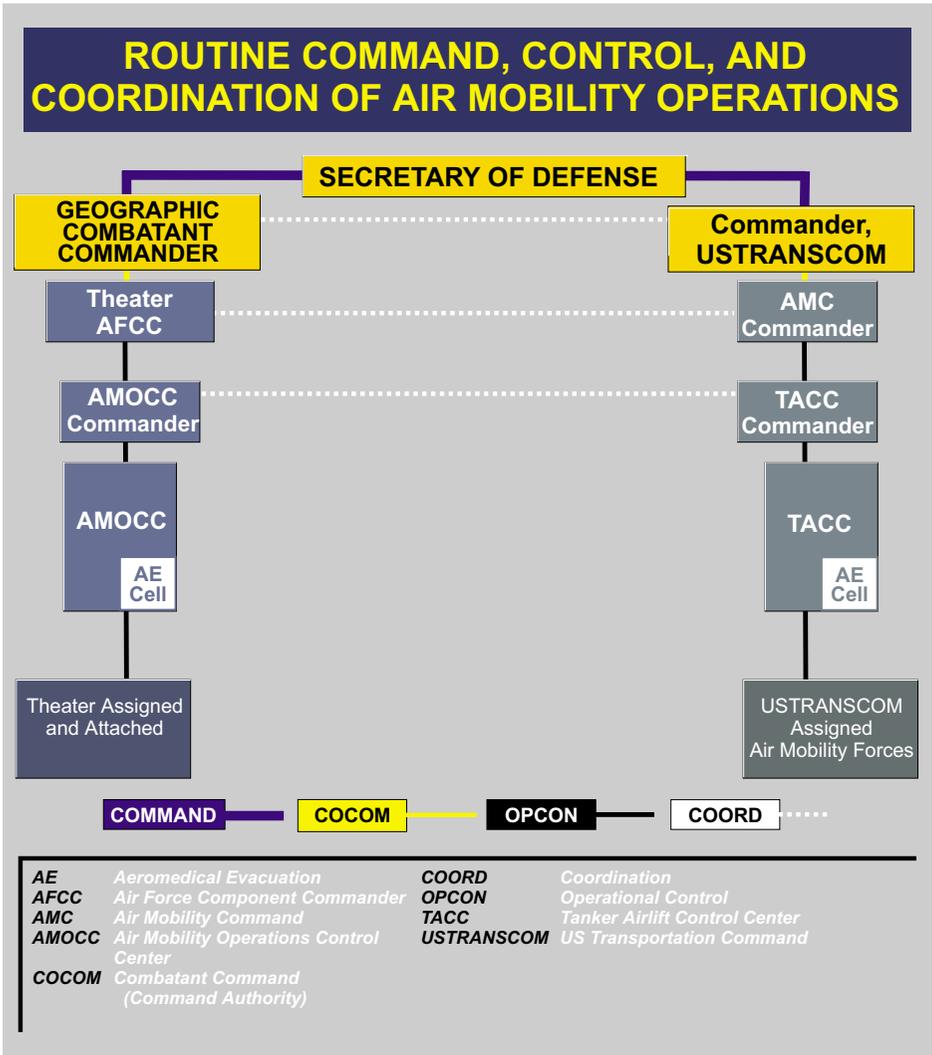


Figure III-1. Routine Command, Control, and Coordination of Air Mobility Operations

the JFACC has OPCON and/or TACON. Due to the time and mission specific nature of this tasking, it may be inappropriate to attempt to use one of the previously identified air mobility C2 structures. Consequently, the JFC's COMAFFOR should establish an AMD within the JAOC.

- **The JAOC is responsible for coordinating and integrating JTF air mobility operations with other aspects of JTF air operations.** Within the JAOC, the AMD plans, coordinates,

tasks, and executes air mobility operations supporting the JFC's campaign plan.

- When a JTF is formed, the geographic combatant commander assigns air mobility forces to the CJTF, who normally exercises OPCON or TACON of these forces through the COMAFFOR who exercises this authority through the DIRMOBFOR. The JFACC relies on the JAOC director and DIRMOBFOR to manage and direct the activities of the

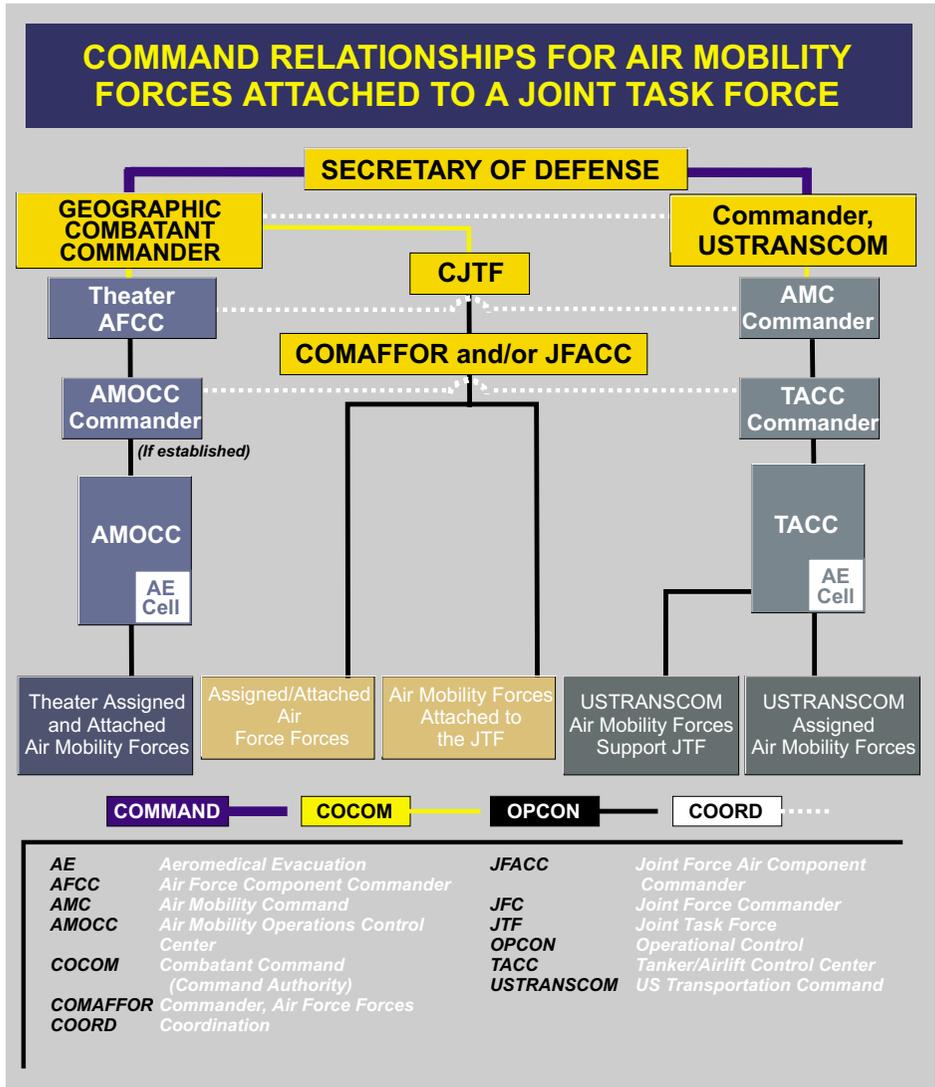


Figure III-2. Command Relationships for Air Mobility Forces Attached to a Joint Task Force

JAOC. The JAOC director is charged with the effectiveness of joint air operations and focuses on planning, coordinating, allocating, tasking, executing, and assessing air operations in the AOR or JOA based on COMAFFOR and/or JFACC guidance and DIRMBOFOR coordination. While the AOC director provides direction principally to the AOC’s strategy, combat plans, and combat operations divisions, the DIRMBOFOR’s focus is on the

AMD and its primary components. The AMD is made up of an air mobility control team, airlift control team, air refueling control team, aeromedical evacuation control team (AECT), and AME. For the specific functions of the AMD teams, refer to the glossary for specific team functions. The AMD, as directed by the DIRMBOFOR, will integrate and direct the execution of intratheater and USTRANSCOM-assigned air mobility forces operating in

the AOR or JOA in support of JFC objectives. OPCON of USTRANSCOM-assigned air mobility forces supporting, but not attached to, the JTF or subordinate command will remain with the AMC TACC commander and be exercised through the AME. A primary role of the Air Force is to provide air mobility support to all Services. JFCs should rely on their AFCCs to supply the preponderance of manpower with the expertise to plan and control intratheater air mobility operations. This expansion of C2 systems requires the AMOCC to interface with both the AMD within the JAOC, the DIRMOBFOR and, as necessary, the combat operations and combat plans divisions within the JAOC to ensure seamless mobility operations. Figure III-3 illustrates the arrangement of the JAOC and associated command relationships with respect to air mobility operations.

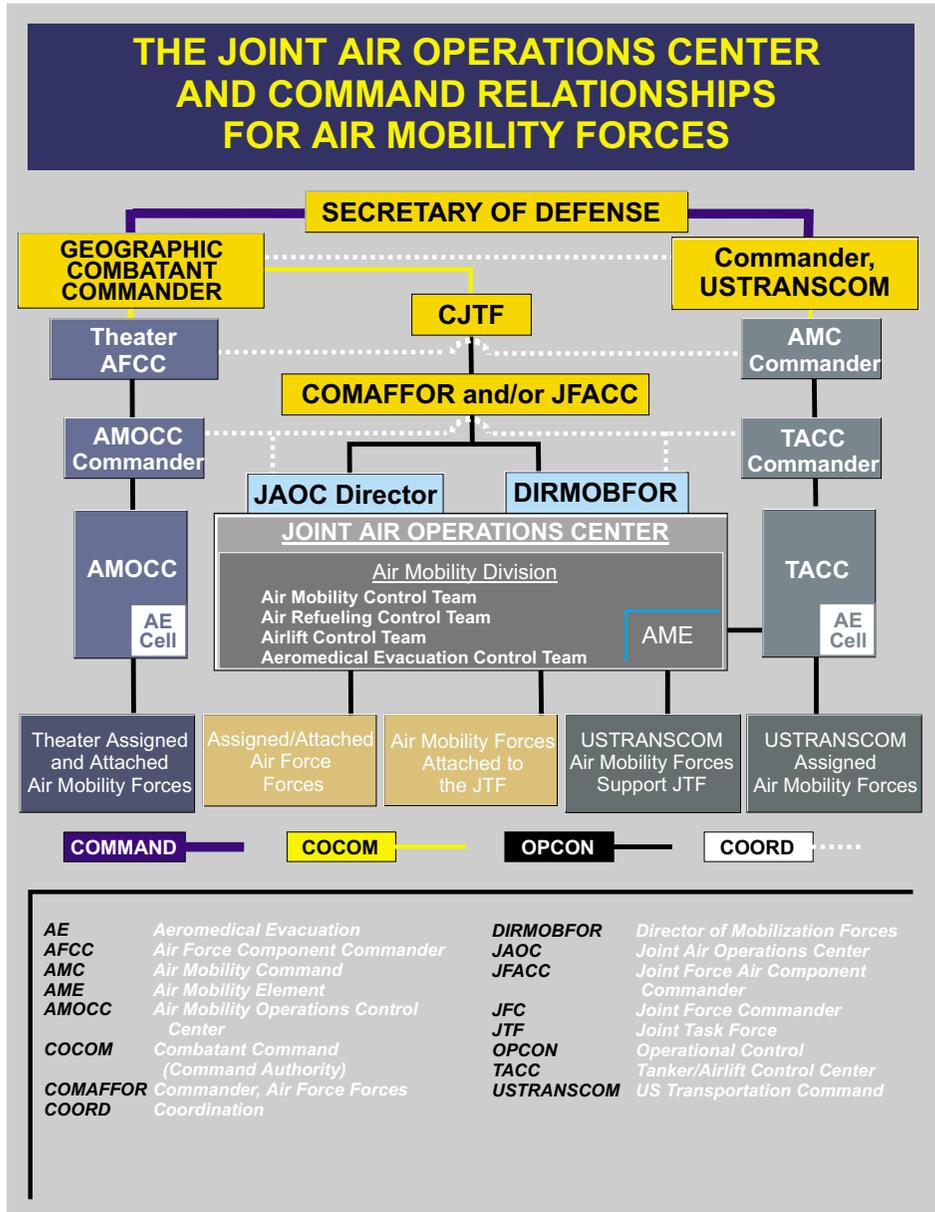
- The AME deploys to the theater as an extension of the AMC TACC. The AME is requested when a DIRMOBFOR is established and USTRANSCOM-assigned air mobility aircraft are employed in support of a contingency. It becomes an element of the AMD. The DIRMOBFOR is responsible for integrating the expertise of the theater air mobility planners with the expertise of the AME to fulfill JFACC guidance and to meet JFC objectives.

d. **Additional C2 Structures.** These consist of fixed and mobile units and facilities that provide the AOC with the information and communications required to monitor the ongoing air operation and that control Air Force aircraft in theater air operations. The broad organization and functions of these units and facilities are discussed here in their relationship to intratheater air mobility.

- **Control and Reporting Center (CRC).** The CRC is directly subordinate to the

AOC and is charged with broad air defense, surveillance, and control functions. **The CRC provides the means to flight-follow, direct, and coordinate the support and defense of theater air mobility aircraft** operating in the operational area.

- **Tactical Air Control Party (TACP).** TACPs consist of **personnel equipped and trained to assist US ground commanders** to plan and request tactical air support, including intratheater airlift.
- **Wing Operations Center (WOC).** As the C2 facility of Air Force wings, **WOCs provide control and communications facilities** to link wing commanders to the AOC and enable them to command their forces. To facilitate joint operations, Army ground liaison officers or other component representatives may be assigned to a WOC.
- **Tanker Airlift Control Element (TALCE).** **TALCEs are mobile C2 units deployed to support intertheater and intratheater air mobility operations.** Core TALCE capabilities include: C2, aerial port passenger and cargo processing, aircraft servicing, and aircraft maintenance. TACC decisions to position TALCE assets will be based upon intertheater and intratheater mobility support requirements. It is a theater responsibility to identify requirements for such support. A mission support element (MSE) is a team of specialists tasked to support operations at deployed locations. MSEs normally consist of one specific capability, such as maintenance or cargo processing. An MSE may be sent from garrison, or it may be a portion of a deployed TALCE sent out to a remote location to recover a broken aircraft or handle a specific type of cargo load.



**Figure III-3. The Joint Air Operations Center and Command Relationships for Air Mobility Forces**

- **Mission Support Team (MST).** Smaller than TALCEs, MSTs perform similar functions at locations where air mobility C2 otherwise would not exist.
- **Special Tactics Team (STT).** Commander, United States Special

Operations Command (USSOCOM) exercises COCOM over all CONUS-based STTs' assets. **STTs** are small, rapidly deployable, task-organized combat control teams (**CCTs**), pararescue jumper (**PJ**), and combat weather (special operations weather team) personnel.

**They are organized, trained, and equipped to quickly establish and control the air-ground interface at an airhead through the application of specialized skills in both austere and hostile environments.** These teams can **prepare the battlespace for air mobility operations** by conducting survey assessments, weather observations, and reconnaissance and surveillance of objective airfields and assault zones. STTs **establish terminal area airspace control** (attack, C2, and air traffic services) at remote assault (e.g., drop or landing) zones and austere or expeditionary airfields. They sustain these operations until relieved by other elements of the theater air control system (TACS) (e.g., TACPs, TALCEs and general-purpose air traffic services forces). STTs are a part of the theater special operations forces (SOF) and are normally under OPCON of the joint force special operations component commander (JFSOCC) or the joint special operations task force. When supporting theater mobility operations, TACON of these teams should be transferred to the COMAFFOR and/or JFACC for specified missions or time duration, as an extension of the TACS. However, because the STTs can be employed by both SOF and theater air structures, it is imperative that apportionment, allocation, command relationships, and control authority be clearly stated and understood by special operations and air component commanders. STTs are requested from the JFSOCC for tasking.

- **Theater Airlift Liaison Officers (TALOs).** TALOs are rated air mobility officers aligned under TACPs supporting the Army at corps, division, and separate brigade or regiment levels. TALOs advise ground commanders on the capabilities and limitations of airlift,

and assist in planning, requesting, and using airlift resources.

- **AMC liaison officers (LNOs) are normally assigned to a Marine expeditionary force command element.** The AMC LNOs perform similar functions as the TALOs, but are not designated as TALOs.
- **Airborne Elements.** As airborne C2 nodes, the EC-130 airborne battlefield command and control center (ABCCC), E-2C HAWKEYE, and the E-3A Airborne Warning and Control System (AWACS) may perform AOC functions in support of theater air mobility operations. This may occur either early in a campaign (before the regular AOC is established) or during operations conducted in the presence of adversary air and ground threats.
- **The medical GRL** provides the personnel and equipment required to administer medical care for injuries and illness, and to administer preventative medical care reducing the risk of a catastrophic or detrimental event that could impact on mission effectiveness. The team also recommends strategies to TALCE and MST commanders for countermeasures against environmental and physiological stressors, in order to enhance mission effectiveness. While they support the deployed TALCE and MST operations, the medical GRL will be under the same command relationship as the TALCE or MST (i.e., if the TALCE is OPCON to the JTF, the medical GRL should be also).
- **Battlefield Coordination Detachment (BCD).** BCDs will be located within the JAO (or in the AOC if a JFACC is not designated) and will consist of intelligence and operations personnel organized into airlift, air defense, fire

**support, and airspace control elements.** Overall, the BCD monitors and interprets the land battle situation and provides the necessary interface for the exchange of current intelligence and operational data. The airlift section is collocated with the AMD and is responsible for monitoring movements on joint airlift operations supporting the Army Forces (ARFOR) and providing feedback to the ARFOR operations and logistics staff officers. The airlift section is the single point of contact within the JAOC for coordinating and monitoring Army airlift requests, changes, and cancellations. The other sections coordinate fire and close air support for intratheater airlift missions, as appropriate.

- **Tactical Operations Centers (TOCs).** TOCs, which are found in Army units down to maneuver battalions, **include TALOs and other individuals with intratheater airlift responsibilities.** Operations staff officers should interface with Air Force TACPs to plan and coordinate air support. They also validate and prioritize intratheater airlift requests for their unit commanders.
- **Ground Liaison Officers (GLOs).** Units may assign GLOs to the JAOC and theater airlift WOCs. In those positions, they monitor **and report on the current airlift situation to their parent units.** They also advise the Air Force mission commanders and staffs on Army component air movement requirements, priorities, and other matters affecting the airlift situation. **GLOs assigned to the JAOC report through the BCD.** They are also the principal points of contact between the Air Force TALCEs and Army arrival/departure airfield control groups (A/DACGs) for controlling Army theater airlift movements.

- **Arrival/Departure Airfield Control Groups.** **A/DACGs coordinate and control the movement of component personnel and materiel through airlift terminals.** Comprised mainly of personnel and resources from the moving units, they are provisional units, task-organized to reflect the type of move and degree of support available at the terminal. **The A/DACG is the moving unit's point of contact with local Air Force base and TALCE commanders and personnel.** When units from more than one component will transit a terminal simultaneously, the JFC should direct one component to provide the A/DACG. This will normally be the component with the largest movement requirement, and augmented, as necessary, by the other components. As the theater matures or when airlift mission requirements increase, **a port movement control team (PMCT) should be phased in** complementing the A/DACG to execute port clearance missions. Normally, this transition occurs when the airfield is designated an APOD for the theater.
- **Port Movement Control Teams.** **PMCTs assist the theater army movement control agency (TAMCA) and MCC in moving Army component personnel and materiel through large air terminals.** They are not organic to TAMCA or the MCC. PMCTs have organic supply, replacement, processing, medical, and transportation personnel. **Their responsibilities supplement those of A/DACGs** and, depending upon workload, the presence of a PMCT may reduce or eliminate the need for an A/DACG at a given terminal.
- **Army Long-Range Surveillance Teams (LRSTs).** **LRSTs can support airlift by conducting reconnaissance and surveillance operations of named areas**

**of interest around terminal areas.** LRSTs, which are organized from long-range surveillance detachments and companies, are organic to each Army division. Typically, one to six LRSTs support an airborne or air assault operation. If required, LRSTs can also mark DZs and LZs and direct fire support for airlift operations.

- **Drop Zone Support Teams (DZSTs).** In the absence of, or in conjunction with, an Air Force STT, **DZSTs provide Army units with limited organic capabilities to support airdrop operations.** DZSTs direct airdrop operations on DZs and consist of at least two personnel, including an airborne jumpmaster- or pathfinder-qualified leader. They can support airdrops (up to three aircraft) of personnel, equipment, and CDS bundles. Their responsibilities include:
  - evaluating DZs;
  - evaluating ground hazards; and
  - ensuring the suitability and recoverability of airdropped personnel and materiel. In the absence of an STT or DZST, TALOs may be qualified to direct airdrop operations.
- **Tactical Aviation Control Teams (TACTs).** Composed of air traffic control

or pathfinder-qualified personnel, **TACTs locate, identify, and establish DZs and LZs.** They install and operate navigational aids and communications around the terminal, control air traffic in that vicinity and, to a limited degree, gather and transmit weather information.

### 5. Command and Control of Airfields During Contingency Operations

During contingency operations, the most efficient and effective use of limited airfield capacity and resources is often critical to a successful military response. The task is complicated when foreign airfields are host to a variety of allied military, nongovernmental organizations (NGOs), and commercial air activities. In this scenario, an AMC-commanded aerial port may potentially be competing for ramp space and facilities with many other players, including other US military units (e.g., Army aviation assets or Air Force strike aircraft). To achieve a unity of effort of all US military forces operating on an airfield, the geographic combatant commander must decide on the priority of US military operations and/or appoint a single on-scene commander to determine priorities among competing US demands. Additionally, US military forces should normally designate a single primary point of contact to negotiate airfield usage issues with allied forces and the HN airfield manager.

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## CHAPTER IV

### AIRLIFT

*“Air power must be more than force because the problems of the world must increasingly be addressed by the military with more than force. Many of the crises and conflicts in our shrinking world are no longer highly susceptible to resolution through the projection of force, but — as in protection of the Kurds in the wake of Operation DESERT STORM — will require the projection of infrastructures such as security, medical care, communications and transportation.”*

**Carl Builder, *The Icarus Syndrome***

#### 1. General

a. **Airlift operations transport and deliver forces and materiel through the air in support of strategic, operational, and/or tactical objectives.** As a direct instrument to effect national policy and an essential warfighting tool, airlift offers its customers a high degree of speed, range, and flexibility. **Airpower is a maneuver force, and air mobility is an integral part of that maneuver force.** Airlift enables commanders to respond and operate in a wide variety of circumstances and time frames that would be impractical through other modes of transportation.

b. **Airlift supports US national strategy** by rapidly transporting personnel and materiel to and from or within a theater. **Airlift is a cornerstone of global force projection.** It provides the means to rapidly deploy and redeploy forces, on short notice, to any location worldwide. Within a theater, airlift employment missions can be used to transport forces directly into combat. To maintain a force’s level of effectiveness, airlift sustainment missions provide resupply of high-priority equipment, personnel, and supplies. Finally, airlift supports the movement of patients to treatment facilities and noncombatants to safe havens. Airlift’s characteristics — **speed, flexibility, range, and responsiveness** — complement other US mobility assets.

#### 2. Airlift Operations

As discussed in Chapter I, “General Overview,” airlift operations are typically classified as either intertheater or intratheater airlift. These operations are defined by the nature of the mission rather than the airframe used. Most aircraft are not exclusively assigned to one operational classification. In fact, the vast majority of the air mobility force is capable of accomplishing any classification of airlift. Intertheater and intratheater capabilities are available to all users of Air Force airlift including sister Services, DOD agencies, military forces of allied nations, and USG as well as NGOs.

a. **Intertheater Airlift.** Intertheater airlift provides the air bridge linking a theater to other theaters and theaters to CONUS.

*“I have traveled around the world and talked to people in different countries. I can tell you that when that big “T” tail aircraft lands, with the American flag on the tail, they not only represent America — they are America.”*

**General Ronald R. Fogleman  
Former Chief of Staff, USAF**

- During the deployment phase of a contingency, intertheater airlift requirements, while significant, are to a large degree predictable. Such

### STOP THE DYING!

This quickly became a primary US objective in the summer of 1994 when hundreds of thousands of Rwandan refugees fled to neighboring African countries to avoid becoming victims of a violent intertribal war. With over 100,000 dead and nearly a half-million displaced, President Clinton stated, “The flow of refugees across Rwanda’s borders has now created what could be the world’s worst humanitarian crisis in a generation. A disaster born of brutal violence, it is now claiming one life every minute.” In response, the United States launched Operation SUPPORT HOPE, a massive humanitarian relief mission to help normalize a situation in sub-Saharan Africa that was anything but normal.

Refugee camps in Goma and Bukavu swelled overnight and, while supplies of food and medicine were critically short, the lack of clean drinking water was the biggest problem. Hundreds were dying every day from cholera and dysentery, which had spread to epidemic levels from consumption of contaminated water. A C-5 loaded with a reverse osmosis water purification unit (ROWPU) would help provide the solution. Flying 22 hours non-stop from Travis Air Force Base to Rwanda and conducting 3 air refuelings en route, this mission quickly provided an initial source of potable water. In a short time, more ROWPUs, water pumping equipment, and mobile fabric tanks were delivered and mortality rates decreased dramatically. By the time relief efforts ended, over 400 KC-10 and KC-135 missions were flown to refuel C-5 and C-141 aircraft that ferried 23,000 tons of equipment and supplies to the beleaguered masses.

Operation SUPPORT HOPE is a great example of air mobility being applied in a nonlethal manner. While it would be difficult to determine the actual number of lives saved, it is evident that air mobility directly achieved a major US objective.

### VARIOUS SOURCES

requirements normally are identified in the TPFDD associated with a particular operation plan (OPLAN) or OPORD. A TPFDD can be tailored to meet specific requirements when the mission is not aligned with an OPLAN or modified to meet the requirements associated with a particular course of action (COA). Time-definite resupply via airlift from CONUS to the theaters is critical in maintaining the flow of materiel necessary to sustain operations. This concept uses both military and commercial aircraft to support the sustainment flow that must begin as soon as deployment operations begin.

- **A key strength of airlift is its ability to swing forces from one theater to another.** Airlift enables commanders to rapidly reposition forces between theaters, thereby deterring potential aggressors from acting when US forces are engaged elsewhere.

b. **Intratheater Airlift. Intratheater airlift provides airlift for the air movement of personnel and materiel within a geographic combatant commander’s AOR.** Typically, aircraft capable of accomplishing a wide range of tactical level missions conduct these operations. Intratheater operations provide time-responsive airlift to the

commander, which may be critically needed to fulfill theater objectives. Intratheater requirements, like intertheater ones, normally are identified in the TPFDD associated with a particular OPLAN or OPORD.

- Unit movements within the theater are in response to the JFC's campaign plan. Once combat units are deployed to a theater, the JFC may use intratheater airlift to maneuver forces to exploit weaknesses in the adversary's position. In this capacity, airlift allows the JFC to reposition forces expeditiously, achieve surprise, and control the timing and tempo of operations.
- Movements within a theater also permit the continuing resupply of forward units. These requirements normally are predictable, regular, and quantifiable when the forces are not engaged in combat operations. During pre- or post-hostilities, these requirements can usually be fulfilled through a fixed resupply schedule. However, once forces are engaged, resupply requirements increase dramatically and become more unpredictable and variable. The ability of airlift to rapidly and flexibly accommodate the critical resupply requirements of units engaged and operating in such a dynamic environment provides commanders with an essential warfighting capability.

### 3. Airlift Missions

The five basic missions of airlift are **passenger and cargo movement, combat employment and sustainment, aeromedical evacuation (AE), special operations support, and OSA** (see Figure IV-1). Air Force airlift forces perform these missions to achieve strategic-, operational-, and tactical-level objectives across the range of military operations.

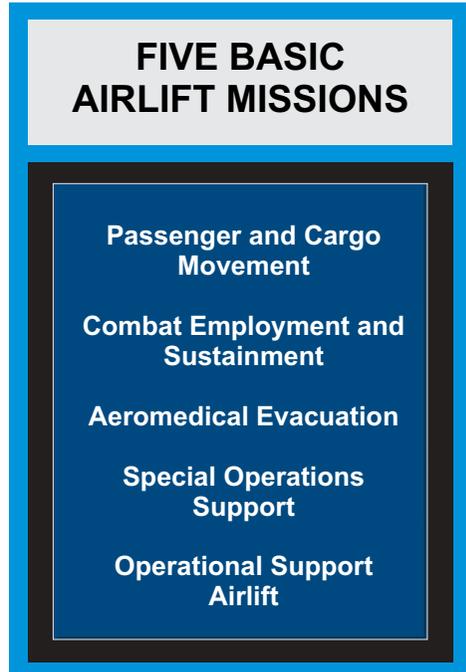


Figure IV-1. Five Basic Airlift Missions

a. **Passenger and Cargo Movement.** Normally, movement requirements are fulfilled through regularly scheduled channel missions over fixed route structures with personnel and cargo capacity available to all customers. These regularly scheduled requirements are validated through the appropriate Service organization to USTRANSCOM or geographic combatant commander, and then tasked by the AMC TACC, an AMOCC, or another appropriate C2 node. Depending on user requirements, requests not supportable through the channel structure can be fulfilled through the use of other mission categories such as SAAM, exercise, and contingency missions. Requests that cannot be satisfied by any of the above missions may be referred to other transportation modes of the DTS. **The airlift system has the flexibility to surge and meet requirements that exceed routine, peacetime demands for passenger and cargo movement.** For example, during Operation DESERT SHIELD, new channel routes and structures were established to

support the significantly increased airlift demands.

**b. Combat Employment and Sustainment.**

Combat employment missions allow a commander to insert surface forces directly and quickly into battle and to sustain combat operations. For example, combat missions may involve airdropping paratroopers behind adversary lines. Combat sustainment missions may consist of reinforcement of front-line forces engaged with the adversary. Airlift affords commanders a high degree of combat maneuverability permitting adversary troop strongholds to be bypassed. This provides to friendly forces a potent offensive advantage, complicating the adversary's defensive preparations. **The combat employment and sustainment mission usually accounts for a small percentage of total airlift sorties; nevertheless, its importance is far greater than the number of sorties indicates. This is a capability which, in most circumstances, cannot be accomplished by other means.**

- **While this mission provides significant capabilities, it also carries substantial risk.** Success in combat and combat support hinges on air superiority and threat avoidance. This requires accurate and timely intelligence regarding threats along the ingress and egress routes and over the target area. Once delivered to the target area, the inserted force may be totally dependent upon subsequent airlift operations for sustainment, movement, withdrawal, or redeployment.
- Another important aspect of combat employment and sustainment is the concept of **forcible entry**. In performing this mission, airlift forces are usually matched with airborne, air assault, light infantry, or ranger forces specifically designed for delivery by air. This mission normally involves the insertion of airborne forces via airdrop; however, carefully planned airland assault

operations can be equally effective. An example of intertheater forcible entry operations is the strategic brigade airdrop capability that the Air Force provides for the Army. This gives the President and Secretary of Defense a unique military force projection capability.

**c. Aeromedical Evacuation.** AE is the movement of patients under medical supervision to and between medical treatment facilities by air transportation. Air Force specific AE is the movement of patients under the supervision of aeromedical evacuation crewmembers by fixed-wing aircraft. Movement of patients requires special air traffic control considerations to comply with patient-driven altitude and pressurization restrictions as well as medical equipment that is approved for use with aircraft systems. There are processes that occur once patient movement requirements (PMRs) have been identified.

- Patient movement requirements centers (PMRCs) are the responsible agents for collaboration of a recommended lift-bed plan, PMR definition and management, and patient ITV. These PMRCs manage patient movement and provide connectivity to offer a global view. PMRCs are responsible for medical regulating, validation, and coordination, as well as related activities supporting PMR identification and data collection. Patient regulating includes accounting for bed availability and patient ITV. PMRCs assume the responsibilities formerly performed by Armed Services (or joint) medical regulating offices and USAF AE control centers.
- An AE cell within the Air Force component's C2 node is the source of AE operational expertise within the TACC/AMOCC. The AE cell performs AE operational mission planning, tasking, and scheduling of airlift and AE



*Aeromedical evacuation forces provide patient movement not only between international locations and CONUS, but also to and from locations within CONUS.*

assets to support patient movement in coordination with the PMRC.

- For contingency or wartime operations, the AECT provides AE C2 for the joint force. The AECT is the source of AE operational expertise within the AMD. The AECT will coordinate AE operational mission planning, tasking, and scheduling of airlift and AE assets to support patient movement in coordination with the joint PMRC. The AECT members will work closely with the plans division and other AMD teams to ensure AE assets are completely integrated into the air tasking order (ATO). The AECT also assists the DIRMOBFOR for the distribution and employment of theater AE ground unit type codes (UTCs).
- Intertheater AE is normally accomplished using designated or retrograde organic AE aircraft until such time that dedicated CRAF AE assets are activated for patient movement. When CRAF AE capability is exceeded or on an urgent or priority basis, retrograde or dedicated AE aircraft may be used. Alternatives to CRAF AE or military

aircraft may be pursued when competing airlift or evacuee requirements reduce airframe availability. These alternatives could include use of other organic military airlift, CRAF passenger aircraft, or authorization for commercial travel for ambulatory patients who do not require in-flight supportive medical care.

- The use of CRAF aircraft for aeromedical evacuation will be dependent on the threat in the region. Planners should be aware of the challenges presented to AE by the full spectrum of threats, from conventional to nuclear, biological, and chemical.
  - Intratheater AE involves movement of patients within the theater from mobile aeromedical staging facilities located near the front lines to the aeromedical staging facilities in the rear area. The movement of casualties out of the combat zone during contingency operations is generally accomplished using dedicated, designated, opportune, or scheduled retrograde aeromedical aircraft.
- d. **Special Operations Support.** Specified airlift forces provide unique airland and



*USTRANSCOM schedules and tasks CONUS-based OSA assets.*

airdrop support to special operations for joint or multinational training, contingencies, operations other than war, and other missions as directed by the President and Secretary of Defense. Since there are a limited number of airlift assets dedicated to this mission, the principle of economy of force is particularly applicable. When performing special operations missions, highly trained airlift crews normally act as an integral member of a larger joint package. Because these airlift missions routinely operate under adverse conditions in a hostile environment, extensive planning, coordination, and training are required to minimize risk. Airlift used in a special operations role provides commanders the capability to achieve specific campaign objectives, which may not be attainable through more conventional airlift practices.

e. **Operational Support Airlift.** OSA is a special classification of operations to provide for the timely movement of limited numbers of priority personnel and cargo during wartime, as well as peacetime training for pilots and priority airlift for key decision makers. OSA operations tend to be conducted by smaller-sized business type airframes. OSA operations are normally conducted in support of the assigned organization's organic requirements and provide the in-theater

Service component commander with flexibility in meeting time sensitive movement of passengers and cargo. Sorties in excess of direct support requirements will be provided to the JFC for tasking through the JFACC. USTRANSCOM is responsible for the scheduling and tasking of OSA operations regarding CONUS-based assets while the Services validate OSA requests. Theaters with their own OSA fleets are responsible for scheduling and execution tasking of OSA operations within their AORs.

#### 4. Service Organic Operations

a. In theory, almost any aircraft could contribute to the intratheater effort. In practice, however, the bulk of intratheater missions are normally done by fixed-wing aircraft provided by the Air Force component, while some limited or specialized missions may be accomplished by fixed- and rotary-wing aircraft provided by other Services. It is important to consider that aircraft performance characteristics will be directly affected by such factors as gross weight, atmospheric conditions, runway length and condition, and flight obstacles as outlined in Service publications. Accordingly, only their general applicability to air mobility tasks is described here. The bulk of the Air Force's air mobility



*Limited or specialized missions may be accomplished by fixed- and rotary-wing aircraft provided by Services other than the Air Force.*

fleet consists of aircraft designed or modified to serve a broad range of military airlift operating requirements. Additionally, the Services operate more specialized fixed-wing transports which, though not originally acquired to meet a broad range of essential intratheater airlift missions, are capable of performing parts of it quite effectively.

b. It is often difficult to view the relative contributions of the components of the joint force in isolation. Each is **critical to the success of a joint force operation** and each has **unique capabilities** that cannot be duplicated. Common-user airlift achieves an economy of force. Rather than each Service and non-DOD agency providing its own airlift, **airlift is consolidated and tasked to support all organizations**. While different types of operations will have varying requirements, the following highlights some of the airlift requirements of the various organizations that use common-user airlift.

- **The Army. Even though the Army has significant organic airlift assets, it often has the largest requirement for common-user airlift.** In particular, Army light infantry, airborne, and air assault forces rely heavily on airlift for deployment, sustainment, employment, and redeployment. Once in the theater, light infantry and airborne forces continue to rely heavily on airlift. Air assault forces, on the other hand, due to their organic airlift capability, only require common-user airlift when engaged in heavy combat or employed outside their normal area of operation. Requirements for Army airdrops of forces range in size from a small team to a brigade. The Army's heavy force pre-positioned afloat brigades and pre-positioned land brigades' equipment and supplies are married up with forces that require airlift to an APOD and begin reception, staging, onward movement, and integration functions to incrementally build combat power.
- **The Navy.** Sustainment and combat readiness of deployed naval forces
- **GAMSS forces normally deploy early in an operation** to establish en route and destination support. This may consume a large portion of the first airlift missions.

depends on flexible and highly responsive intertheater airlift support. Afloat naval forces normally serve as a force enabler and consequently require the least amount of common-user airlift support. However, the Navy depends on common-user airlift to sustain forward-deployed operations with personnel, materiel, and mail from CONUS to overseas bases. The Navy depends on organic, land-based, fleet-essential airlift assets to transport passengers and cargo intratheater from the APOD to forward logistics sites for further transfer to fleet units. Naval organic airlift, known as Navy-unique fleet essential airlift (NUFEA), then transports passengers, mail, and critical materiel from forward sites to underway forces. Although naval organic airlift satisfies most intratheater requirements, the Navy requires some common-user airlift to augment this capability.

- **The Marine Corps.** Marine Corps forces require common-user airlift when deploying into a theater as part of either a maritime pre-positioning force Marine air-ground task force (MAGTF) or as an air contingency MAGTF. During maritime pre-positioning force operations, Marine forces are airlifted to join maritime pre-positioned equipment and supplies at the arrival and assembly area. Additional fly-in echelons of personnel, equipment, and supplies are airlifted into the theater to complete and sustain the force. The air contingency MAGTF requires intertheater airlift of both personnel and equipment. Depending on the mission, amphibious MAGTF operations ashore may require intertheater and intratheater common-user airlift support to sustain and/or support the force.
- **The Air Force.** Depending on the nature and phase of the operation, the Air Force

may receive almost all or almost none of common-user airlift, though it tends to be the second largest customer of common-user airlift. For deployments, Air Force unit aircraft self-deploy; however, unit support personnel and equipment require airlift to the destination with or before the deploying unit aircraft. Dedication of significant airlift assets to Air Force units may be required early in deployment operations. Air Force units normally deploy by UTC and begin air operations shortly after arrival. Airlift must be able to **rapidly deploy full squadron support packages**, to include combat support elements, their equipment, and both initial and sustainment supplies.

- **Special Operations Forces. SOF have specially configured aircraft dedicated to special operations air mobility tasks of employment, sustainment, and force extraction of SOF.** These aircraft are not part of the common-user system and have limited capability to perform large-scale deployment, sustainment, and redeployment operations. However, these aircraft may also be tasked to support other specific specialized air mobility missions due to their unique capabilities. **SOF are augmented by common-user airlift support.** Additionally, selected conventional airlift forces with specially trained aircrews and modified aircraft may augment SOF airlift capability.
  - Commander, USSOCOM obtains airlift and provides an STT to support airlift operations by following the procedures in this publication and in JP 3-05, *Doctrine for Joint Special Operations*. **Intratheater airlift forces provide valuable support for the SOF in the joint force.** For routine logistic requirements, SOF request intratheater airlift support through their respective

supporting Service component. When SOF units require airlift to perform special operations-specific missions that require specially trained and equipped airlift forces, they transmit their request through their SOF command channels. **Airlift personnel** (particularly aircrews) expected to provide employment airlift support to SOF **should be fully incorporated into the SOF operation planning process and, if necessary, entered into isolation for tactical rehearsals.**

- On the other hand, airlift aircraft and crews should not be taken out of the airlift system any longer than necessary to prepare them for the anticipated operation. Standing down aircraft for longer periods could waste valuable lift capacity and increase the signature of the SOF's preparation phase. Although it is possible for SOF to provide some common-user airlift to the theater if directed by the JFC, this would only be done in exceptional cases.
- **The Coast Guard.** As a branch of the Armed Forces and a non-DOD agency, **the Coast Guard operates a mixed fleet of fixed- and rotary-wing aircraft for organic airlift.** It is able to provide flexible and responsive common-user airlift but is limited by statutory priorities and a lack of strategic support facilities. **Its organic airlift is normally sufficient to satisfy Coast Guard airlift requirements.** Coast Guard common-user airlift is available to naval forces for wartime tasking. Non-wartime airlift may be requested from the Commander, Atlantic Area or the Commander, Pacific Area, under 31 USC 1535 and 31 USC 1536.
- **Other Non-DOD Agencies.** USG agencies, such as the Department of

State and the Drug Enforcement Administration, use DOD airlift for activities such as NEO, counterdrug operations, foreign humanitarian assistance, and domestic support operations. **Non-DOD agencies may use common-user airlift, providing the DOD mission is not impaired.** The movement must be of an emergency, lifesaving nature, specifically authorized by statute, in direct support of the DOD mission, or requested by the head of an agency of the government under 31 USC 1535 and 31 USC 1536. To obtain common-user airlift, non-DOD agencies submit requests IAW DOD Directive 4500.9, *Transportation and Traffic Management*.

## 5. Airlift Delivery Methods

- a. As discussed in Chapter I, "General Overview," **airlift is the preferred method of delivery.** In the airlift delivery method, airlifted personnel and materiel are disembarked, unloaded, or unslung from an aircraft after it has landed or, in the case of vertical takeoff and landing aircraft, after it has entered a hover.
  - b. Airlift delivery is usually the most efficient delivery method for moving equipment, personnel, and supplies for the following reasons.
    - It allows a greater degree of unit integrity and the capability to rapidly employ units after landing.
    - It carries the least risk of injuring personnel and damaging loads.
    - It requires minimal specialized training and equipment for transported personnel.
    - It seldom requires special rigging of materiel.

- It permits the maximum utilization of ACL by eliminating the volume and weight penalties of preparing loads for airdrop deliveries.
  - It maximizes the opportunity to backhaul or evacuate cargo, patients, and personnel.
- c. The principal disadvantages of airland operations are:

- It requires airfields or LZs that are moderately level or unobstructed and adequate for the anticipated operation.
- It may increase mission intervals depending on airfield size, offload equipment availability, and airfield support capability.
- It requires more time for delivery of a given size force than parachute delivery.
- It normally requires airlift mission support such as ground-handling and transportation assets.
- It may prolong and intensify the exposure of the aircraft operating at forward fields to ground or air attacks.

However, because the operational tactics and rapid offloading techniques of various airlift aircraft can minimize these disadvantages, planners should view airland delivery as the option of first choice for most air movements.

d. When planning airland operations, consideration should be given, but not limited, to the following.

- **The Tactical Situation**

- The location of countries granting overflight rights and any conditions placed upon them.

- The duration and location of the operation.
- The location, landing clearances to, and capabilities of suitable airfields, supply bases, APODs, and forward operating bases (FOBs).
- The ability to control airspace in the absence of air traffic control (ATC) facilities.

*For further information on TTP for terminal airfield ATC, see Air Land Sea Application (ALSA) Center's publication, Multiservice Procedures for Joint Air Traffic Control (also referenced as Field Manual [FM] 100-104, Marine Corps Reference Publication [MCRP] 3-25A, Naval Warfare Publication [NWP] 3-56.3, and Air Force Technical Training Publication [AFTTP] (I) 3-2.23).*

- The type and amount of cargo or personnel for delivery.
- The desired phasing of forces into the operation.
- The expected conventional and nonconventional threat throughout the mission.
- The weather conditions.
- The night operation requirements. (Covert APOD will require aircrew and ground personnel trained to use night vision devices.)

- **The Mission Requirements**

- The airlift assets available, including the number and type of aircraft and crews.
- The protection of aircraft.

- The aircrew survival measures, including escape and evasion points, routes, corridors, and safe haven locations.
  - The aircraft servicing, maintenance, and damage repair capabilities.
  - The capabilities of the airfield, particularly pavement strength and clearance requirements.
  - The airfield onload and offload capabilities.
  - The transportation capabilities to distribute the cargo or personnel to their final destination.
  - The MHE support.
  - Petroleum, oils, and lubricants (POL) storage and dispensing capability.
- e. Four concepts for airland operations include the following.
- **Hub and Spoke Operations.** Intertheater airland operations normally offload personnel and materiel at a main operating location within the theater. Subsequently, intratheater airlift moves designated personnel and equipment to forward operating locations, an employment concept referred to as a **hub and spoke** operation. Units should consider the required MHE and transportation assets needed to transfer personnel, equipment, and cargo from one aircraft to another.
  - **Direct Delivery.** Another employment concept, **direct delivery**, involves airlifting personnel and materiel from ports of embarkation (POEs) to forward-operating locations in the theater, bypassing intermediary operating bases and the transshipment of payloads typically associated with hub and spoke operations (see Figure IV-2). Direct delivery uses airland or airdrop delivery methods. For example, personnel can be airlifted from CONUS and delivered directly to the theater by airlanding them at a forward operating location or airdropping them as part of a strategic brigade airdrop operation. Direct delivery shortens in-transit time, reduces congestion at main operating bases, and enhances the sustainment of forward



*Direct delivery to capable forward operating locations is routinely employed to shorten transit time and avoid unnecessary congestion at main operating bases.*

## ILLUSTRATION OF HUB AND SPOKE AND DIRECT DELIVERY

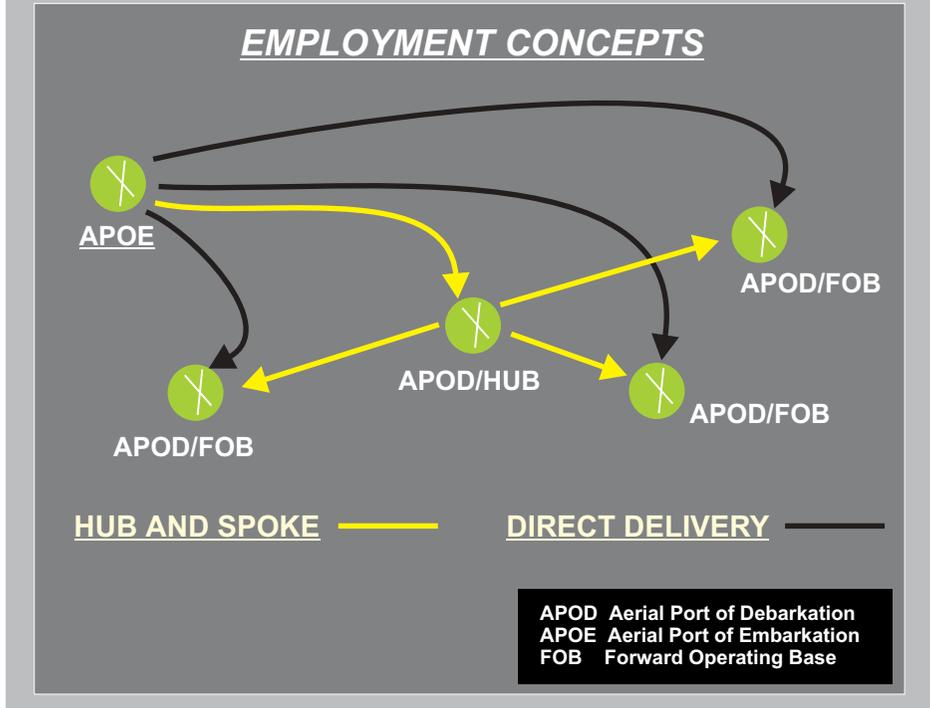


Figure IV-2. Illustration of Hub and Spoke and Direct Delivery

bases. One challenge for aircrews conducting direct delivery is obtaining up-to-date information during the lengthy flight.

- **Lily Pad Operations.** Aircraft ranges, crew requirements, and mission limitations may dictate the need for intermediate stops, which is referred to as “lily pad” operations (see Figure IV-3). The final leg into the AOR or JOA may terminate at the final destination or at a theater hub. These operations require en route support locations and may place a heavier burden on GAMSS.
- **Air Bridge.** Air bridge operations are defined as flights between CONUS and OCONUS terminals where the receiver

aircraft’s range is augmented by an in-flight refueling on designated AR tracks.

- f. When considering airland operations, the use of hub and spoke operations, direct delivery, lily pad, or air bridge (see Figure IV-4) operations must be weighed and scheduled judiciously.
- **Direct delivery is the best method when it has to be there overnight.** Direct delivery reduces transshipping procedures and shortens delivery time for small loads. Direct delivery is not, however, the best solution for large movements or when there are multiple FOBs that must be serviced. The larger aircraft (C-5/36 pallets, 747/45 pallets, DC-10/27 pallets, KC-10/24 pallets)

## ILLUSTRATION OF LILY PAD OPERATIONS



Figure IV-3. Illustration of Lily Pad Operations

## ILLUSTRATION OF AIR BRIDGE OPERATIONS



Figure IV-4. Illustration of Air Bridge Operations

possess up to two and one-half times as many pallet positions as midsize aircraft (C-17/18 pallets, C-141/13 pallets, C-130/6 pallets, DC-8/14 pallets, L-100/8 pallets) and must be scheduled in this manner. Most direct delivery operations will require an air bridge and air refueling support. While these operations are more complex, they can significantly reduce the GAMSS footprint by eliminating transshipping operations, reducing the number of diplomatic clearances required

and, in most cases, decreasing closure time. However, air bridge operations do rely on air refueling, which increases the number of aircraft required to accomplish the mission. Hub and spoke operations allow planners to maximize the capabilities of each aircraft type. Many of the CRAF partners who fly the contract airlift mission cannot (for insurance purposes) or will not fly into many of the FOBs. Hub and spoke operations allow a safe APOD for

loading operations. Hub and spoke operations also allow for the flexible dispersion (to include last minute changes in requirements) between the various FOBs.

- Upload and offload terminals may not be able to process personnel, cargo, or fuel quickly enough to maintain a smooth and uninterrupted flow. Delays and buildup of cargo at intermediate or theater offload terminals may result. Air refueling and airlift forces have finite maintenance and regeneration cycles, which may quickly be exceeded.
- GAMSS forces have limited indigenous resources and can only operate “bare-base” terminals for limited time periods.

g. For movement planning purposes, airlift aircraft load planning considerations are either administrative-loading or combat-loading.

- **Administrative-loading** gives primary consideration to using airlift assets most efficiently. Administrative-loading maximizes the use of the volumes and weight capacities of airlift aircraft and their ACL without regard to ground force tactical considerations. Routine air

movement is usually unopposed and uses secure airfields or well established landing zones; the majority of these missions involve the administrative loading of troops and equipment.

- **Combat-loading** arranges personnel and materiel to arrive at their intended destination in an order and condition so that they are ready for immediate use. Combat-loading maximizes the combat readiness of the organizations and equipment being moved and stresses effectiveness. Airlift forces can move combat-loaded units to maximize their readiness for immediate combat operations. Given the assumption of immediate combat, user requirements should dictate scheduling and load planning.

h. The following are considerations when selecting a landing zone.

- **The component commanders and the joint force engineer determine the most suitable LZ locations.** The selected sites must meet Air Force operational requirements, ground component requirements, and construction considerations.



*A loadmaster configures this load for maximum efficiency.*

*For specific guidance, refer to Engineering Technical Letter 85-5, C-130 and C-17, Contingency and Training Airfield Dimensional Criteria.*

- If an airfield is to be constructed, the supported component engineer, the JFC-designated representative, and the Air Force staff engineer must agree on its specific site. The supported component engineer controls the selected site until the designated airlift representative accepts use of the LZ.
  - **Aircraft may have to use LZ facilities before construction is completed.** In addition to emergency landing situations, delivery of additional construction equipment, emergency supplies, or reinforcing units may be necessary. The supported component construction engineer and the designated airlift representative should jointly agree to such use.
  - **When established construction requirements have been met** and the designated airlift representative accepts the LZ, **control of the LZ passes to the airlift mission commander.** The construction engineer assigns a minimal force to repair and maintain the critical landing surfaces, taxiway, and hardstands. The composition and size of the unit will depend on the threat situation, type and location of the LZ, availability of engineering forces, expected LZ use, and weather.
  - Although the senior planning headquarters assigns the general landing area, **subordinate units usually designate specific LZs.** Desirable characteristics of LZs are ease of identification from the air; suitable airfield capabilities; a straight, unobstructed, and secure approach for aircraft; and close proximity to ground objectives. Depending upon mission requirements, some LZs may be developed into more sophisticated facilities. Figure IV-5 shows some of the additional characteristics that might become important. This list is not all-inclusive, or all-exclusive. For a longer-term operation, additional security, civil engineering, public health, sanitation, and other requirements might need to be considered.
- For additional information, see JP 4-04, Joint Doctrine for Civil Engineering Support.*
- **LZs should be classified** according to the applicable aircraft and airfield criteria furnished by the construction engineer. **Essential airland facilities should be identified before the operation begins.** Minimum facilities are provided initially to permit early occupancy and for safe and efficient landing operations. Plans and orders should provide for later improvements to increase the efficiency of operations and safety factors of the facility.
  - **LZ dimensions vary** according to the types of aircraft involved. Factors considered include aircraft ground roll, temperature, field elevation, and nature and conditions of the landing surface. Expected maximum takeoff and landing gross weights, obstructions, and terrain on approach and departure should also be considered.
  - **Existing facilities**, such as roads and open areas, **should be used** to reduce the time and effort for new construction. Furthermore, **airland facilities should be dispersed** to avoid becoming lucrative targets. Host-nation support (HNS) agencies may be used to identify emergency or contingency runways.

## POTENTIAL LANDING ZONE CONSIDERATIONS

- Area of sufficient size to accommodate the number and type of aircraft to be landed
- Parking and dispersal area for optimal use
- A road net to handle ground vehicular traffic
- Minimum construction and maintenance needs
- Clearance and strength criteria met
- Areas and facilities for air terminal operations
- Facilities for holding patients awaiting evacuation
- Sufficient aerial port capacity to handle incoming personnel and supplies
- Personnel, facilities, and vehicles to support crash and rescue mission capabilities

Figure IV-5. Potential Landing Zone Considerations

### 6. Airdrop Delivery

In the various airdrop methods, airlifted personnel and materiel are disembarked or unloaded from aircraft still in flight.

a. Airdrop is often militarily advantageous, because it:

- permits sustainment deliveries to units operating away from airfields and LZs;
- permits the delivery of combat forces and materiel, concentrated and in mass, in minimum space and time (often with the element of surprise); and
- some airlift aircraft can accurately airdrop personnel and materiel in conditions of poor visibility that would otherwise preclude airland operations (e.g., using the adverse weather aerial delivery system).

b. In relation to airland delivery, airdrop delivery has several disadvantages.

- It carries an increased risk of injury to personnel or damage to cargo.
- It requires special training for the riggers, transported personnel, and the aircrews.
- It can limit ACL utilization substantially because of the special rigging required for airdropped materiel.
- It has surface wind limitations.
- If employed by a large formation, it represents an operational level risk. Detection and successful attack by the adversary could rob the theater campaign of two critical assets: the airlift force and the unit and/or materiel being carried. Accordingly, the decision to use the airdrop method is predicated on

determining if a user's requirements justify the risk to, and expenditure of, scarce and costly airdrop resources.

c. This section provides appropriate guidelines and considerations that may be useful in developing exercise and combat airdrop operations. This information describes the capabilities and minimum standards that airlift and airborne forces are trained to execute.

- **Responsibilities.** The airborne force commander and airlift mission commander should coordinate with each other throughout the aerial delivery planning and mission execution on matters such as the following.

- The suitability of flight routes and DZ size.

- DZ geographic relationship to the initial objective.

- Terrain conditions on the DZ that could cause an unacceptable number of injuries, excessive equipment damage or loss, or other deployment delays.

- Routes to the DZ, terrain obstructions, ease of zone identification, and adversary defenses.

- Earliest possible collaboration on intelligence matters, to include requirements for intelligence data and imagery products.

- Identification of mission-critical cargo and a "go or no-go" decision point.

- The airlift mission commander should also coordinate with the supported force commander before determining the tactics to employ. Many factors influence this decision, including the size of DZs, surrounding terrain features, tactical

scheme of maneuver, enemy air defenses, and en route and objective area weather.

- The JFC makes the decision to continue, cancel, or postpone the operation based on the recommendations of the supported commander and AFCC.

d. **C2 Channels. Clear C2 channels** should be established in the theater of operations. The airdrop system should be designed to be responsive in supporting requirements. Airdrop resupply is a joint action between the Air Force component and the component being supported. Supported components are responsible for providing required supplies, rigging them for airdrop, and delivering them to the departure airfield. The supported component is also responsible for loading the supplies onto the airdrop aircraft under supervision of Air Force personnel.

- Units requesting airdrop resupply have responsibilities to accomplish both before and after submission of airdrop requests. Before submitting requests, units should determine:

- Supplies and equipment needed;

- Location of drop zone; and

- Time and date airdrop is desired.

- After airdrop requests are submitted, units:

- Prepare and secure the drop zone;

- Control the drop zone in the absence of a USAF STT (DZST personnel may operate DZs under visual meteorological conditions and instrument meteorological conditions (peacetime training based upon equipment availability) for single-ship aircraft and formations up to and including three aircraft);

- Recover airdropped supplies and equipment; and
- Recover, retrograde, or destroy airdrop equipment.

e. **Equipment Airdrop Types.** Air Force and ground force personnel support the loading of equipment on the aircraft. The ground forces are responsible for providing airdropped supplies and equipment, rigging equipment, and ground vehicles used in recovering the items. Army divisions, separate brigades, regiments, MAGTFs, and SOF possess varying capabilities to support airdrop operations. Doctrinally, only airborne divisions and select SOF units have organic airdrop support capability. All others receive support from corps or theater Army area commands. There are three types of airdrops (see Figure IV-6).

- **Free Drop.** Free drop is an airdrop without a parachute or retarding device in which the load descends at a rate of 130 to 150 feet per second. Energy-dissipating material around the load lessens the shock when the load hits the ground. Items that may be free-dropped include fortification or barrier material, bales of clothing, and meals ready to eat.

- **High-Velocity Drop.** Parachutes (e.g., ring-slot cargo, cargo extraction, and pilot) are used to stabilize loads for high-velocity airdrop. The parachute has enough drag to hold the load upright during the descent at 70 to 90 feet per second. Items to be high-velocity airdropped are placed on energy-dissipating material and rigged in an airdrop container. Such items might include subsistence, fuel products, and ammunition.

- **Low-Velocity Drop.** Cargo and modified personnel parachutes are used for low-velocity airdrop. Items are rigged on an airdrop platform or in an airdrop container. Energy-dissipating material placed beneath the load lessens the shock when the load hits the ground. Cargo parachutes attached to the load reduce the rate of descent to no more than 30 feet per second. Fragile materiel, vehicles, personnel, and artillery may be low-velocity airdropped.

f. **Drop Zone Types.** There are several different types of DZs, tailored to specific operations and locations.

- **Tactical.** During exercises and operations, tactical DZs (DZs that have not been formally surveyed) are sometimes selected to support highly mobile ground forces. These DZs are evaluated and approved for use using tactical survey procedures. When using a tactical DZ, the airlift unit assumes responsibility for aircraft safety of flight while the receiving unit assumes responsibility for load condition. The DZ size should be determined by method of delivery, load dispersal statistics, discussion with the receiving unit, and professional judgment. Other considerations are recoverability of airdrop equipment and survivability or recoverability of the load. For example, small trees covering



Figure IV-6. Types of Equipment Airdrops

the entire DZ might limit the recovery of airdrop parachutes, but still allow complete recovery of the loads. Tactical DZs may be created within the boundaries of an existing surveyed DZ if needed to accomplish a particular mission. In this case, the tactical DZ need not use the existing dimensions or axis of approach as long as minimum DZ requirements are still met.

- **Area.** An area DZ, illustrated in Figure IV-7, consists of a start point (point A), an end point (point B), and a prearranged flight path (line of flight) over a series of acceptable drop sites between these points. The distance between points A and B generally should not exceed 15 nautical miles or 28 kilometers, and changes in ground elevation along the line of flight should not exceed 300 feet or 90 meters. The

distance of drop sites from the line of flight should not exceed 1/2 nautical mile or 1 kilometer. The STT and/or DZST is free to receive the drop at any location along the line of flight. The drop is made once the prebriefed DZ visual signal or electronic navigation aids (NAVAIDs) have been identified and located. DZ signals and NAVAIDs may be displayed or turned on during any portion of, or for all of, a 10-minute window. However, they should be displayed or turned on not less than 2 minutes prior to the scheduled arrival time of the aircraft over the start point of the DZ.

- **Circular.** A circular DZ, shown in Figure IV-8, has multiple run-in headings. Mission requirements and usable terrain govern its size. The radius of a circular DZ corresponds to the minimum required distance from the

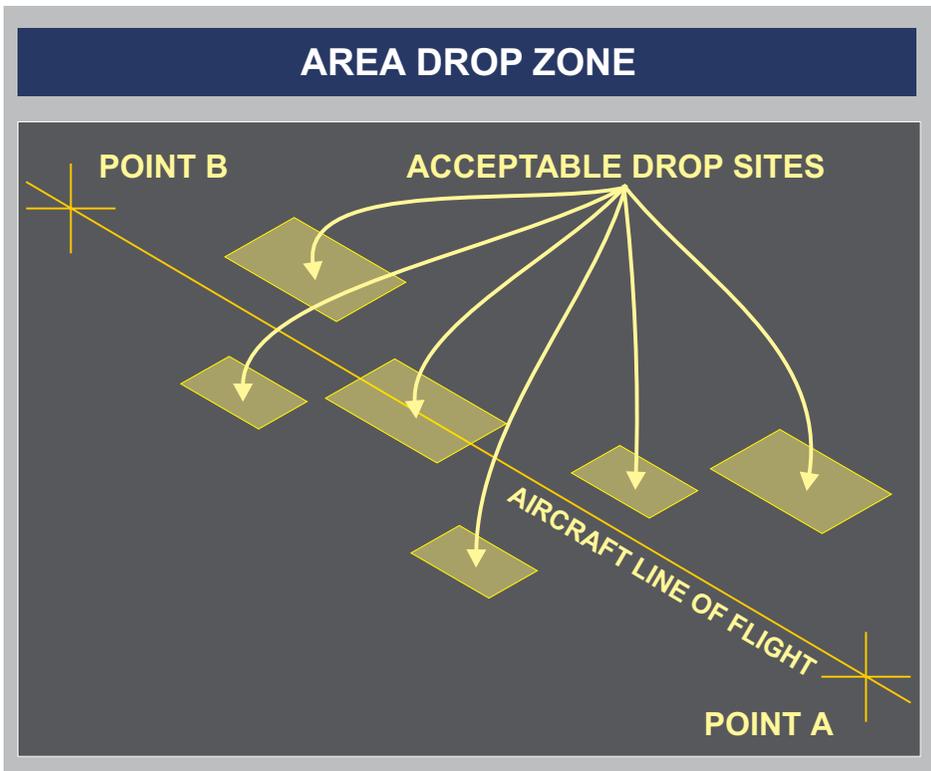


Figure IV-7. Area Drop Zone

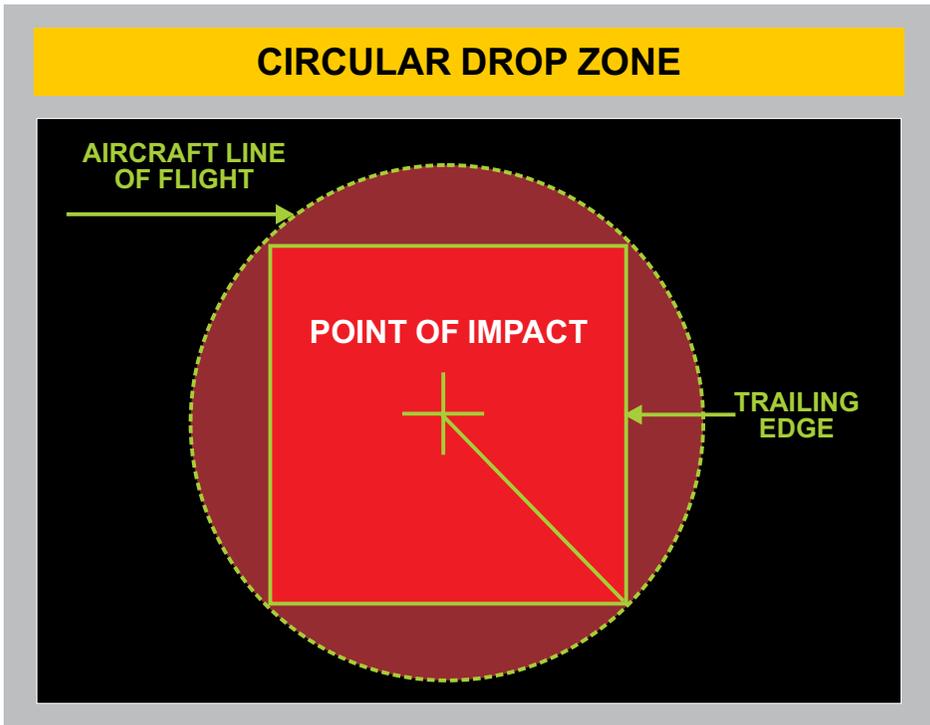


Figure IV-8. Circular Drop Zone

point of impact (PI) to one of the trailing edge corners of a rectangular DZ for the same type and number of loads being dropped. In other words, the entire DZ box fits inside the circle. Water DZs are normally circular in shape. The PI of a circular DZ is normally at the DZ center.

- **Random Approach.** **Random approach DZs are circular, square, or rectangular** and large enough to permit multiple run-in headings. **Any axis of approach may be used** as long as the resulting DZ meets minimum criteria for the load being airdropped. The PI is normally placed at the DZ center.

g. **Drop Zone Considerations.** A wide variety of factors determine the actual airdrops.

- **Drop Airspeeds.** Specific airdrop airspeeds for each type aircraft are published in appropriate Service manuals

or technical orders. Except in emergencies, aircraft should not deviate from these established airspeeds. Deceleration to prescribed drop airspeed and attainment of level flight altitude are required to provide a stable platform for the actual airdrop of personnel, supplies, or equipment.

- **Drop Zone Wind.** **DZ wind information is critical to airdrop accuracy** and aircrews must consider wind data from all available sources when determining the computed air release point. In addition to inflight wind data, aircrews are normally provided with DZ wind information from ground sources (such as STTs or DZSTs) which includes **surface winds** and the **computed mean effective winds**. Additionally, ground sources can relay indications of possible wind shears or local phenomena that could affect wind direction or speed and, ultimately, impact

upon airdrop or mission success. **Airdrop operations may not be feasible during conditions of strong or gusty surface winds.** The JFC, based on recommendations by the supported commander and the AFCC, may accept the high risk, cancel, or postpone the operation because of excessive wind velocity on the DZ.

- **Drop Altitudes.** The airborne force commander and airlift mission commander establish minimum altitudes for airdropping personnel and materiel. Minimum altitudes for airdrop operations are based on the operational requirements of the personnel and cargo airdrop systems used. In a high-risk, high-threat environment, survivability of airlift aircraft may require dropping parachutists and equipment at the lowest possible altitude. However, if the threat situation permits, aircraft performing normal low-altitude, low-velocity airdrop operations should drop above the minimum altitude to increase load survivability. Higher altitudes increase load time under canopy and allow more time for stabilization of parachute malfunctions.
- **Drop Zone Size and Selection.** The JFC determines the general area for the airborne operation. Factors influencing DZ selection are:
  - Physical characteristics of available DZs and surrounding areas;
  - Threat assessment;
  - Method of air delivery;
  - Number of airdrop loads or personnel; and
  - Length of the desirable dispersion pattern.
- **Subordinate ground commanders determine specific grid coordinates and grid reference** being used and pass these to the AFCC. During exercises and operations, DZ size and selection criteria are the joint responsibility of the AFCC and the supported commander. Following a survey of the DZ, **the AFCC determines the probability of success** of the airdrop and provides it to the ground commander. **The supported ground commander makes the final**



*Mass airdrop of forces requires large, unobstructed drop zone areas from which the forces can effect a rapid assembly and reorganization.*

**decision** to accept use of the DZ. For other than Air Force unilateral airdrops, the ground commander may waive normal minimum training DZ sizes on a “by exception” basis. For the most efficient use of the DZ, separate or multiple points of impact should be used for equipment and personnel. **If the DZ is too small for the delivery** of a full aircraft load of parachutists, the **number** of parachutists **may be reduced**, **multiple DZs may be used** for one aircraft load, or aircraft may employ **multiple run-in procedures**, commonly referred to as “racetracks.” Use of the latter tactic, however, increases risk of adversary action.

- **Drop Zone Run-in Heading.** On circular or random run-in DZs, the ground force commander must evaluate the risk of run-in headings to troops on the ground from load malfunctions. If a run-in heading would place a malfunctioning load in a troop concentration, consideration must be given to changing either the run-in heading or the troop concentration location.
- **Drop Zone Markings.** DZ markings should be consistent with the threat situation. **Clear markings facilitate successful visual acquisition and authentication of the DZ**, increasing the probability of success. DZs are normally marked with a raised angle marker, marker panels, omni-directional visible lighting systems, or electronic NAVAIDs. Virtually any type of overt or covert lighting or visual marking system is acceptable if all participating units are briefed and concur in its use. Other **day markings** or visual acquisition devices include, but are not limited to, colored smoke, mirrors, or any reflective or contrasting marker panel, such as a space blanket. In some cases geographical

points may be used. **Night markings** or acquisition aids may include a light gun, flares, fire or fire pots, railroad fuses, flashlights, and chemical lights. STTs or drop zone controllers (DZCs) may also use specialized clandestine infrared lighting systems. **Electronic markings** may be used for either day or night operations. A verbal initiated release system may be used with **no markings**. In some situations, specially trained intratheater and intertheater airlift crews may be called upon to conduct airdrop operations on an unmarked, blind DZ.

- **Marking Considerations**

- **The DZ markings should be clearly visible to the aircrew** as early on the approach as possible. If conditions preclude placing the markings at the designated point, the DZC may have to adjust the location of the intended PI. However, the DZC should maintain adequate DZ clearance and, if possible, advise the aircrew of the change in PI location.

- As a security precaution, **night DZ markings should be visible only from the direction of the aircraft’s approach**. If lights are used, they may be equipped with simple hoods or shields and aimed toward the approaching aircraft. Fires or improvised flares should be screened on three sides or placed in pits with the sides sloping toward the direction of approach. Regardless of the technique used, the markings must be clearly distinguishable from other lights (e.g., brush fires) or markings in the vicinity of the DZ.

- During daylight airdrops, **the marker panels should be slanted** to increase the aircrew’s ability to see them. If security permits, smoke (other than red) may be displayed at the release point or

downwind corner of the marker panels to assist in aircrew DZ acquisition.

- **No-drop Signals.** The presence of **red smoke, red flares, a red beam** from a light gun, or any other precoordinated signal on the DZ **indicates a “no-drop” condition.** Communications security permitting, these visual signals may be confirmed by radio communication to the aircraft.
- **Visual Clearance.** Unless radio communications are specifically required, **any precoordinated marking displayed on the DZ,** other than red smoke, flares, or lights, **indicates clearance to drop.**

h. **Drop Zone Surveys.** In general, there are two types of DZ surveys or assessments: complete and tactical. Qualified Air Force personnel should do safety-of-flight reviews on all surveys. The proposed use for the DZ normally determines which type of survey is required.

- **Complete Survey.** **The complete survey is usually done well in advance of any planned use.** It provides a thorough chart analysis of the objective area to include ingress and egress routes. Complete survey includes inspection of the DZ by the ground party (STT, using unit, or other qualified personnel).
- **Tactical Survey.** **Tactical surveys are primarily used during exercises or operations.** Tactical surveys are normally restricted to resupply or single-ship airdrops. Although abbreviated, these surveys still include an inspection of the DZ by the STT and TALO (or DZST if a qualified STT or TALO is not available). They also include a chart analysis of the proposed route of flight to ensure safety-of-flight for the aircraft.

- **Safety-of-Flight Review.** The safety-of-flight review will be performed on all drop zone surveys. It is a thorough chart analysis of the objective area, to include the approach and escape corridors. This review is conducted at the lowest appropriate level possible. The primary consideration for the airlift mission commander is aircraft safety. Requesting units are responsible for determining if the DZ ground conditions are suitable for their use. STTs may use any safety-of-flight-surveyed DZ.

- **Drop Zone Survey Approval.** Units should forward completed survey packages to the appropriate wing or special operations group tactics function for review and analysis. **Tactics function personnel should perform the required chart analysis** and, when satisfied, forward the survey as per Service and theater directives.

i. **Drop Zone Command and Control.** **The Air Force DZC** represents the appropriate commander as provided in the mission directive. The DZC observes and evaluates all factors that may adversely affect the safety of the operation and ensures transmission of weather information when required. The DZC is normally a USAF special tactics (ST) CCT. ST controllers are authorized to control all airdrops for any US or allied military force. Qualified TALOs may perform DZC duties during joint and unilateral airdrops. Figure IV-9 provides a matrix for tasking STT capabilities.

j. **Supported Service Drop Zone Safety Officer (DZSO) and DZST Functions.** During training operations, the airdropped force furnishes a DZSO. During operations when the STT is not present, the supported Service provides a DZST. DZST-controlled missions must have a qualified drop zone support team leader (DZSTL) in charge of DZ

<b>SPECIAL TACTICS TEAM USER TASK MATRIX</b>			
	<b>STT</b>	<b>ARMY</b>	<b>MARINE</b>
<b>WARTIME</b>			
CORPS			
FORCE PROTECTION			
Personnel	P	S	S
Equipment	P	S	S
<b>SUSTAINMENT</b>			
CONTAINER DELIVERY SYSTEM			
Army Brigade and above	P	S	N/A
Army Battalion and below	S	P	N/A
Marine Corps forces	S	N/A	P
EQUIPMENT	P	S	S
<b>PEACETIME</b>			
Single-ship and formations up to and including 3 aircraft (VMC)	S	P	P
Single-ship and formations up to and including 3 aircraft (IMC)	S	P	P
Formations of 4 or more aircraft not on a military reservation	P	N/A	N/A
Formations of 4 or more aircraft on a military reservation	P	S	S
P = Primary responsibility: Obligates a designated agency to perform a specific task or mission. The authority to perform the task or mission may be granted to agencies holding secondary responsibilities for that task. S = Secondary responsibility: Obligates a designated agency to develop and maintain the capability to perform a specific task or mission. The agency may perform the task or mission when authorized by the agency with the primary responsibility.			

**Figure IV-9. Special Tactics Team User Task Matrix**

operations. DZSTLs are qualified and operate IAW Memorandum of Agreement (MOA) *Airdrop Operations Without Air Force Special Operations Command Special Tactics Team Personnel* and unit standard operating procedures implementing this MOA.

**k. Drop Zone Sequencing and Separation of Personnel and Equipment.**

Separation times between personnel and equipment and the sequence of the drop are important considerations in an airdrop mission. Terrain and threat assessment dictate whether the personnel or equipment are airdropped first. Combination drops occur when parachutists exit from the cargo ramp immediately after the release of equipment.

Equipment and personnel can also be dropped from separate aircraft on the same DZ simultaneously if equipment loads are sufficiently separated to provide adequate clearance for personnel. However, such a COA requires the concurrence of the supported force and airlift mission commanders.

**7. Airlift Response Times**

a. Airlift response time is the total time required to fulfill a tasked transportation requirement and is dependent on numerous interrelated factors.

- Mission priority.

- 
- Availability of cargo for loading.
  - Availability and suitability of airfields, LZs, or DZs.
  - Availability and suitability of personnel to operate the airfields, LZs, or DZs.
  - The nature of the expected threat throughout the mission.
  - Airspace limitations.
  - Mission planning and force packaging (such as suppression of enemy air defenses [SEAD], fighter escort) requirements based on the threat.
  - Availability of aircraft, aircrews, loading crews, and MHE.
  - Weather conditions.
  - Availability of mission support teams.
  - Time to coordinate diplomatic clearances and radio frequency authorizations.
  - Access to timely, accurate, and relevant information to coordinate airlift operations.
  - Accurate review and validation of the TPFDD.
- b. Actions that may decrease response time include the following.
- Conducting advanced mission planning.
  - Reserving airspace.
  - Preparing and coordinating force packages.
  - Surveying airfields, LZs, or DZs for possible use.
  - Briefing aircrews on mission details and pertinent intelligence information.
  - Coordinating and receiving space-based information.
  - Augmenting the supported commander's battle staff with USTRANSCOM and USSOCOM liaisons to expedite planning and coordination.
  - Coordinating the mission with the appropriate ground support elements.
  - Placing crews, aircraft, and other elements on alert status.
  - Rigging loads and positioning them at an onload site.
  - Dedicating airlift resources to support a specific operation.
  - Air refueling.

## 8. Command, Control, Communications, Computer, and Intelligence Interfaces Within and Among the Service Components

a. Timely exchange of information within, between, and among the Service components is critical to airlift operations. **This includes the following.**

- Geospatial information (formerly mapping, charting, and geodesy) and imagery requirements.
- Airspace coordination and management requirements.
- Restrictions imposed at airfield.
- TALCE, STT, TALO, and ground force assault team requirements.

- Unique requirements such as security and command, control, and communications for nuclear weapons.
- Communications assets.
- Cargo, hazardous materials, passengers, and patient requirements.

b. **The ground force commander establishes priority and sequence** of airlifting personnel, equipment, and supplies based on the planned tactical employment of these forces. The airlift mission commander selects the air tactics and designs the flow of air movement to comply with the delivery requirement.

c. **The airlift mission commander establishes control through the STT** of all air traffic movement (traffic pattern, landing, taxi, parking, and takeoff) at Air Force operated LZs, and also is responsible for movement control of ground vehicles at these locations and space allocation for operations and living areas.

d. **The airlift mission and airland force commanders prepare plans to deal with disabled aircraft on the LZ.** The ground commander provides assistance in moving disabled aircraft that interfere with landing operations.

*For more specific detail on airdrop procedures refer to Air Force Instruction 13-217, Assault Zone Procedures.*

## VIETNAM: AIRLIFT'S COMING OF AGE

Moving entire units across global distances, thereby impacting strategic force projection capability, is a fundamental concept of strategic airlift. It was during the Vietnam conflict that such concepts were proven feasible and operational. Following are three examples of major airlift operations during 1965-1968 that were key events in the history of the nation's airlift forces.

### BLUE LIGHT

Operation BLUE LIGHT carried 2,952 troops and 4,749 tons of equipment of the 3rd Infantry Brigade, 25th Infantry Division, from Hickam Air Force Base, Hawaii, directly to Pleiku Air Base (AB), Vietnam, between 23 December 1965 and 23 January 1966. A mix of 88 C-141s, 126 C-133s, and 11 C-124s flew 231 missions and finished the deployment 8 days early. It was the most massive airlift of US troops and equipment to date into a combat zone.

### EAGLE THRUST

By November of 1967 the strategic airlift system had matured sufficiently for a movement twice the size of BLUE LIGHT to succeed. In EAGLE THRUST, airlifters moved 10,024 troops and 5,357 tons of equipment of the 101st Airborne Division direct from Fort Campbell, Kentucky, to Bien Hoa AB, Vietnam. The 391 airlift missions, moving in eight increments between 17 November until 18 December 1967, completed the move 53 hours ahead of schedule.

### COMBAT FOX

Although in the midst of great expansion in support of US operations in Southeast Asia in general, and the Tet offensive in particular, airlifters engaged in yet another "largest single strategic airlift in history" in 1968. Following the seizure of the USS *Pueblo* by the North Koreans, C-124s, C-130s, C-133s, and C-141s flew more than 800 missions to Korea from the United States, Southeast Asia, and Japan in support of tactical air forces. Five Air Force Reserve airlift units were called to active duty primarily to backfill regular channel airlift requirements. Between 29 January and 17 February 1,036 airlift missions moved 13,683 tons of cargo and 7,996 troops in support of this operation. The COMBAT FOX airlift more than doubled EAGLE THRUST, while maintaining the logistic airlift into Southeast Asia.

SOURCE: Charles E. Miller, *Airlift Doctrine*  
Air University Press, 1988

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## CHAPTER V

### AIR REFUELING

*"I had to fly nine sorties on the day the St Mihiel offensive started . . . We all wished we could refuel somehow without having to return to our bases just when the action got interesting."*

**Lt John Richter, US Army Air Service Pilot in WWI**

#### 1. General

**Air refueling, the refueling of an aircraft in flight by another aircraft**, supports the national military strategy across the range of military operations including the Single Integrated Operational Plan (SIOP). Air refueling allows air assets to rapidly reach any trouble spot around the world with less dependence on forward staging bases. Furthermore, air refueling significantly expands the force options available to a commander by increasing the range, payload, loiter time, and flexibility of other aircraft. Changes in emphasis from the SIOP mission to conventional employment and global mobility are examples of this evolution.

**Because air refueling increases the range of other aircraft, many types of aircraft may be based at locations well outside the range of an adversary threat.** Air refueling allows some aircraft to participate in contingency operations without having to

forward-deploy. CONUS-based operations reduce the theater logistics requirements, thereby simplifying sustainment efforts. Positioning forces outside the adversary's reach permits a greater portion of combat assets to concentrate on offensive rather than defensive action. As a result of the reduced need to forward-deploy forces, air refueling reduces force protection requirements as well.

**Although other Services and nations maintain some organic air refueling capability, the Air Force possesses the overwhelming preponderance of common-user air refueling assets.** With boom and drogue capability, these assets are capable of refueling most Air Force, Navy, and Marine Corps aircraft, and can accommodate most foreign aircraft.

**Additionally, all USAF tanker aircraft are capable of performing an airlift role and are used to augment core airlift assets.** Under the dual role concept, air refueling



*Tanker aircraft operating under the dual role concept can transport passengers and cargo while performing air refueling.*

aircraft can transport a combination of passengers and cargo while performing air refueling. In some circumstances, it may be more efficient to employ air refueling aircraft strictly in an airlift role. Deploying air refueling units may be tasked to use their organic capacity to transport unit personnel and support equipment or passengers and cargo from other units. Air refueling aircraft may also be used to support USTRANSCOM airlift requirements such as routine channel operations or SAAMs.

**a. Force Enabler — Force Multiplier.**

Air refueling acts as a force enabler, permitting aircraft to operate beyond their unrefueled ranges. It also acts as a force multiplier by permitting larger payloads and added endurance, **significantly increasing the combat potential of the receiver aircraft.**

**b. Force Extension.** Force extension is the air refueling of one tanker by another. The most efficient means to provide deployment support, given a limited number of tanker aircraft, is force extension. Force extension enhances the ability of tankers performing dual role missions and reduces the number of tankers necessary for deployment support. Whenever possible, force extension missions should be planned along air bridge routes to

use tankers supporting air bridge movements. This capability can be used whenever the fuel requirements of the escorting tanker and its receivers exceed the tanker's takeoff fuel capacity. Force extension is often used when air refueling aircraft supporting aircraft deployments are carrying cargo as well as refueling other aircraft (dual role). Since takeoff fuel is limited by the amount of payload carried, air refueling aircraft operating in a dual role may require force extension. All KC-10 aircraft and a small number of KC-135 aircraft are configured to receive air refueling.

**c. Components of the Air Refueling Force. The majority of the Air Force's air refueling assets are assigned to Air Force Reserve and Air National Guard units.**

- **Active Duty Forces.** Similar to airlift forces, Commander, USTRANSCOM has COCOM of most CONUS-based active duty air refueling forces and delegates OPCON to AMC (except a small number of KC-135s assigned to USJFCOM and under the OPCON of Air Combat Command). Similarly, theater-assigned air refueling forces come under COCOM of their geographic combatant commander (e.g., Commander,



*Force extension is often used for transoceanic fighter movements.*

USEUCOM or Commander, US Pacific Command) and under OPCON of the theater AFCC (e.g., United States Air Forces, Europe (USAFE) or Pacific Air Forces (PACAF)). These forces perform core and specialized air refueling missions and are readily available for tasking and deployment. In addition to the Air Force, the Navy and Marine Corps possess some organic air refueling resources, which may also augment joint air refueling operations.

- Air Force Reserve and Air National Guard Forces. During crises, volunteers or activated AFRC and/or ANG units augment the active duty air refueling force, providing substantial increases in air refueling capacity. AFRC and ANG personnel are experienced operators and train to the same standards as the active duty air refueling force. Peacetime access to AFRC and ANG forces is provided through a system of volunteerism. Major contingencies, however, normally require activation of AFRC and/or ANG units.

## 2. Air Refueling Operations

Air refueling's contribution to air power is based on the force enabling and force multiplying effects of increased range, payload, and endurance provided to refueled aircraft. **Air refueling forces conduct both intertheater and intratheater air refueling operations.**

a. **Intertheater Air Refueling.** Intertheater air refueling supports the long-range movement of combat and combat support aircraft between the CONUS and a theater, between theaters, or between theaters and JOAs. Intertheater air refueling operations also support global attack missions and airlift assets in an air bridge. Air refueling enables deploying aircraft to fly non-stop to their destination, reducing closure time.

b. **Intratheater Air Refueling.** Intratheater air refueling supports operations within a combatant commander's AOR by extending the range, payload, and endurance of combat and combat support assets. Both theater-assigned and Commander, USTRANSCOM-



*During DESERT STORM, 60 percent of all attack sorties required air refueling. AR missions refueled over 1,400 aircraft per day.*

assigned air refueling aircraft can perform these operations. When Commander, USTRANSCOM-assigned air refueling forces participate in these operations, they are typically attached to the geographic combatant commander who exercises OPCON over these forces through the COMAFFOR and/or JFACC. Although the primary purpose is to refuel combat air forces operating within the theater, consideration should be given to the best utilization of the tanker fleet to meet the President's and Secretary of Defense's objectives.

### c. **Anchor Areas and Air Refueling**

**Tracks.** Air refueling is normally conducted in one of two ways: in an anchor area or along an air refueling track. While air refueling is normally conducted in friendly airspace, missions may require operations over hostile territory and in contested airspace. Anchor areas and tracks may place tankers in an extremely vulnerable position and should be limited to friendly airspace when possible. AR missions over hostile territory should be conducted only after careful risk considerations and when at least regional air superiority is achieved.

- In **anchor areas**, the tanker flies a racetrack pattern within defined airspace while waiting for receiver aircraft to arrive. Once joined with the receiver, the tanker then flies in an expanded racetrack pattern while refueling the receiver. **Anchor air refueling is normally used for intratheater operations where airspace is confined or where receivers operate in a central location.** Anchor areas are best suited for small, highly maneuverable aircraft, especially in marginal weather conditions.
- An AR track is a series of points located anywhere throughout the world. To maximize effectiveness, AR tracks will normally be placed along the receiver's route of flight. Air refueling along an

AR track is the preferred method for intertheater operations. The tanker rendezvous can be accomplished in two ways.

- **Point Parallel Rendezvous.** The tanker can orbit at a designated point along the track awaiting the receiver's arrival.

- **En Route Rendezvous.** The tanker and receiver can plan to arrive simultaneously at a designated rendezvous point.

- In certain circumstances, it may be advantageous to combine the anchor and track methods on a single mission. This can be especially useful when multiple strike packages refuel with multiple tanker formations.

d. **Tanker Formation Refueling.** Many missions require tankers to refuel their receivers while in a multiple-ship formation. Mission requirements may dictate several different types of tankers (boom and/or drogue equipped) and multiple receiver types (from a variety of nations) in the same formation. Formation refueling is one of the most demanding operations due to the number of aircraft in a confined block of airspace and because receiver aircraft may be constantly joining and leaving the formation.

e. **Joint and Multinational Operations.** Joint and multinational operations require teamwork, unity of effort, and principles that are fundamental to air refueling. When working with other Services and nations, there is a potential for differences in capabilities, procedures, and terminology, which may cause misunderstandings and confusion. Such operations therefore require a standard set of tactics, terminology, and procedures.

- For example, Allied Tactical Publication 56 (A), *Air to Air Refueling*, was

published to standardize operating procedures and enhance interoperability among North Atlantic Treaty Organization member nations possessing air refueling assets. While the detailed procedures will depend on aircraft type, mode of employment, and national requirements, many allies should be able to achieve sufficient commonality so that a combined set of procedures can be developed. Commanders of a multinational force should agree as soon as possible on a common set of doctrine, tactics, and procedures for particular operations.

- In addition, airspace may be a primary limitation to air refueling operations. Standardizing multinational cell formation procedures allows a variety of air refueling assets to operate in compressed airspace. This is particularly important when large numbers of tankers may be refueling multiple receivers or formations of receivers. To generate the maximum combat airpower in multinational operations, all military capabilities must be integrated to the fullest extent. Multinational exercises are a key component to common doctrine and interoperability. These exercises should be used as often as feasible to foster a common understanding. The doctrine and procedures established by the multinational commander will provide additional flexibility, deployability, and sustainability in multinational air operations.

### 3. Air Refueling Missions

**There are six basic missions of air refueling.** These missions (see Figure V-1) represent the broad, fundamental, and continuing activities of the air refueling system. Air refueling forces perform these missions in support of strategic, operational, and tactical level objectives across the range of military operations.



Figure V-1. Six Basic Air Refueling Missions

a. **Single Integrated Operational Plan Support.** Support of the SIOP was the driving force in the Air Force's initial procurement of air refueling aircraft and remained the primary mission of the Air Force tanker fleet throughout the Cold War. SIOP is a critical operational requirement, and air refueling assets are incorporated into the SIOP to support the bomber leg of the nuclear triad. Air refueling provides the nuclear-equipped bomber force with the ability to deliver its payload to any location in the world and recover to a suitable reconstitution base. Through air refueling, the range and endurance of bomber aircraft are significantly increased, further enhancing their flexibility to strike at distant targets. Bombers may be launched during periods of increased tension and proceed to orbit areas well beyond the range of adversary missiles or attack aircraft. The bombers can maintain this orbital status until they are directed to fulfill their mission or are recalled. In the same manner, **the nearly unlimited flight endurance provided**



*Air refueling missions represent the broad, fundamental, and continuing activities of the air refueling system.*

**by tanker assets is an indispensable component of the US strategic airborne command post concept.** It provides the President and Secretary of Defense the ability to continue to direct military action from an airborne platform — regardless of the situation.

**b. Global Attack Support.** Air refueling assets can be employed to give strike platforms the ability to reach any target globally without relying on intermediate basing locations. This provides the ability to rapidly strike targets in distant locations and recover to safe areas. The ability to perform long-range strike missions from CONUS is particularly crucial.

**c. Air Bridge Support.** **An air bridge creates an ALOC linking CONUS and a theater, or any two theaters. Air refueling makes possible accelerated air bridge operations since en route refueling stops are reduced or eliminated.** It reduces reliance on forward staging bases, minimizes potential en route maintenance delays, and enables airlift assets to maximize their payloads. This significantly increases the efficiency of airlift operations by making possible the direct delivery of personnel and materiel.

**Commanders must follow the economy of force principle when planning air refueling support for air bridge operations.** Air refueling missions should be designed to maximize the efficiency of tanker aircraft supporting the air bridge. Failure to do so will result in fewer air refueling assets being available to support other missions.

**d. Deployment Support.** **Air refueling assets can extend the range of deploying combat and combat support aircraft, allowing them to fly non-stop to an AOR or JOA. This capability increases the deterrent effect of CONUS-based forces and allows a rapid response to regional crises.** The capability of air assets to fly nonstop to a theater may eliminate the need to obtain landing or overflight rights from foreign countries that may want to remain neutral in a given conflict. Successful execution of the Air Force's aerospace expeditionary force concept, for example, is heavily dependent on the capabilities rendered through deployment support. Peacetime deployments of forces in support of rotations, exercises, or aircraft movements for logistic purposes are called CORONETS. CORONETS normally have long lead times for planning, tasking, and execution. Planners

## OPERATION DESERT STRIKE

During August 1996, Iraqi forces violated United Nations resolutions by entering northern Iraq to intervene in a civil war among Kurdish factions. The United States retaliated with an attack on Iraqi air defenses. Operating in conjunction with the US Navy, the Air Force portion of the strike was conducted by two B-52s which flew a 15-hour, non-stop pre-positioning leg to Andersen Air Base (AB), Guam. In addition, a C-5 aircraft airlifted 100 maintenance and mission support personnel from CONUS to Andersen AB. From Guam, the bombers flew to the Persian Gulf region, released 13 conventional air-launched cruise missiles (CALCM) and returned to Guam on a grueling 34-hour, 14,000-mile mission. Both legs of the bomber mission were dependent on air refueling provided by active duty, Air National Guard, and Air Force Reserve KC-10s and KC-135s. Overall, 14 tankers supplied close to a million pounds of fuel for the pre-positioning leg to Andersen AB, while 17 tankers deployed to Guam offloaded nearly 1.5 million pounds of fuel for the air strike.

Operation DESERT STRIKE demonstrated the synergy that results when global attack assets are properly coupled with air refueling forces. Striking at targets situated halfway around the world, air refueling allowed the B-52s to accomplish this operation with maximum flexibility in minimum time. Without overflight clearances, mission planners had to rely on the flexibility offered by air refueling to accommodate for the increased flight distances to CALCM release points in Southwest Asia. In addition, time requirements were greatly compressed. The deployment order arrived on 31 August, at which point tankers began moving into position. The attack was launched on 2 September and was completed by the next day. Air refueling is a tremendous force enabler and clearly played a significant role in the success of Operation DESERT STRIKE.

## VARIOUS SOURCES

should use this opportunity to maximize the efficiency of deployment support tankers.

e. **Theater Support to Combat Air Forces.** Intratheater air refueling enables fighter aircraft to increase their range, endurance, and flexibility. During a combat operation, the highest priority for intratheater air refueling forces is normally supporting combat and combat support aircraft executing air operations. This is especially true during the initial phases of a conflict. Theater-based air refueling assets bolster the security of combat and combat support air assets by allowing them to be based beyond the range of adversary threats. Air refueling increases the endurance of air combat support assets. E-3B (AWACS), E-8C (joint surveillance,

target attack radar system); and C-130 (ABCCC) are among the many crucial airborne platforms used to help manage, direct, and conduct combat operations. Without in-flight refueling, they have limited endurance and require extensive regeneration periods between sorties. Extending endurance reduces the number of sorties required, decreases ground support requirements at forward locations, and may reduce the number of aircraft deployed to an AOR.

- **Air refueling allows combat aircraft to carry a larger payload on initial takeoff** by decreasing the amount of fuel carried in its tanks. Fuel necessary for mission range requirements is unloaded after takeoff on either pre-strike or post-



*Air refueling assets can extend the range of deploying combat and combat support aircraft, allowing them to fly non-stop to an AOR or JOA.*

strike refuelings. The ability to increase an aircraft's weapons load multiplies the combat force and combat efficiency of that aircraft.

- Operation DESERT STORM and recent operations including Operation ALLIED FORCE have highlighted the importance of airspace required for air refueling, especially during combat support missions. A lack of AR airspace can limit the amount of combat and combat

support sorties the JFACC is able to schedule and execute.

- Tankers allocated for theater support may be called upon to provide air refueling support to air bridge operations. The DIRMOBFOR must judge the capabilities of, and requirements for, tankers assigned or attached to the theater to determine their ability to provide air bridge support. When air bridge support operations will adversely impact theater



*The limited range of fighter aircraft demands air refueling support for non-stop deployments.*

support operations, the JFACC must consider the JFC's overall campaign objectives (such as defeating an adversary force or compelling an adversary to surrender), not just operational objectives (such as air superiority or shutting down the adversary's C2 system) when deciding how to allocate tanker missions.

f. **Special Operations Support.** Air refueling enables SOF to maintain a long-range operating capability. The Air Force maintains air refueling crews who are trained to air refuel fixed- and rotary-wing special operations aircraft. Successful mission completion requires special equipment, specialized crew training, and modified operational procedures.

#### 4. Other Associated Air Refueling Missions

Additional taskings for air refueling aircraft include: emergency air refueling; airlift; AE; and combat search and rescue (CSAR).

a. **Emergency Air Refueling.** Some air refueling aircraft may be kept on ground or airborne alert to provide short-notice support

for airborne fuel emergencies. Fuel emergencies can result from missed refuelings, en route winds greater than planned, battle damage, or excessive time engaged with adversary aircraft or targets. While dedicated ground alert aircraft normally meet emergency air refueling requirements, excess fuel capacity of airborne tankers can provide at least a partial emergency air refueling capability. Putting more fuel in a tanker than is required to complete the mission, known as "tankering fuel," gives that aircraft an automatic, though limited, emergency refueling capability.

- **Intertheater Operations.** Whenever possible, intertheater missions should be planned either over, or in close proximity to, existing air bridge routes. This allows tankers positioned for air bridge support to also provide emergency air refueling support. When intertheater missions cannot be planned along air bridge routes and the mission is deemed important enough to provide emergency air refueling support, planners should use a combination of ground and airborne spare aircraft. Ground spare aircraft are maintained in various stages of readiness depending on mission requirements.



*The dynamic environment and quick tempo of intratheater operations require a greater need for emergency air refueling support.*



*Special operations aircraft often need support from air refueling assets to satisfy their requirements.*

Airborne spare aircraft consist of one or more tankers that accompany the air refueling formation, but do not participate in any air refuelings unless required to do so. No matter which option is used, the concepts must be adequately delineated in mission directives so that tankers, receivers, and participating C2 elements are thoroughly familiar with the procedures to be used in a fuel emergency.

- **Intratheater Operations.** The dynamic environment and quick tempo of intratheater operations provide a greater need for emergency air refueling support. The shorter distances involved and the larger number of available assets makes providing emergency air refueling support much easier to accomplish. The preferred method of providing emergency support is through a combination of ground and airborne aircraft.
  - Ground alert aircraft and crews primarily provide units with the capability to meet mission requirements when fuel emergencies occur due to battle

damage or excessive time engaged with adversary aircraft or targets. The best tanker aircraft for ground alert duties are those capable of quick response times, high cruise speeds, and a takeoff fuel load large enough to accommodate all offloads. Ideally, ground spare aircraft should be capable of refueling via probe-and-drogue and boom type refueling on the same mission. Otherwise, units must maintain separate aircraft on ground alert, configured for each type of refueling. Ground alert tankers and crews can be dedicated solely to that function.

- Because of airspace limitations in an AOR or JOA, the best means of providing an emergency air refueling capability is through a “reliability orbit.” Reliability orbits are normal air refueling anchor areas that have dedicated altitudes and procedures for both tankers and receivers involved in emergency air refueling. Depending on the size of the operational area and the number of aircraft involved, planners may need to dedicate airspace for several reliability orbits. In addition, when tankers have excess fuel at the end of their scheduled

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mission, they can offload it to the reliability tanker rather than jettisoning the fuel.

b. **Airlift.** Refueling platforms act as augmentation to the airlift fleet. This capability is most important during the deployment phase when airlift requirements are highest and requirements for theater support refuelings are the lowest. During contingencies, commanders should continually evaluate tanker allocations to airlift missions, weighing the loss of assets from traditional tanker missions against the benefits gained by a larger, augmented airlift fleet. This evaluation must consider the objectives of the entire joint campaign and not just those of the Air Force component.

- Another key application of tanker aircraft in an airlift role occurs during tanker unit movements. Tanker units deploying to a theater or en route location will typically airlift their own support requirements under the integral tanker unit deployment concept. This allows tanker units to have key supplies and personnel on hand as soon as they arrive at their deployed location, and it relieves the air transportation system of at least a portion of their requirements.
- **Dual-Role Tanker.** Tankers perform the dual role function when they accomplish airlift and air refueling on the same mission. A dual-role mission may be as simple as carrying opportune cargo or passengers on a routine intertheater air refueling mission, or it may be as complex as a fighter unit move. Dual-role operations maximize the full capabilities of tanker aircraft. Tankers forward position to a deploying unit's location to upload cargo, personnel, and equipment needed to ensure that the

ferried unit can begin immediate operations once at its destination. Once airborne, tankers escort deploying fighters to their final destination, refueling them along the way. Upon arrival, the tankers download their cargo and passengers who may immediately reconstitute and launch the deployed fighters. This allows arriving aircraft to be ready for follow-on missions quickly, simplifying required coordination for airlift support of deployments and reducing the number of dedicated airlift aircraft required to support an operation.

c. **Aeromedical Evacuation.** Tanker aircraft can be used for emergency AE, but are not normally used for routine AE due to the special aircraft systems and/or modifications required to accommodate medical equipment.

d. **Combat Search and Rescue.** Tanker aircraft provide a limited capability to assist CSAR operations as a communications and coordination link between airborne and ground-based elements. This capability derives from the tanker's long endurance characteristics and organic communications equipment. In the case of a downed fighter, the wingman will attempt to remain on scene to ascertain the downed crewmen's status and provide protection until CSAR forces arrive. During this process, the tanker will normally remain at altitude, relaying information where communications connectivity is easiest, and will refuel on scene forces as required. During Operation ALLIED FORCE, KC-135s were diverted to the scene of a downed airman. Once on the scene tankers refueled two A-10 aircraft that were providing close air support for the rescue effort, AWACS aircraft providing C2 for the operation, and CSAR aircraft effecting the rescue.

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## CHAPTER VI AIR MOBILITY SUPPORT

*“Air power is not made up of airplanes alone. Air power is a composite of airplanes, air crews, maintenance crews, air bases, air supply, and sufficient replacements in both planes and crews to maintain a constant fighting strength . . .”*

**General Hap Arnold**

### 1. General

Airlift and air refueling forces rely on a robust global air mobility support system when conducting air mobility operations. Successful employment of the MAF is contingent upon establishing and maintaining a GAMSS that enables the deployment, employment, sustainment, and redeployment of forces throughout the range of military operations.

a. **Global Air Mobility Support System.** The GAMSS provides responsive, worldwide support to airlift and air refueling operations. This system consists of an existing but limited set of permanent CONUS and en route locations. Deployable forces capable of augmenting the fixed en route locations or establishing en route

locations where none exist are also an integral part of this system. **These deployable forces are stationed both in CONUS and at select overseas bases.**

- The GAMSS is flexible, expanding or contracting according to the requirements for operations support. It permits continuous, global C2 over the MAF, providing commanders with real-time information on the status of missions and assets as well as the location and disposition of transported personnel and materiel. Collectively, the capabilities of the fixed CONUS and en route structure and deployable units employing the **GRL** strategy allow airlift and air refueling forces to expand operations at existing locations and/or establish operations at new locations.



*Deployable forces capable of augmenting the fixed en route locations or establishing en route locations where none exist are an integral part of the GAMSS.*

- The **GRL** strategy calls for in-garrison GAMSS units to rapidly deploy to any location in the world to support airlift and air refueling operations. While providing such functions as C2, aerial port operations, and aircraft maintenance, GAMSS units strive to coordinate and synchronize intertheater and intratheater air mobility operations in a manner that appears seamless to the user. The GAMSS facilitates such operations as air bridge support, hub and spoke operations, airfield surveys for pending operations, and establishing arrangements for HNS. Quick response requirements by the President and Secretary of Defense mean GAMSS-deployable forces must be able to deploy rapidly and begin immediate operations.

**b. GAMSS and Rapid Global Mobility.**

The reduction in forward-deployed forces following the end of the Cold War has resulted in an increased dependence on airlift and air refueling capabilities to project US military presence throughout the world. These capabilities, in turn, increasingly depend on the GAMSS to provide **rapid global mobility**. The mobile forces of the GAMSS enable the en route system to expand or contract as necessary, providing worldwide coverage and lending direct support to the **rapid global mobility** concept.

- The mobile forces that make up the GAMSS must be able to deploy and commence support operations with the same speed and efficiency as the forces they support. Without this, support will “lag” behind the operations tempo necessary to meet the combatant commander’s requirements and result in delays of critical forces and supplies that may be key to prosecuting the JFC’s mission. For this reason, the training GAMSS forces receive must be thorough and their use in exercises should be both realistic and challenging. Commanders

of today’s military operations have less time available to transport, position, and prepare forces. Consequently, USTRANSCOM forces may be required to switch from peacetime operations to contingency operations on very short notice. This transition during an operation is particularly critical and, depending on how effectively this transition occurs, could ultimately impact the degree of success achieved while working to meet the warfighting combatant commander’s objectives. Highly trained forces, used realistically in exercise scenarios, will be invaluable assets during the transition to a contingency.

- **GAMSS forces must deploy quickly and prior to the main flow of forces.**

Therefore, force protection of these GAMSS forces should be a priority consideration for the JFC. This force sequencing enables supported forces to immediately swing to follow-on missions because essential support infrastructure for the operation is already in place. To work properly, GAMSS forces must pre-position themselves at key locations prior to the deployment of forces — usually upon receipt of the CJCS alert order. Consequently, mission planners must provide adequate lead times for GAMSS forces to organize and take initial preparatory measures.

**c. GAMSS Components.** GAMSS forces are drawn from active duty, AFRC, and ANG units.

- **Active Duty Component.** **The vast majority of active duty GAMSS units are assigned to USTRANSCOM, and support both functional and geographic combatant commanders.** In addition, USAFE and PACAF have established deployable GAMSS forces to support operations within their AORs.

While active duty GAMSS forces offer a great advantage in terms of being available on a full-time basis, demand for deployable units consistently outpaces supply. As a result, great reliance is placed on ANG and AFRC assets to meet routine and contingency demands placed on the GAMSS.

- **Air National Guard and Air Force Reserve Command. Both the ANG and the AFRC provide forces to augment active duty GAMSS units.** AFRC and ANG personnel are experienced operators and train to the same standard as active duty forces. Peacetime access to AFRC and ANG forces is provided through a system of volunteerism. Major contingencies that require a large amount of AFRC and/or ANG support will normally require mobilization. **When mobilized**, AFRC and ANG units are placed on active duty status and used in the same manner as regular active duty units.

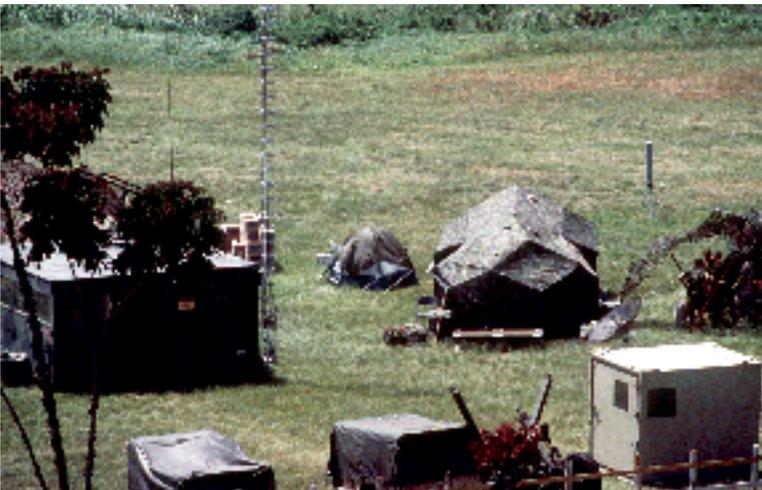
## 2. Deployable Elements of the GAMSS

- a. **Tanker Airlift Control Elements. A TALCE is a mobile organization**

**responsible for providing continuous on-site management of mobility airfield operations.** It is a temporary organization composed of various MSEs. Normally commanded by a commissioned officer, TALCEs deploy to provide mission support when C2, mission reporting, or required mission support functions are insufficient. In addition to providing command, control and communications (C3) capability, TALCEs provide aerial port, logistics, maintenance, security, weather, medical, intelligence, civil engineering, finance, and contracting services, as necessary. **TALCE size is based on projected support requirements.**

- b. **Mission Support Teams.** MSTs are smaller TALCE-like organizations capable of providing support similar to that of a TALCE although on a much smaller scale. Normally led by a non-commissioned officer, MSTs provide a level of C2, aerial port, and maintenance services capable of supporting a working MOG of one aircraft.

- c. **Mission Support Elements.** MSEs provide a specific mission support capability in direct support of airfield operations to include limited C2, logistics, or aerial port services. They may be deployed as an element of a TALCE or MST, or as a small scale stand



*TALCEs are designed to provide air mobility support at austere locations.*

alone entity. MSEs deploy personnel and equipment to support specific missions or requirements at mobility airfields or off-line locations.

d. **Special Tactics Teams.** While not a formal element of the GAMSS, STTs often deploy at the same time as GAMSS forces, operate with them, and thus play an integral part in GRL. They are the dynamic link between the surface forces and the air assets that deliver, sustain, and recover them. STTs provide pre-execution intelligence information of air objectives (airfield, LZ, and DZ survey and/or status and weather observation). Their combat personnel conduct terminal attack control (TAC) and ATC of attack and airlift aircraft during pre-assault and assault operations. They provide the “first there” airfield operations (ATC and airfield management) capability primarily at expeditionary or small, austere airfields, assault LZs, and DZs. STT PJs perform CSAR, battlefield trauma care, and evacuation staging during airborne or air assault operations. STTs rapidly hand these tasks off for sustained operations to other elements of the TACS or theater air-ground systems as the airhead matures. For example, TAC is handed over to TACP, aircraft C2 to the TALCE, ATC to supported force ATC units, and casualty care and evacuation to medical and AE units.

e. **Global Reach Communications Elements.** These elements provide robust C3 capabilities to the deployed GAMSS mission. USTRANSCOM’s Air Force component integrates the commercial off-the-shelf theater deployable communications suite of equipment into sustained, deployed GRL APOD operations.

### 3. Operations

The fixed en route portion of the GAMSS is composed of CONUS and overseas en route locations sized, manned, and equipped to support peacetime air mobility operations.

The deployable portion of the GAMSS is used to establish air mobility presence and infrastructure where none exists or to expand the fixed portion of the en route system. The permanent portion of the GAMSS is composed of major CONUS-based aerial ports, key overseas locations, and smaller Air Force or Navy-sponsored commercial contractor terminals.

a. **Fixed Operations.** Air mobility operations groups (AMOGs) and their component air mobility squadrons (AMSs) provide OCONUS en route support. The AMOG formulates plans, establishes procedures, and directs the administration of their respective and subordinate AMS units in support of customer aircraft, cargo, passengers, and patients. The AMOG provides logistics, intelligence, and air transportation planning to meet mission requirements. AMS organizations are administratively aligned under an AMOG.

- AMSs are situated at key overseas en route locations (see Figure VI-1) to operate air terminal facilities in support of the DTS and numerous DOD customers. AMS personnel generate, launch, and recover air mobility missions and en route support aircraft. Each AMS operates an air mobility control center, which serves as the C2 conduit to the TACC for air mobility mission tracking. In addition, one AMS under each AMOG contains an air mobility control flight capable of providing an immediate initial response TALCE or MST core C3 element.
- Each AMOG, as well as their subordinate units, are administratively aligned under their respective numbered air force (NAF). Therefore, Service-related issues are addressed through administrative lines that pass through each NAF command center to its respective AMOG command center. Alternatively, operational

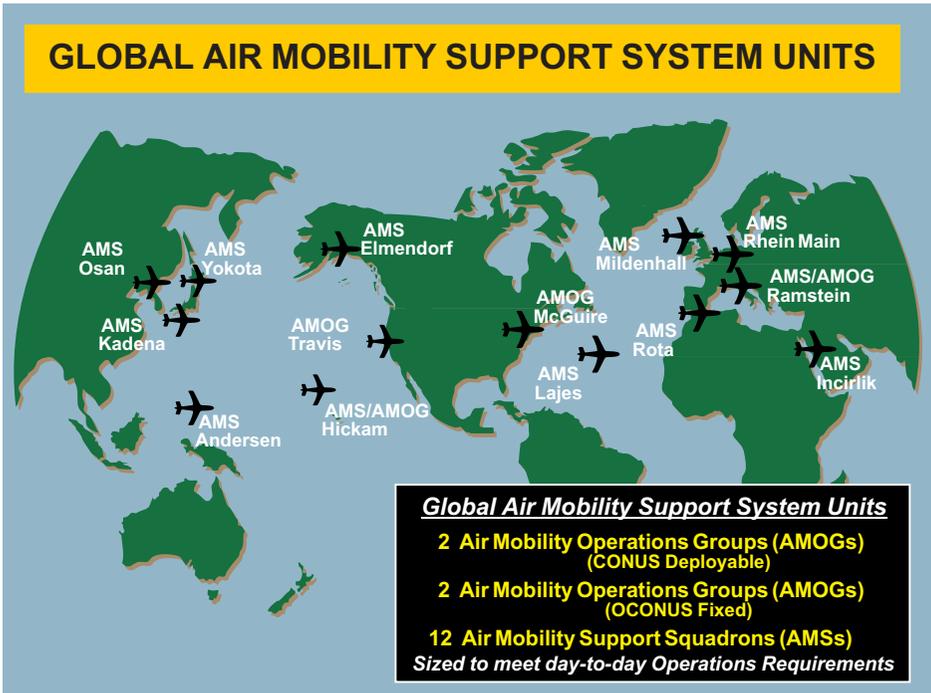


Figure VI-1. Global Air Mobility Support System Units

authority for planning, scheduling, tasking, and executing missions passes through the TACC command center to the AMS command centers. Regardless of the form of authority exercised, **AMC command center is the final authority for administrative and operational matters** regarding the GAMSS.

b. **Deployed Operations.** Under the GRL strategy, predominantly CONUS-based resources are teamed together to form deployable elements or teams. A composite of personnel and equipment, appropriately sized and tailored, form TALCEs, MSTs, and/or MSEs specifically designed to satisfy a particular operational requirement. While the GRL strategy entails a global capability to rapidly deploy and provide the core functions of air mobility support (i.e., C2, aerial port operations, and aircraft maintenance), GAMSS forces are also capable of providing any other support capabilities necessary to sustain air mobility operations.

- The AMC organizations designed specifically to provide assets for the deployable portion of the GAMSS are the CONUS AMOGs, airlift control squadrons (ALCSs), and AFRC and ANG airlift control flights (ALCFs). ALCFs are part of the GAMSS that are gained, but not owned by AMC. In addition, USAFE and PACAF both possess deployable units designed to function as part of the GAMSS. The CONUS AMOGs are composed of three AMSs and an air mobility operations squadron (AMOS). The AMOG as an organization does not deploy; however, it provides the resources for and coordinates the deployment of its subordinate AMSs and AMOS, ensuring that personnel, equipment, training, and procedures are compatible with mission requirements based upon the threat. It is from (or through) the AMOGs that C2, aircraft maintenance, and aerial port personnel are provided for deployed

operations under the GAMSS. The units deployed from the ALCSSs and the ALCFs only provide the TALCE or MST core C3 functions. Any additional capability beyond these core functions must be sourced and tasked elsewhere (typically from the AMOGs or various mobility wings) by AMC TACC and deployed as purpose-specific MSTs or MSEs.

- Each AMOG and its subordinate units are administratively aligned under their respective NAF. Service-related issues are addressed through administrative lines that pass through each NAF command center to its respective AMOG command center. However, operational authority for planning, scheduling, tasking, and executing missions passes through the TACC command center to the air mobility control unit command centers. **AMC command center is the final authority for administrative and operational matters regarding AMC GAMSS units.**
- **The AMC TACC is the tasking authority for all deployable AMC GAMSS units.** USAFE and PACAF retain tasking authority for their deployable GAMSS units. Personnel in these units must be capable of deploying rapidly upon notification. USTRANSCOM-assigned GAMSS forces remain under the OPCON of AMC TACC command center unless otherwise directed by the Secretary of Defense. Centralized control through the AMC TACC enables the AMC TACC command center to rapidly shift these forces in response to globally prioritized taskings. In those situations where GAMSS assets must transfer from one contingency/AOR to another, the TACC should coordinate with the losing combatant commander/JFC so necessary C2 and other adjustments can be

accomplished. Under appropriate circumstances, the Secretary of Defense may direct Commander, USTRANSCOM to transfer forces to other combatant commanders. In general, such a transfer will take place when two criteria are met. First, the gaining commander requires and is able to exercise detailed direction and control of movements or maneuvers within the AOR necessary to accomplish assigned missions or tasks. Second, Commander, USTRANSCOM determines, and the Secretary of Defense agrees, that the transfer will support an appropriate apportionment of mobility capabilities between the global functional mission of USTRANSCOM and the operational mission of the gaining combatant command. For those theaters with an AMOCC, force transfers be fairly common. If a theater doesn't possess an AMOCC, force transfers will normally only occur if a DIRMOBFOR and JAOC with AMD are in place. In such circumstances, Commander, USTRANSCOM (with SecDef approval) may transfer forces to the other combatant commanders. The combatant commander will normally delegate OPCON to the COMAFFOR and/or JFACC and execute TACON through the DIRMOBFOR. Typically, OPCON and/or TACON delegation will be determined by the following circumstances.

- If a TALCE is supporting intertheater operations exclusively, then Commander, USTRANSCOM will normally retain OPCON and/or TACON.
- If a TALCE is primarily supporting intratheater operations (combatant, sub-unified, JTF commands) then Commander, USTRANSCOM, with SecDef approval, may transfer forces to the supported combatant commander, who then delegates OPCON and/or TACON as necessary to subordinate commanders.

- If a TALCE will simultaneously support both intertheater and intratheater operations, then command relationships will be specified following coordination between combatant commanders and approval by the Secretary of Defense as required.
- Geographic combatant command assigned GAMSS units may support other combatant commanders. The circumstances for when they will support other commands are similar to those listed above.
- **The AMOGs, as tasked by AMC TACC, provide AMC personnel and equipment that contribute to the formation of an AMD, including the AME.** The general purpose NAFs (8AF, 9AF, and 12AF) and theater Air Force components will provide the theater's portion of an AMD. AME personnel and equipment interface with the AMD and operate under the direction of the DIRMBOFOR.
  - a. **Command and Control.** One of the most important features of the GAMSS is its use of various C2 systems to support ITV. Commanders depend on accurate, timely ITV of air mobility assets to more efficiently manage those assets and associated supporting airfield operations. Consequently, the effectiveness of the GAMSS relies significantly on the integration of C2 data into a comprehensive ITV picture. Without such integration, the ability to achieve rapid global mobility is compromised. This Global Decision Support System (GDSS) is the

#### 4. Functions

**The three core functions provided through the GAMSS are C2, maintenance,**



*Seamless operations depend on a robust C2 capability.*

primary C2 system for GAMSS. GDSS provides aircraft schedules, arrival and departure information, and aircraft status to the GTN to provide ITV of aircraft and aircrews to customers worldwide. GTN is also the C2 system for USTRANSCOM.

b. **Aircraft Maintenance.** Deployable GAMSS forces are often the first USAF personnel to arrive at a given operating location and they are limited in what they can bring, to include aircraft maintenance capability. GAMSS maintenance capability is contained in two deployable organizations, the TALCE and the maintenance recovery team (MRT). Designed primarily to support aircraft conducting air mobility operations, GAMSS maintenance units are not intended to provide sustained maintenance. The GAMSS maintenance capability contained in the TALCE is more robust than that found in an MRT and consists mostly of cross-functional maintenance specialties designed to provide aircraft marshalling, parking, refueling, and limited aircraft troubleshooting and repair capability. If specific aircraft repair capability is required at a forward location, an MRT will be deployed with appropriate specialists, equipment, and parts to accomplish the repair.

c. **Aerial Port.** An aerial port is an airfield that has been designated for the sustained air movement of personnel and materiel, and to serve as an authorized APOD into or APOE from the country in which it is located. GAMSS units possess a robust aerial port capability. TALCEs and other GAMSS units are designed to establish and operate air mobility terminals and have the ability to onload and offload a set number of aircraft based on forecast workload requirements. In addition, GAMSS aerial port specialists provide expertise to establish marshalling yards and traffic routing for cargo, aircraft servicing, passenger manifesting, and air terminal operations center services. GAMSS aerial port personnel are also responsible for the transmission of departure and arrival information to GTN to include the movement manifests and ITV data provided electronically by the moving unit. **The GAMSS aerial port services provided by TALCE units are not designed for long-term, sustained aerial port operations.** Sustainment of aerial port services at a stand-alone USAF component operation will be supported by either the Commander, USTRANSCOM Air Force component or other designated, capable USAF component (e.g., PACAF, USAFE).



*Aerial port operations are sized based on forecast workload requirements.*

d. **Single Port Manager.** AMC operates air terminals at CONUS aerial ports and operates or arranges for the operation of common-user air terminals in theaters for all DOD components. In theater, the AFCC and AMC normally provide terminal facilities, or support terminals operated by other Services, at all points served by common-user airlift aircraft. These terminal operations include supervising movement operations, contracting, cargo documentation, and security operations, and providing respective Service clearance, MHE, and the overall flow of information, to include ITV data flowing

to the GTN. As USTRANSCOM's aerial port single port manager, AMC is also responsible for providing strategic deployment status information to the supported combatant commander and establishing the workload at the APOD based on the combatant commander's priorities and guidance. The Service component commands may also provide personnel and equipment to participate in loading, unloading, and transshipping component personnel and materiel at Air Force- or USTRANSCOM-operated air terminals.

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# CHAPTER VII

## PLANNING AIR MOBILITY OPERATIONS

*“Move upon the enemy in one mass on one line so that when brought to battle you shall outnumber him.”*

Napoleon

### 1. Planning Air Mobility Operations

a. **Primacy of the Objectives.** The judicious use of tanker and airlift assets requires attention to several planning and support issues, which are fundamental to efficient and effective air mobility operations. Thoroughly addressing these issues will allow maximum use of air mobility assets to support as many user requests as possible. These issues impact tanker and airlift employment all the way from the apportionment and allocation stage through final execution. It is important to remember that **air mobility assets are tasked against missions supporting the entire spectrum of national, strategic, and theater objectives.**

**Air mobility assets attached to a JTF and flying intratheater missions will primarily support JFC objectives.** Tankers, however, must be made available to support all objectives based on the highest priority. Providing assets to support the different levels of objectives, strategic, operational, or tactical, is accomplished through apportionment and allocation. As the air mobility expert in the theater, and the “designated coordinating authority for air mobility with all agencies, both internal and external, to the JTF”, the DIRMOBFOR should be the JFACC’s primary advisor for all apportionment and allocation decisions affecting air refueling.

b. **Apportioned Forces.** Force apportionment refers to the distribution of resources for planning purposes. **Air apportionment refers to the determination and assignment of the total expected effort**

**by percentage and/or by priority that should be devoted to the various air operations for a given period of time.**

During contingencies, the wide ranges of air mobility missions require different apportionment considerations at strategic and operational planning levels.

- **Peacetime Apportionment.** During peacetime, air mobility support is apportioned to Service components based on aircrew training requirements, user training requirements, and operational missions not associated with contingencies. Fiscal limitations force Service component and unit planners to closely monitor aircraft availability and aircrew training status to ensure that training requirements are met. It also forces Service component and unit schedulers to make maximum use of all air mobility support provided during peacetime.

- **Contingency Apportionment.** Competing priorities can significantly limit the amount of air mobility support available. This competition occurs at the strategic level where other contingencies or conflicts also require air mobility forces and at the operational level where different airpower functions compete for limited available air mobility support.

c. At the strategic level, the Secretary of Defense apportions forces based on the advice of the JCS and the combatant commander. **Included in this apportionment are the number of assets provided to the combatant commander for intratheater air**

**mobility operations, as well as the percent of effort, or overall sorties, the supporting combatant commander will provide to the supported combatant commander for intertheater operations.** Apportionment decisions are most difficult when two or more contingencies compete for limited air mobility assets. The Secretary of Defense must consider overall end-state objectives, status of each conflict, and the ability to swing air mobility assets from one conflict to another, which includes air mobility assets to support the withdrawal of strategic forces to support SIOF. While total air mobility capability is based on force apportionments that meet the requirements of two nearly simultaneous major theater wars, air mobility capability for lesser conflicts may be less when ANG and AFRC forces are not mobilized.

d. **At the operational level, commanders must apportion the air mobility effort among the different functions involved in a campaign.** Apportionment provides general guidance to planners in the form of number or percentage of sorties that should be dedicated to specific functions. Apportionment of air refueling sorties should roughly follow the apportionment of combat and combat support sorties. Apportionment of airlift effort is dependent upon the emphasis and stage of conflict. As a campaign is fought, the JFACC will continually adjust sortie allocation based on progress made toward the objectives. The JFACC commonly relies on the advice of the AOC director and the DIRMBOFOR for the best use of air mobility assets and to adjust aircraft allocation as necessary.

e. **Allocated Forces.** Force allocation is the distribution of limited resources among competing requirements. **At the operational level, it consists of translating the JFC's air apportionment decision into total numbers of sorties, by aircraft type, available for each operation or task.** Just as in force apportionment, force allocation procedures

differ between peacetime and contingency operations, and at the strategic and operational levels.

- **Peacetime Allocation.** The peacetime allocation of air mobility assets is based on force apportionment for training but is regulated by the CJCS Priority System. Air mobility forces must be equally responsive to all Service requirements. The CJCS Priority System is a means of rank ordering all user requests for mobility based on mission priority. Combatant commands assign priority codes to all air refueling and airlift requests emanating from their assigned or attached forces and forward them to USTRANSCOM for validation. Validated requests are then passed to the AMC TACC for tasking. AMC will task its assigned or gained units to fill validated requests in the order specified by the CJCS Priority System. AMC may ask theater Service or functional components with assigned or attached aircraft to provide air refueling and/or airlift support to missions within the component's theater. Geographic combatant commands delegate mission validation responsibility to the theater AMOCC, if established. Validated air refueling missions are then tasked to theater assigned or attached air mobility assets.

*For more information on the CJCS Priority System, see JP 4-01, Joint Doctrine for the Defense Transportation System.*

- **Contingency Allocation.** Air mobility assets are devoted to a contingency based on communications already made for air refueling support elsewhere. In the case of two major theater wars, the decision is extremely difficult because there will not be enough air mobility assets in the DOD inventory to support a total air

effort in both theaters for the entire length of a conflict. Typically, air mobility requirements peak during the transition from the deployment and buildup stage to the sustainment and employment stage. As the first supported conflict transitions into the sustainment and employment stage, excess air mobility allocations can transition to the other theater. While this concept is premised on two major theater wars, it is just as applicable whenever air refueling assets are limited, such as military operations other than war (MOOTW) in which ANG and AFRC assets are not mobilized.

f. While the Secretary of Defense must allocate forces to separate contingencies, he must also allocate forces within a contingency. Of the total air mobility capability allocated to a given contingency, a portion of that capability must be allocated to the deployment effort and another portion must be allocated to the employment effort. The portion allocated to the deployment effort will normally remain under the OPCON of AMC command center to provide air bridge and deployment support. Portions of air mobility forces allocated to the employment and sustainment effort may be transferred to the combatant command for employment by the theater COMAFFOR and/or JFACC.

g. The final consideration in making allocation decisions is the number and type of assets to be used. This entails matching the right capabilities against accurately forecasted air refueling requirements. Once requirements are known, planners can match assets against those requirements. **The most important consideration is to ensure that allocations are based on capabilities and not sheer numbers.** Different weapons systems possess different capabilities. Within a weapons system, modifications that may only be installed on a few aircraft may dictate

a particular force mix, which includes that model airframe.

### h. Considerations for Airlift Planning.

The time and events between the start of a crisis and initiation of a military response vary greatly; many activities will probably be compressed, and many processes may run concurrently. However, the detailed attention given during the planning phase is the primary factor that determines success. The entire airlift operation requires detailed planning including, but not limited to, the basic considerations listed in Figure VII-1 and described below.

- **Airlift Facilities.** Successful airlift operations are often dependent on a network of facilities, such as air terminals, small austere airfields (SAAFs), LZs, and DZs.

- **Air Terminals.** Air terminals provide an airlift force's needs; however, their greatest disadvantage is that they are often in limited supply, particularly in lesser-developed regions of the world. Theater air planners must evaluate the overall requirements and allocate sufficient air terminal ramp space, fuel, communications infrastructure, and ground support for airlift operations, particularly for intertheater airlift missions.

- **Small Austere Airfields.** SAAFs have restricted capability with limitations in one or a combination of the following: taxiway systems, ramp space, marshalling yard capacity, security, MHE, aircraft servicing, maintenance, NAVAIDs, weather observing sensors, and communications.

- **LZs and DZs.** When there is no suitable airfield available for an operation, an LZ can be constructed for

## CONSIDERATIONS FOR AIRLIFT PLANNING

- ✓ Airlift Facilities
- ✓ Facility Support Forces
- ✓ Operation of Aerial Ports
- ✓ Intermediate Staging Base
- ✓ In-transit Visibility
- ✓ Air Base Defense
- ✓ Joint Airspace Control
- ✓ Air Corridors or Operating Areas
- ✓ Weather
- ✓ Threats
- ✓ Threat Countermeasures
- ✓ Air Refueling
- ✓ Communications for Deploying Ground Forces

Figure VII-1. Considerations for Airlift Planning

airland operations, or a DZ can be selected for airdrop operations. The supported force selects and prepares LZs or DZs.

•• **Forward Airlift Facilities.** Planners must know the capabilities of each airlift facility in the theater. They should identify the need to develop, rehabilitate, and maintain facilities to maximize airlift support to joint operations. This includes construction of base support systems that can improve airlift mission capabilities and protect the aircraft from threats. The type and sophistication of a facility depends on its location, climate, and engineer support. The supported Service component is responsible for maintaining forward airlift facilities.

•• **AR Tracks and Anchors.** These should be considered air terminals with

the same considerations given as surface terminals.

- **Facility Support Forces. Successful airlift operations depend on various support forces.** The supported Service component is responsible for the movement of personnel and cargo to the onload site and forward to the final destination after offloading. When Service component support is unavailable or inadequate for common-user airlift operations, **commanders may request augmentation by Air Force mission support forces.** When an operation involves multiple components, the geographic combatant commander should appoint a single component to coordinate with the host facility, decide resource allocation, and prioritize onload and offload operations. The ground force package may be



*The supported Service component is responsible for the movement of personnel and cargo to the onload site and forward to the final destination.*

designed for delivery from the CONUS directly to forward areas. Light forces have limited organic transportation capability. Increased direct delivery capabilities and requirements require that all Services reevaluate their ability to accept these deliveries in forward areas. APODs may be split into several smaller forward operating bases. Supported commanders may be required to do some of the terminal airhead operations normally performed by Air Force personnel.

- **Operation of Aerial Ports.** The effectiveness of airlift is dependent on the **number and type of aerial ports available** within the theater (see Figure VII-2). The geographic combatant commander designates wartime and contingency aerial ports in coordination with Commander, USTRANSCOM and appropriate HN authorities. **Aerial port operations assure the timely and effective movement of personnel and materiel into and across the theater.** A lack of aerial ports and ground support personnel can seriously constrain cargo throughput operations. GAMSS forces (sourced from either the supporting or supported

commanders) may be required to operate or augment aerial ports during the deployment and redeployment phases of the operation. The sustainment phase of operations is normally handled by base operating support forces sourced from either the supported, supporting commanders, or from both.

- **Supporting Combatant Commander Responsibilities.** Certain situations may require that a geographic combatant commander support another combatant commander. This support may range from the deployment of forces and en route basing activities to the provision of sustainment. Regardless of the mission, **the supporting combatant commander should establish a movement control system** capable of interfacing with USTRANSCOM's and the supported combatant commander's movement control systems. A JMC, with supporting component movement cells, can be used to manage all moves and assures compliance with the supported combatant commander's priorities. For deployments to another theater, the supporting combatant commander should establish APOD and APOE

## REQUIREMENTS FOR EFFECTIVE AERIAL PORT OPERATIONS

- Materials handling equipment compatible with the aircraft and with surface transport vehicles
- Surface and/or air transport for forward movement of cargo and passengers
- Airfield ramp space to process transiting aircraft
- Warehouse and repacking facilities to handle arriving and departing cargo
- A receiving yard to store cargo temporarily
- Remote hazardous and/or explosive cargo handling storage, and aircraft parking areas
- Communication infrastructure and appropriate automated information systems and automatic identification technologies to facilitate port processes and in-transit visibility data capture
- Petroleum, oils, and lubricants facilities available

**Figure VII-2. Requirements for Effective Aerial Port Operations**

activities as necessary, which will interface with the movement control system. When two or more Services deploy simultaneously, the supporting commander designates which Service component will operate the supporting movement control system.

●● **Supported Combatant Commander Responsibilities.** The supported commander **assures that the theater's intertheater air mobility requirements are clearly delineated and presented to the Commander, USTRANSCOM.** To facilitate this process, the theater JMC should have a communication link with the strategic movement system. JOPES provides that connectivity. The supported commander establishes APOD support activities, ensuring that adequate ramp space, fuel, communications infrastructure, and support is allocated for air mobility operations. APOD support activities will

include a movement control system. The supported commander is responsible for planning and executing joint reception, staging, onward movement and integration (JRSOI) for all forces deploying in the JOA. JRSOI duties include, but are not limited to: cargo preparation, documentation, uploading or offloading for onward or retrograde movement (when aerial port functions are unavailable), electronic manifest reporting for ITV, and clearing cargo and personnel from the APOD. During MOOTW, the supported commander will designate which Service component will assume these responsibilities. When two or more Services deploy simultaneously, the supported commander designates which Service component will operate each element of the movement control system. Geographic combatant commanders are responsible for theater ITV planning and ensuring that theater



*GAMSS forces may be required to operate or augment aerial ports during the deployment or redeployment phases of the operation.*

movement data capture processes and communications infrastructure supports the timely transmission of ITV data from theater field activities to GTN.

- **Intermediate Staging Base (ISB).** The theater operational situation may necessitate the establishment of an ISB outside of the combat zone or operational area prior to inserting the forces. **If established, the ISB is an initial theater staging facility.** Deploying forces debark from strategic lift, reassemble, and prepare to accomplish assigned missions. The ISB may serve either as a principal staging base for entry operations in order to secure a lodgment to project the force into the theater, or as a secure facility for split-based operations. In other cases, the theater may not have the physical infrastructure to support JRSOI and will require the use of superior air and sea bases outside the region.
- **In-transit Visibility.** A robust automated ITV system is a critical combatant commander management tool and is key to efficient and effective support of airlift operations. The key elements for providing ITV to

commanders at all echelons are clearly assigned responsibilities for the timely, complete, and accurate provision of information to GTN through the use of designated AIS or AIT at each node.

- **Data Capture and Manifesting Responsibilities.** Units and agencies requiring airlift are responsible for providing, as a minimum, the standard manifest data elements as outlined in the DOD transportation directives and instructions. This data must be an electronic product collected from the specified AIS and/or AIT and transmitted to the supported combatant commander's designated mobility force(s) (A/DACG, TALCE, fixed aerial port, air terminal, etc) at the POE and/or port of debarkation for submission through the appropriate AIS to GTN. This is the data origination point for ITV. As the passengers and cargo pass through each transportation node, the transportation activity is responsible for cargo receipt and processing and for the electronic transmission of departure and arrival manifest information through the appropriate AIS to GTN. Non-DOD and nongovernmental agencies requiring



*Efficient airlift operations are highly dependent on ground handling equipment and personnel.*

airlift should provide manifest data IAW the applicable USTRANSCOM MOA or as coordinated by the supported agency, USTRANSCOM, and the supported combatant commander. Manifest data elements should be provided electronically, via AIT devices, diskette, other file transfer protocols, or direct interface between the appropriate AISs.

•• **Commercial Carriers.** ITV data for DOD assets moving via commercial carriers from DOD or non-DOD controlled terminals will be fed to GTN via the appropriate government AIS and/or IAW the terms of a previously established commercial electronic data interface with GTN. The source of the ITV feed will depend on the type of contracted lift.

•• **Automated Information Systems.** The supported combatant commander's theater movement plan must ensure the availability of AISs to support visibility over theater movement. Supporting combatant commanders must ensure that their AIS and AIT will interface with the supported combatant commanders

designated AIS and AIT. Two primary AISs developed to facilitate air terminal processes and/or movement documentation are the Transportation Coordinators-Automated Information for Movement System (TC-AIMS) II and the Global Air Transportation Execution System (GATES). These systems may be either fixed or deployable. If there is no established MOA between the deploying unit and the air terminal detailing manifesting and ITV requirements, GATES will be the primary manifesting system of record. For those locations not supported by GATES, TC-AIMS II will be the manifesting system of record and the primary ITV feed to GTN.

•• **Automatic Identification Technology.** AIT is a critical ITV enabler encompassing a variety of data storage media that carry asset identification information. The information is transferred electronically to and from certain AISs that support visibility and logistic operations. AIT reduces the need for manual data input, facilitating timely, accurate data capture. Other AIT devices

may be employed at the option of the moving force or the supported combatant commander.

*Additional AIT information may be found in the DOD Implementation Plan for Logistics Automatic Identification Technology.*

- **Timeliness.** The terminal or mobility forces business processes must support the timely submission of ITV data to GTN. Timeliness for these events is measured from the event occurrence until it is visible in GTN. The performance standards by which timely ITV for airlifted assets is measured are: 1) 1 hour for unit strategic movements (personnel and equipment) at all nodes from origin to destination; 2) 1 hour for the arrival and departure of sustainment air cargo and nonunit move passengers, at all nodes, from origin to destination; and 3) 2 hours for the arrival and departure, at all nodes, of nonunit cargo and passengers originating and terminating in the theater or CONUS.
- **Air Base Defense.** All echelons must plan for air base defense **to protect airlift aircraft, aircrews, support personnel, and base facilities.** This may include protection against conventional air-to-surface munitions, surface-to-surface weapons, nuclear, chemical, and biological weapons, and unconventional warfare forces.

*Air base defense is a rear area command responsibility addressed in JP 3-10.1, Joint Tactics, Techniques, and Procedures for Base Defense. Operations in nuclear, biological, and chemical areas may be found in JP 3-11, Joint Doctrine for Operations in Nuclear, Biological, and Chemical Environments.*

- **Joint Airspace Control.** Airlift plans must integrate international, HN, and military airspace control procedures and regulations. Congested airspace, exposure to adversary threats, and potential fratricide are major concerns. Deep operations may involve large numbers of aircraft, airspace congestion, significant potential for exposure to adversary threats, and potential for friendly fire. Therefore, inclusion of STTs to provide battlespace preparation and terminal control of air operations is recommended.

*For further information on airspace control at the operational level of war, see JP 3-52, Doctrine for Joint Airspace Control in the Combat Zone, which lists organizational structures and responsibilities within a theater.*

*For further information on JTTP for terminal airfield ATC, see ALSA Center publication Multiservice Procedures for Joint Air Traffic Control, also referenced as FM 100-104, MCRP 3-25A, NWP 3-56.3, and AFTTP (I) 3-2.23.*

- **Air Corridors or Operating Areas.** Airlift operations often require secure air corridors or operating areas (e.g., ingress and egress runs for assault zones and AR tracks and anchor areas). These may be shared with other air missions. Regardless, **the use of a corridor requires close coordination** between the joint force airspace control authority, area air defense commander, JAOC, BCD, AMC TACC, AMD, and all other involved joint force component ground and aviation elements. Frequent changing of corridors may be necessary, depending on the threat.

- **Weather. Accurate current and forecast weather information allows planners to make effective and efficient use of limited air mobility resources.** This requires robust data collection in the area of operations, weather analysis and forecasting skill, and product tailoring and dissemination capabilities. Weather planning for airlift operations should include forecasts from departure through recovery, with special attention given to departure, route, AR tracks and objective area (LZ or DZ) cloud bases, percent of moon illumination, visibility, precipitation, and winds. The success of any major airlift operation is largely dependent on having acceptable weather at the APOD(s). Selection of an APOD must include consideration of the climate. Regional and local climatology studies covering potential APODs and all seasons projected for the operation must be conducted and results presented to decision makers to allow for an informed decision. Weather must be considered at the strategic level of APOD selection to maximize its value as a planning tool and a force multiplier.
- **Threats. Airlift aircraft are very vulnerable to hostile actions.** Large fixed-wing airlift aircraft have significant radar signatures, lack maneuverability, and many have limited or no onboard defensive systems. Planners must identify weaknesses in the adversary's air defense and implement threat avoidance measures where practical. Additionally, airlift aircraft fly at relatively slow airspeeds, prolonging their exposure to attack. Their size prevents sheltering and makes effective ground concealment and deception difficult. Small fixed-wing airlift aircraft and helicopters have smaller radar signatures and are easier to conceal on the ground, but they are still very vulnerable to adversary action.
  - Finally, hostile use of nonconventional weapons, including WMD, against airfields could impact ground operations and possibly require dispersal of all airlift aircraft and redistribution of cargo to alternate airfields, LZs, or DZs.
- **Threat Countermeasures.** Active and passive countermeasures to threats against airlift aircraft and airfields may be required.
  - **Active protective measures** range from force protection packages to aircraft self-defense systems. Force protection packages include such things as fighter escort, ground support to clear a corridor of threats, and SEAD. Self-defense systems include the use of devices such as onboard warning receivers, flare dispensers, chaff dispensers, and chemical and biological detection devices.
  - **Passive measures** include such things as air base defense, route and altitude selection, reduced ground times, dispersed aircraft basing, counterintelligence force projection operations, operating at night or in adverse weather, protective coverings for equipment, and decontamination provisions for MHE, ground personnel, and aircraft, to include transload operations for military and CRAF airlift resources.
- **Air Refueling.** The amount of cargo and distances involved in intertheater airlift operations make air refueling **an attractive option in most situations, and an essential option in others.** Air refueling reduces the aircraft's initial fuel requirement, allows for heavier loads, increases aircraft range, and reduces the requirement for refueling at FOBs, thereby reducing ground times at those locations. Air refueling is also useful

when FOBs have no (or limited) ground refueling capability and post-offload recovery bases in the region have limited refueling capability. Air refueling will allow aircraft to overfly the limited capability bases and recover at more suitable airfields that possess sufficient refueling capability.

- **Communications for Deploying Ground Forces.** Operations security (OPSEC) and communications security are both critical to the success of airlift operations. The use of secure communications and offline encryption of voice transmissions is essential. Secure en route communication packages (SECOMPs) provide ground commanders, embarked on airlift aircraft, secure communications while en route to an objective area. These can be installed on aircraft in addition to existing onboard aircraft radios. SECOMP provides the embarked ground force commander with the ability to talk with ground force subordinate commanders flying in different aircraft, the objective area, the departure airfield, intermediate staging bases, airborne command posts, and higher headquarters. The Joint Communications Support Element (JCSE) provides this capability via Chairman of the Joint Chiefs of Staff Instruction (CJCSI) 6110.01, *CJCS-Controlled Tactical Communications Assets*. The use of SECOMP should be coordinated with the command-providing airlift. In the event that JCSE equipment is not available, the deploying commander may use SECOMP and hatch-mounted antennas from his or her own resources.

## 2. Planning Airlift Operations

a. **Planning air mobility operations is a complicated process involving a few basic**

**principles and numerous interdependent considerations. Service components must facilitate their airlift movement process.** This responsibility includes performing and arranging to:

- bring units and materiel to departure terminals;
- prepare those resources for air movement;
- provide support services (meals, medical, billeting, and other appropriate services) to transient and arriving units;
- receive and transport units and materiel from arrival terminals; and
- prepare all manifests, movement documents, and reports related to the actual movement.

b. **The purpose of these actions is to move component resources expeditiously,** with minimum expenditure of airlift resources and minimum exposure to hostile actions. **Responsibility for controlling movements does not equate to command authority over airlift forces.** Studies, concepts, and OPLANs for the employment of forces are prepared to cover possible missions and locations. Detailed planning for the conduct of specific operations is performed by the participating component commands and subordinate commands; to enhance efficiency, all participants should make maximum use of existing plans.

c. **Principles for Airlift Planning. Consider these principles when planning for airlift movements:**

- Minimize movement congestion and vulnerability by reducing the time units and materiel spend en masse at forward terminals.

- Maximize the productivity and survivability of the airlift fleet by minimizing aircraft ground times at forward locations.
- Minimize sortie requirements by repackaging all materiel for air shipment; ensuring that combat personnel travel with their maximum authorized individual loads of rations, ammunition, or other personal protective equipment; and splitting units into air-essential and surface movement echelons (whenever possible).
- Ensure that personnel are adequately fed, rested, and protected at en route stops.
- Deploy the personnel and communications equipment necessary to track and report on all air movements.

d. Different missions will require the use of different airlift assets. The Services possess a variety of fixed- and rotary-wing platforms capable of performing the airlift role.

- The main advantage of fixed-wing aircraft over surface transportation modes is that they combine speed (250 to 500 knots, depending on aircraft type) and the ability to carry substantial to very large cargo capacities (7 to over 100 tons, also depending on aircraft type). This provides the capability to quickly move large amounts of personnel and materiel over greater distances. The combination of their speed and tactics also enhances their survivability, while their range generally allows them to be based in relatively secure and logistically easier-to-support rear areas. The main disadvantages are their terminal requirements, which can limit their flexibility, and their size and limited maneuverability, which increases their vulnerability to ground and air attack.

These disadvantages are particularly pronounced for the larger transports. Under most circumstances smaller transports, such as the C-130, are usually suited to a sustained intratheater airlift role, and the larger transports are best suited for the intertheater airlift role. Air refueling aircraft (which vary from the USMC KC-130 to the USAF KC-10) have similar advantages and disadvantages.

- Services also operate rotary-wing aircraft, such as the H-1, H-3, H-60, and CH-46, CH-47, and CH-53, which possess intrinsic intratheater airlift capabilities. Rotary-wing aircraft can be useful for intratheater purposes for the following reasons:
  - their ability to operate at smaller undeveloped LZs increases their flexibility and often reduces ground-transit times for their loads;
  - their ability to transport personnel and materiel to and from forward-deployed ships increases expeditionary flexibility;
  - their terrain-hugging flight capabilities enhance their survivability in threat situations; and
  - their ability to sling-load some types of materiel allows them to pick up and deliver loads with minimal ground-handling delays.
- However, in relation to fixed-wing aircraft, the inherent aerodynamic inefficiencies of rotary-wing aircraft sharply restrict payload and range capabilities. In addition, their mechanical characteristics give them a high ratio of support-man-hours to flight-hours. Consequently, rotary-winged assets:

- usually are not suited to sustained airlift operations beyond about 50-100 nautical miles from a refueling point;
- usually require more maintenance hours per hour of flight time; and
- are usually based at LZs not well suited to large-scale, sustained airlift operations.

For these reasons, airlift-capable rotary-wing assets are normally assigned as organic combat and combat support elements to surface combat organizations. Thus, in deciding to use the capabilities of any organic rotary-wing assets to support the intratheater airlift effort, the JFC should consider their vital importance to their assigned organizations, as well as their utility to specific airlift missions. Intratheater airlift requirements that might best be filled by rotary-wing aircraft could include large requirement, short-distance operations, such as resupplying ships at sea and unloading ships at undeveloped water terminals, or routine small-payload operations to sites not collocated with LZs, such as daily courier flights to deployed air defense units.

### 3. Planning Air Refueling Operations

a. While many considerations for air mobility forces are the same for airlift and air refueling assets, there are some specific considerations unique to tanker operations. These include the following.

- **Boom Versus Drogue.** If planned operations will include a significant number of receivers requiring probe-and-drogue type refueling intermixed with receivers requiring boom-type refueling, planners should consider using tankers capable of both types of refueling on the same mission.
- **Total Offload Versus Booms in the Air.** Planners must consider whether planned operations will emphasize total offload capability for only a few receivers or a rapid refueling capability for multiple receivers. If total offload capability is more important (such as for large aircraft), fewer numbers of tankers with larger fuel loads should be planned. **If the mission emphasis is on frequent, rapid refuelings to multiple receivers (such as multiple fighter strike packages), it is more effective to use a**



*A KC-10 conducts drogue refueling operations.*

**larger number of tankers maximizing the number of available “booms in the air.”**

- **Special Operations.** If SOF activity is planned, air refueling planners must ensure that aircraft capable of SOF operations, and crews trained in those operations, are available.

**b. Daily Allocation. At the operational level, force allocation consists of translating the JFC’s air apportionment decisions into total number of air refueling sorties, by aircraft type, available for each operation or task.** Air refueling assets are matched against receivers in the ATO based on the JFC’s air apportionment guidance but tempered by changing conditions. At this level, the most important decisions are those that place tanker aircraft types against receiver requirements.

**c. Air refueling capability can be increased without increasing the number or size of tanker aircraft by carefully matching tanker aircraft types against receiver mission requirements.** This involves greater use of refuelable reliability tankers, assigning individual tankers to multiple receivers or receiver packages, and ensuring that receiver air refueling requests accurately reflect their mission requirements. The considerations for daily allocation decisions are much the same as for contingency allocations as discussed above. When developing daily air refueling allocations, planners must consider boom versus drogue requirements, emphasis on total offload versus booms in the air, and SOF requirements.

**d. Airspace and Air Traffic Control. Many countries have specific restrictions on air refueling operations conducted within their sovereign airspace.** Planners need to be aware of potential restrictions.

**e. Altitude Reservation (ALTRV). Most intertheater air refueling operations require an ALTRV to reserve air refueling airspace.** ALTRVs must be submitted IAW rules of the International Civil Aviation Organization (ICAO) in international airspace and with the ICAO and the HN rules when conducted over territorial airspace. Planners must ensure that ALTRV approval is received prior to conducting air refueling operations. ALTRVs do not relieve aircrews of the requirement to obtain diplomatic clearances or to file flight plans.

**f. Air Refueling Airspace.** Most intratheater air refueling is conducted in airspace specifically designated for air refueling. For peacetime operations, air refueling airspace is published in flight information publications with boundaries, altitudes, and communications frequencies agreed to by the ATC authorities. During a contingency, air refueling airspace close to the adversary will change frequently, and its altitudes and communications frequencies will be classified to avoid predictability. Routing to and from the air refueling airspace will also change in response to changes in air operations and adversary threats to friendly forces.

**g. Communications Capabilities and Emissions Control.** Air refueling operations are highly dependent on both air-to-air and air-to-ground communications. Throughout air refueling operations, tankers must be able to communicate with their receivers, AWACS controllers, local air traffic control, and other tankers in formation and maintain at least a listening watch on designated high frequency channels. Mission requirements normally dictate that tankers maintain positive contact on most all of these frequencies simultaneously. Combat or politically sensitive missions may require both the tanker and receiver to exercise emissions control (EMCON) procedures. These procedures minimize an aircraft’s transmission of

electronic signals (communication and navigation) in order to reduce the amount of information other forces can gather. Use of EMCON entails bringing two aircraft together, in the same airspace with an intentionally degraded communication and navigation capability. To be successful in refueling under EMCON conditions, standardized procedures must be developed between tanker and receiver(s). The procedures must be regularly exercised by both tanker and receiver aircrews and they must be thoroughly briefed on the procedures to be used prior to each mission.

h. **Conditions.** Air refueling forces and their receivers must be capable of conducting air refueling operations at night and under adverse weather conditions. Depending upon the operation, this may require precision navigation equipment and night-vision capability.

## 4. Marshalling Plan

**The marshalling plan provides the administrative and logistic procedures by which units complete final preparations for move to the departure airfields, and load aircraft.**

a. **General.** **Marshalling is the process by which units participating in an amphibious or airborne operation group together or assemble when feasible or move to temporary camps in the vicinity of embarkation points, complete preparations for combat, or prepare for loading.** It includes the preparations required to plan, document, and load equipment and personnel aboard aircraft.

- **The marshalling area is usually located near departure camps and airfields to conserve resources and reduce the opportunity for observation. When the number of departure airfields is limited**

or when requirements dictate dispersion, loading may be accomplished on a phased schedule.

- **The Air Force component's portion of the marshalling operation is developed during air movement planning and consists of instructions regulating aircraft movement and the parking plan. These procedures are stipulated in the air movement annex to the OPORD.**

### b. Preparations

- **Planning.** **The joint force staff coordinates with administrative and logistic agencies for maximum support during marshalling. This support includes transportation, communications, and personnel support functions** (campsite construction, operation, and maintenance; messing; and religion, fitness, recreation, and other morale services) and permits the unit to concentrate on preparation for the movement. Support may also include local security personnel to supplement normal Air Force security at the departure airfield.

*For details on air base ground defense, see JP 3-10.1, Joint Tactics, Techniques, and Procedures for Base Defense.*

- **Logistics.** The unit logistics officer prepares the marshalling plan. The plan is an appendix to the service support annex of the OPORD or an annex to the administrative and logistics order of the airlifted force. It should contain procedures for cover and deception. **The marshalling plan includes procedures for moving units** from marshalling areas through the alert holding and call forward areas to the ready line. Finally, it includes methods for loading troops and equipment into individual aircraft.

- **Selection of Marshalling Areas and Departure Airfields.** The selection of marshalling areas and departure airfields is based on the air movement plan and influenced by several common factors. There is no order of priority among these factors, but any one of them could become the basis for final selection. To avoid concentration of forces, **multiple marshalling areas and departure airfields should be selected.** Excessive dispersion, however, makes C2 more difficult and may diminish the effectiveness of supporting activities. The factors affecting selection of marshalling areas and departure airfields are illustrated in Figure VII-3.
- **Unit Preparation.** For security reasons, marshalling should be accomplished quickly. **To prepare for marshalling, deploying units are responsible for the following.**
  - Establish liaison with the departure airfield control group (DACG).
  - Obtain equipment and supplies as early as possible.
  - Issue prepackaged supplies and equipment to the airborne forces to expedite loading operations.
  - Perform final preparation of vehicles and equipment.
  - Ensure that adequate shoring and dunnage materials are readily available.
  - Receive parachutes and other airdrop items and prepare airdrop loads in coordination with the responsible airdrop support unit.
  - Prepare and certify aircraft load plans (appropriate Air Force officials verify and approve load plans), personnel, and

## FACTORS AFFECTING SELECTION OF MARSHALLING AREAS AND DEPARTURE AIRFIELDS

- ▶ Mission to be accomplished
- ▶ Airfields (number, location, type)
- ▶ Air support available
- ▶ Communications
- ▶ Initial location of participating units
- ▶ Vulnerability to adversary action
- ▶ Distance to the objective area
- ▶ Logistic support required and available
- ▶ Unit integrity
- ▶ Adequacy of air defense
- ▶ Capacity of each airfield to handle sustained operations
- ▶ Security requirements, to include camouflage, concealment, and deception measures
- ▶ Health hazards and expected weather
- ▶ Surface lines of communications
- ▶ Types of airlift aircraft used

Figure VII-3. Factors Affecting Selection of Marshalling Areas and Departure Airfields

equipment manifests (and annotate any hazardous materials by class), and submit them through the DACG (or designated combatant commander agent if no DACG is present) to the supporting airlift elements. As a minimum, manifest information should be submitted electronically, either via disk or direct system interface, to facilitate movement processing and ITV reporting. En route messaging is a deploying unit responsibility.



*Proper marshalling of deploying units enables forces to be transported with minimum confusion or delay.*

- Unit commanders or team chiefs plan and coordinate the use of available facilities and areas at departure airfields for a command post, communications centers, briefing areas, and equipment and supply handling points. They ensure that unit equipment, including individual clothing and equipment not required in the objective area, is packed in suitable containers and stored at the rear echelon or installation.
- **Dispersal Procedures. Dispersal techniques should be considered during marshalling.** One technique involves moving personnel and equipment to departure airfields where airlift operations may be staged. Another technique is to fly airlift aircraft to onload bases where personnel and equipment are located. Personnel and equipment are subsequently airlifted to the originating departure airfields. **Any combination of these procedures may be used.**
- c. **Responsibilities. Arrival and departure airfield operations are conducted by Air Force units and the deploying component units.**
- The Air Force units, consisting of a TALCE, MST, or MSE, are typically assigned to either composite or provisional organizations tailored to meet the specific task at hand. **These teams are responsible for marshalling the deploying unit and associated equipment for airlift.** The organization employed depends on the size of the unit being deployed and the number of aircraft involved.
- **The A/DACG is the deploying Service component's counterpart** to the TALCE, MST, and MSE. This organization is sized to support the unit being deployed. Specific marshalling responsibilities are outlined in Figure VII-4.
- d. **Execution**
- **The deploying unit, DACG, and TALCE work together to ensure that the unit is ready for air movement as quickly, orderly, and safely as possible.** The deploying unit **assembles, prepares, and documents** its cargo and personnel for air movement. **Discrepancies are**

## ARRIVAL/DEPARTURE AIRFIELD CONTROL GROUP MARSHALLING RESPONSIBILITIES

- ▶ Coordinate with the tanker airlift control element (TALCE), mission support team, or mission support element and deploying unit.
- ▶ Ensure that offload teams and required support teams are available.
- ▶ Accept responsibility for each planeload at the established release point from the TALCE.
- ▶ Release each load to the deploying unit.
- ▶ Provide fueling and minor maintenance for deploying unit vehicles.

### DEPLOYING UNIT

- ▶ Appoint a plane team or troop commander for each mission aircraft carrying passengers.
- ▶ Coordinate with the arrival/departure airfield control group (A/DACG)
- ▶ Complete final preparation of vehicles, equipment, pallets, containers, and required documentation, to include manifest data.
- ▶ Ensure that all required shoring and dunnage are on hand.
- ▶ Assemble personnel and equipment into planeloads according to preplanned load plans.
- ▶ Provide safety equipment to loading crewmembers.
- ▶ Ensure that personnel and equipment arrive at the alert holding area according to the established timetable.
- ▶ Correct any load or documentation discrepancies identified by the A/DACG or TALCE.
- ▶ Assist in loading and unloading aircraft as instructed by the TALCE load team chief.

Figure VII-4. Arrival/Departure Airfield Control Group Marshalling Responsibilities

identified and corrected prior to air movement. There are **four separate areas of activity** in departure airfield operations. Each activity takes place in

a designated area and involves specific tasks. Figure VII-5 shows the four separate areas of activity and outlines the major functions of each area.

## DEPARTURE AIRFIELD OPERATIONS

### MARSHALLING AREA

Deploying unit responsibility. Prepare vehicles, equipment, cargo, and personnel into chalk loads for delivery to the DACG alert holding area for air movement.

### ALERT HOLDING AREA

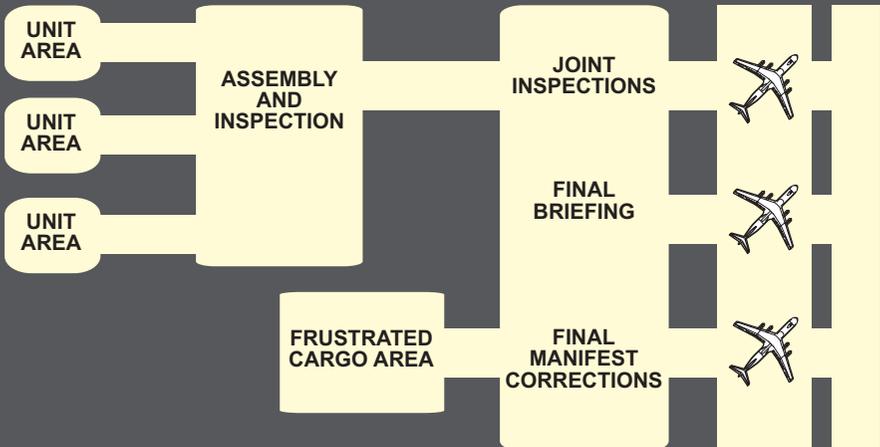
DACG area of responsibility. The DACG ensures the movement of vehicles, equipment, and cargo from the alert holding area to the call forward area in orderly fashion. The reception of aircraft loads and conducting preinspections are accomplished here.

### CALL FORWARD AREA

Dual DACG and TALCE area of responsibility. Joint inspection and discrepancy corrections are conducted in this area. Chalk loads are moved from the call forward area and released into the TALCE at the ready line.

### READY LINE / LOADING RAMP AREA

TALCE area of responsibility. Receives control of chalks from the DACG and conducts additional briefings and inspections as required. Responsibility for all air movement operations.



### MAJOR FUNCTIONS

- Prepares personnel and cargo manifests
- Prepares other documentation agreed upon during the joint planning conference
- Conducts initial inspection of each chalk
- Releases each chalk to the DACG at the alert holding area

### MAJOR FUNCTIONS

- Accepts chalk from deploying unit
- Conducts inspection
- Establishes traffic flow pattern
- Establishes communications with deploying units and other functional areas, provides backup communications with TALCE

### MAJOR FUNCTIONS

- Conducts joint inspection
- Conducts final briefing and performs final manifest corrections
- Compiles statistical data
- Provides area for correction of discrepancies identified during the joint inspection

### MAJOR FUNCTIONS

- Establishes aircraft parking plan
- Receives load at ready line, directs to aircraft and, in conjunction with aircraft load master or load team chief, supervises the supported component while loading and restraining cargo aboard aircraft

DACG Departure Airfield Control Group

TALCE Tanker Airlift Control Element

Figure VII-5. Departure Airfield Operations

- **Movement to Aircraft Loading Sites.** The deploying commander assigns priorities for deploying unit cargo, vehicles, and equipment to loading sites based on required loading and scheduled station times published in the air movement plan. The deploying unit's installation major command provides transportation to move personnel and chalk loads to aircraft. Whenever possible, movements are made at night to maximize OPSEC. Personnel in charge of aircraft chalk loads should receive mission briefings concerning the route to their respective aircraft. Personnel and equipment should arrive at onload airfields IAW prescribed times published in the air movement plan. The TALCE controls airlift movement at the departure airfield. Routes to and from loading areas should be clearly marked. Strict control of air and ground traffic is maintained on and across runways and strips.
- **Preparation of Platform Loads.** If airdrop is part of the operation, platform loads are prepared during marshalling. When planning the preparation and marshalling of platform loads, the following factors should be anticipated:
  - Additional lead-time may be required;
  - Skilled rigging supervision is needed;
  - MHE required; and
  - Adequate facilities, to include a relatively clean and illuminated rigging area, should be provided if tactically feasible.
- **Cross-loading.** Whether administrative or combat-loaded, aircraft also may be cross-loaded. **Cross-loading distributes supplies and/or personnel among aircraft to ensure that the entire supply**

**of one item or unit is not lost by an abort or loss of one or a few aircraft.** Cross-loading does not alter the desirability of keeping ground force crews in the same aircraft as their vehicles, weapon systems, or other crew-served equipment.

- **Arrival Airfield Operations.** Although arrival operations are not part of the marshalling process, they are important in air movement. If not orderly, arrival operations could adversely affect the mission. Arrival operations take place in three main areas: the offloading ramp, holding area, and unit area. Cargo is offloaded from aircraft and shipped to the specified arrival airfield control group (AACG) offloading ramp. The AACG then processes and releases the cargo load to the deployed unit. Finally, the deployed unit is responsible for moving its cargo to the marshalling area, thus concluding air movement operations. This process prevents congestion on the flight line and ensures that arrival operations do not interfere with the planned air flow. This process may be modified or streamlined for combat offload operations. Figure VII-6 shows a typical layout of arrival airfield operations.

## 5. Intelligence Planning

Intelligence is fundamental to effective planning, security, and deception. The intelligence planning effort must be focused to ensure that it is responsive to the commander's requirements and the requirements of the subordinate units. In order to ensure that the intelligence effort addresses the commander's needs and is fully synchronized with operations, it is imperative that the appropriate intelligence staff elements be fully involved in the operations planning process from the outset. All available information must be analyzed regarding

## ARRIVAL AIRFIELD OPERATIONS

### OFF-LOAD RAMP AREA

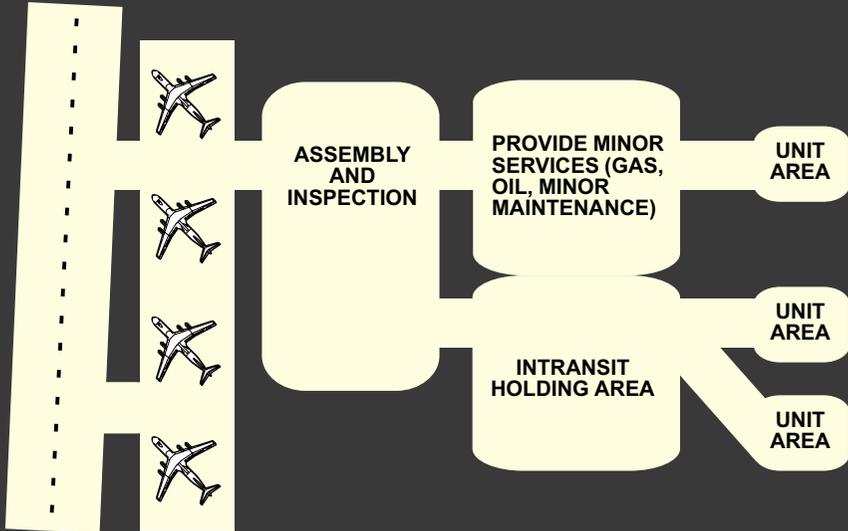
TALCE area of responsibility. Responsible for air traffic control, aircraft parking, supervision of offloading operation, and releasing planeload to AACG.

### HOLDING AREA

AACG area of responsibility. Receives and processes planeloads (chalks) for release to the deployed unit.

### UNIT AREA

Deployed unit area of responsibility. Unit receives planeloads from the AACG which terminates the air movement.



### MAJOR FUNCTIONS

- Performs base operations and other related operational functions
- Coordinates flight clearances
- Maintains aircraft traffic logs and operations records
- Accomplishes aircraft parking and provides parking plan to AACG
- Monitors intelligence functions
- Establishes communication with the AACG
- Provides MHE, MHE operators and MHE mechanics beyond the capability of the user and provides and operates any MHE that is unique to Commander, USTRANSCOM

AACG Arrival Airfield Control Group  
MHE Materials Handling Equipment

### MAJOR FUNCTIONS

- Assembles chalk and inspects for completeness
- Provides minor services (gas, oil, minor maintenance)
- Develops statistical data
- Establishes radio and / or land lines to the unit area, functional areas, and backup communication with unloading area (TALCE)
- Establishes temporary storage area

TALCE  
USTRANSCOM

### MAJOR FUNCTIONS

- Accepts aircraft loads

Tanker Airlift Control Element  
US Transportation Command

Figure VII-6. Arrival Airfield Operations

pertinent characteristics of the battlespace and adversary and potential adversary air defense capabilities. Significant information shortfalls must be identified as early as possible, converted into intelligence requirements, and submitted for collection or production as requests for information. A joint intelligence preparation of the battlespace effort should be initiated as early as possible to identify and assess possible adversary COAs that could threaten friendly air mobility operations. Effective intelligence planning provides commanders at all levels with the intelligence they need to apply their available forces wisely, efficiently, and effectively.

*See JP 2-0, Doctrine for Intelligence Support to Joint Operations, for more information regarding intelligence support of air mobility operations.*

### 6. Operations Security and Counterintelligence Planning

**All information pertaining to impending operations should be classified appropriately and controlled on a strict need-to-know basis** until the air movement phase is completed. When feasible, ground forces and airlift aircraft should be assembled at multiple airfields to reduce their signature. Forces should move to dispersal areas near air facilities quickly and as late as possible. Ground forces should also make all possible preparations for loading before they arrive at the loading site and sequence movement to these sites so that personnel arrive immediately after equipment and supplies have been loaded on the aircraft. **Appropriate deception or misinformation plans, developed early in the planning stages, may help conceal or divert attention from the aircraft and troop movements.** However, these plans should not jeopardize alternate plans or other operations within the area.

*See JP 3-13, Joint Doctrine for Information Operations, for more detail regarding information operations support of air mobility operations.*

### 7. Command, Control, Communications, and Computers Systems Planning

a. **Communication plans should be developed and coordinated by a joint communications staff** to integrate the communications capabilities of joint force components. **These plans should include** en route communications procedures and automated information systems to support movement reporting, call words or call signs, frequencies, communications equipment and supplies to be delivered, the sequence of their delivery, and code words for significant events.

b. The staff can recommend which component should have responsibility for the following functions.

- **Communications-electronics during air movement.**
- Develop and maintain a **communications net for early operations** in the objective area.
- Develop and maintain a communications **net between the departure airfield and LZ** (or arrival airfield) for airland operations.
- Establish **transition** criteria to determine when to shift from assault net operations to normal communications nets.
- **Secure, rapid, reliable communications from the objective area** through the command, control, communications, and computers (C4) systems of geographic

combatant commands and other headquarters immediately upon the arrival of airlift personnel; **communications from the joint force headquarters to and between component commands**; and from Department of State or other agencies in the objective area.

- Formulation, publication, and distribution of the **communications-electronics operating instructions and joint communications-electronics operating instructions**.
- **Relay-type communications** for disseminating intelligence or mission changes to the airborne force commanders while they are en route to the objective area.
- **Jamming operations** and coordination to prevent interference with friendly C2.

*Additional information concerning C4 planning can be found in JP 6-02, Joint Doctrine for Employment of Operational/Tactical Command, Control, Communications, and Computer Systems.*

## 8. Logistic Planning

**JFC and Service component commander responsibilities for the logistic support** of assigned and attached forces are described in JP 4-0, *Doctrine for Logistic Support of Joint Operations*, and other 4-series joint publications. Described here are those considerations requiring emphasis in relation to airlift operations.

a. There are many considerations that affect logistic planning in air movement operations. They include the following.

- **Aircraft characteristics, capabilities, and allocations.**

- **Airfields**, to include capabilities and limitations, **and airland facilities available** in the departure and objective areas.

- **Engineer effort and equipment requirements** for new construction or necessary improvements to existing facilities.

- **POL availability.**

- **Number and location of marshalling areas** and the composition of forces to be marshalled.

- **Joint inspection (JI) requirements** and sourcing for JI-qualified personnel.

- **Supplies, equipment, personnel, and materiel required** in the objective area and requirements for sustainment.

- Type and amount of prestocked, pre-positioned, and prerigged **combat support supplies**.

- Estimates of the **medical air evacuation** workload.

- **Anticipated HNS** and measures to obtain local labor, transportation, and materiel resources.

- Returning Air Force **pallets and tie-down equipment** after air delivery.

- Requirements for the marking (through AIT) of **retrograde movement** of repairable parts and equipment.

- **Mail distribution operations.**

b. **Initial combat requirements dictate the quantity and type of supplies and equipment that the forces carry.** These requirements are influenced by the handling capability of the units in the objective area, availability and

carrying capacity of airlift aircraft, projected date of linkup or withdrawal, anticipated weather, and adversary capabilities. Documentation of supplies delivered to the airhead facilitates allocation and shifting of priorities to support planned or unexpected situations. Use of Service component and joint ITV systems to provide timely and accurate ITV.

**c. Forces can be resupplied by either airland or airdrop delivery methods.**

Follow-up supplies are prepared and delivered commensurate with the threat situation and the handling and transportation capabilities of the ground forces. The supported commander is responsible for recovery of airdropped supplies and equipment and for the return of critical airdrop rigging equipment, specifically parachutes, platforms, tie-down equipment, and air pallets. The needs of the force in the objective area should be the principal consideration. The objective of delivery operations is to deliver supplies as close as possible to the using unit.

## 9. Other Miscellaneous Planning Factors

**a. Materiel Collection and Classification Planning.**

Because much abandoned or captured materiel or contaminated equipment may be usable by friendly forces, ground and air commanders should develop plans for their retrograde, consistent with the urgency and length of the primary mission.

**b. Planning for Enemy Prisoners of War.**

EPW collection points should be located near air terminal facilities to aid in air evacuation, but not so close that they are endangered by possible adversary targeting.

**c. Medical Support Planning.** A complete medical estimate is usually conducted for each phase of an operation. The respective Service component medical

planners should conduct detailed medical supply planning and medical support operations. Plans should allow for probable losses of medical equipment and supplies during delivery into the objective area. Estimates should be made for replacement items to cover losses due to battle actions, evacuation of patients, and other causes. The evacuating medical activity usually provides litters, blankets, splints, and other medical items accompanying patients during evacuation. Planners responsible for aeromedical evacuation must ensure that plans address the requirement to move biologically or chemically contaminated patients if directed by the TRANSCOM or geographic combatant commander.

*Additional information regarding aeromedical evacuation support can be found in JP 4-02.2, Joint Tactics, Techniques, and Procedures for Patient Movement in Joint Operations.*

**d. Aeromedical Evacuation**

- **Responsibilities.** AE is the rapid intertheater and intratheater movement of sick or injured personnel by fixed-wing aircraft under medical supervision to appropriate medical care. Movement within and from Level 2 is normally a Service component responsibility; however, operations that incorporate the use of Level 3 medical treatment facilities may require casualty movement from Level 2 and evacuation to Level 3 by the joint AE common-user system.

*Information on the AE mission, Service component, and common-user systems, organizations, and C2 procedures is contained in JP 4-02, Doctrine for Health Service Support in Joint Operations, and JP 4-02.2, Joint Tactics, Techniques, and Procedures for Patient Movement in Joint Operations.*

- **Common-user System.** USTRANSCOM and the geographic combatant commanders perform common-user AE with available airlift assets. Normally, patients are evacuated from Echelon 3 to Echelon 4 and from Echelon 4 back to CONUS and other Echelon 5 medical treatment facilities. However, in selected circumstances, common-user airlift can be apportioned to evacuate patients from as far forward in a theater as the aircraft can operate.

e. **Withdrawal or Restaging Plan.** The withdrawal or restaging of forces by air should be done IAW the general guidelines for redeployment and extraction airlift operations.

- Other specific considerations that may be important to the success of these operations include the local air superiority situation and the possible need for friendly deception. Such

operations should mask these withdrawal movements for as long as possible. Clearly, **the likelihood of success will be increased by conducting these operations early enough to allow for comprehensive planning and organized execution.** Once the appropriate ground force commander orders an operation and establishes movement priorities, load plans, and departure points, **the JFACC should control the movement.** TALCEs should be placed at the departure points, if possible.

- **The ground force commander should provide trained loading teams at the departure points to assist airfield support units** in loading and securing equipment, with technical assistance and supervision from Air Force personnel. Specific withdrawal and equipment destruction procedures are contained in appropriate Service manuals.

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# CHAPTER VIII

## PLANNING CONSIDERATIONS FOR AIRBORNE OR AIR ASSAULT OPERATIONS

*“Anyone who has to fight, even with the most modern weapons, against an enemy in complete command of the air, fights like a savage against modern European troops, under the same handicaps and with the same chances of success.”*

**Field Marshal Erwin Rommel**

### 1. Planning Sequence

a. The JFC initiates airborne and air assault operations with a planning order to participating units. The order is distributed through normal command channels and pertinent information is issued to subordinate units. To allow efficient planning, the order should specify missions, outline the command structure, and identify participating ground and air forces. After receipt of an order and preparation of initial estimates and studies, the commanders, staffs, and representatives of supporting forces meet in a joint conference to develop a concept of the operation. The concept of the operation forms the basis for the preparation of the commander’s planning order (guidance) and development of OPLANs and OPORDs. It should provide a list of forces in support, a schedule of events, and state the conditions under which the operation will begin, be delayed, altered, or terminated.

b. Airborne, air assault, and air forces use the sequence of command and staff actions for planning and troop leading procedures common to other combat operations (Figure VIII-1). Planning steps may be compressed or conducted concurrently; detailed written OPLANs and OPORDs may be supplanted by standing operating procedure or lessons learned in previous training.

c. Airborne and air assault commanders begin planning operations with a visualization of the ground tactical plan and develop it

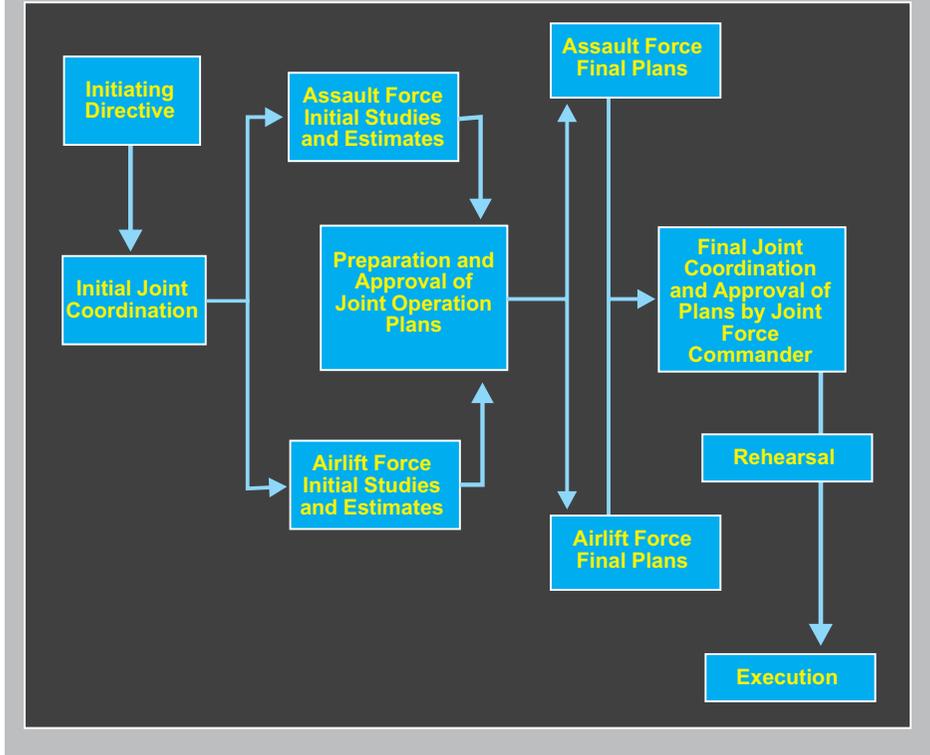
through a reverse-planning sequence. The reverse-planning sequence can be viewed as a four-step process for airborne operations, while air assault operations may be considered a five-step planning process (Figure VIII-2). Regardless of the planning steps, they both involve loading forces on aircraft, moving them to the objective area, landing, and initiating the ground tactical plan. Forces providing support of any type, including, but not limited to airlift, close air support, etc., must be part of the process and kept abreast of changes. Similarly air forces providing airlift support must keep airborne and air assault forces abreast of changes that will or could possibly impact on the operation.

### 2. Planning for Airborne or Air Assault Operations

From an air mobility aspect, planning for either of these types of operations is complex and requires direct liaison and coordination between the logistic support agencies of the participating components and other supporting forces. Joint conferences occur during the preliminary planning stages and continue until all joint planning is completed and subordinate force commanders have completed their respective OPORDs.

a. The complexity of airborne and air assault operations demands great attention to detail in the planning process (see Figure VIII-3 and Figure VIII-4). A unit directed to plan one or more airborne operations begins planning immediately and continues until the

## AIRBORNE AND AIR ASSAULT PLANNING SEQUENCE



**Figure VIII-1. Airborne and Air Assault Planning Sequence**

operation is either cancelled or executed. The unit plans its tactical operation within the limits of aircraft availability, logistic support, and knowledge of the projected landing area. It is critical that the air mobility forces tasked to provide support are involved from the onset.

b. To lessen the time needed to prepare for execution of a specific short-notice operation, the air assault unit prepares and maintains a compilation of total airlift capacity requirements. Aircraft requirements tables show the aircraft required for best, worst, and in-between operating conditions. They serve as a basis for the allocation of aircraft for a particular short-notice operation.

c. The airborne commander is responsible for developing the ground tactical plan, landing plan, and marshalling plan; the airlift mission commander develops the air movement plan in support of the airborne commander (Figure VIII-2).

- **Ground Tactical Plan.** In this plan, commanders designate missions, objectives, locations of the airhead line, reconnaissance and security forces, task organization and boundaries, and reserve forces. Airborne commanders must be able to designate targets for engagement by joint fire support and interdiction to complement their ground tactical plan.

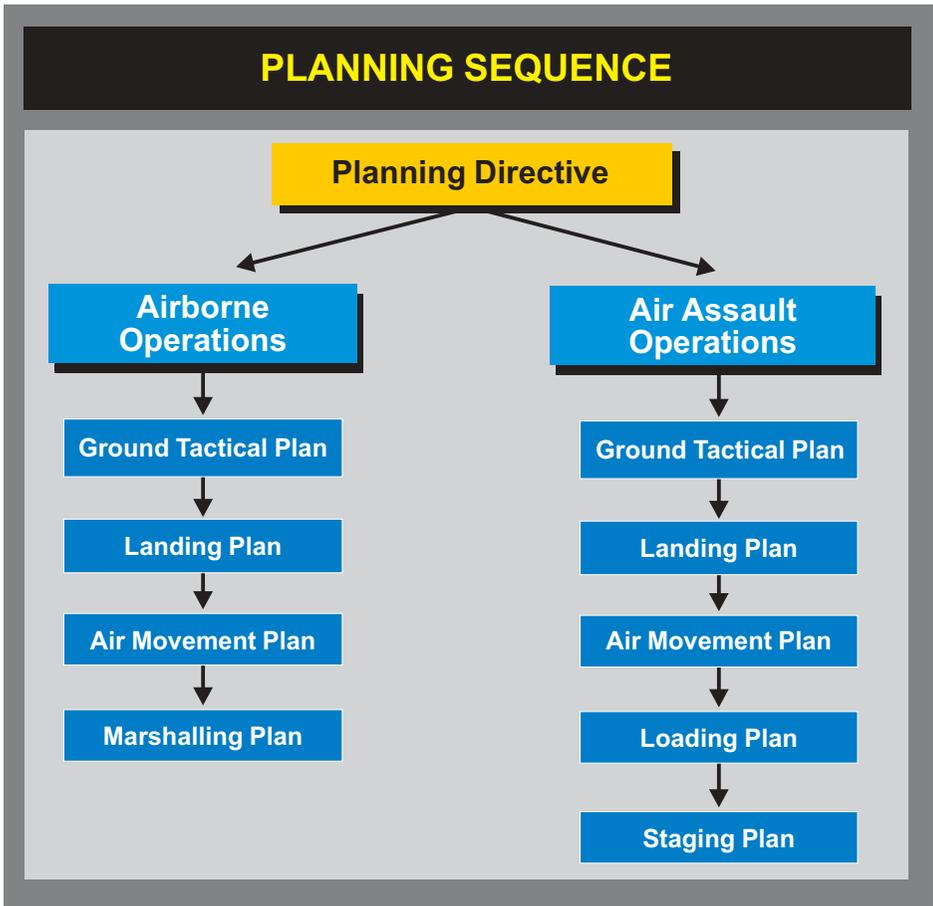


Figure VIII-2. Planning Sequence

The JFC, in coordination with the affected component commanders, should establish a clearly defined area where the airborne force will be considered the supported force and will determine the timing, priority, and effects of fires and interdiction. They give special consideration to the assembly and reorganization of assault forces and the decentralized nature of initial operations in the objective area. Parallel developments of logistic and personnel planning begin with ground tactical planning and continue concurrently with a detailed planning sequence for landing.

- **Landing Plan.** The landing plan is the airborne commander's plan that links the air movement plan to the ground tactical plan. In this plan, commanders specify sequence, time, method of delivery (jointly determined with the airlift mission commander to ensure that mobility force capabilities and limitations are considered), troop destination, and materiel in the objective areas to support the scheme of maneuver. The goal is to get the right unit to the right place in the right order to properly execute the ground tactical plan. A technique to provide and verify information of the projected

## ELEMENTS OF AIRBORNE PLANNING (REVERSE-PLANNING SEQUENCE)

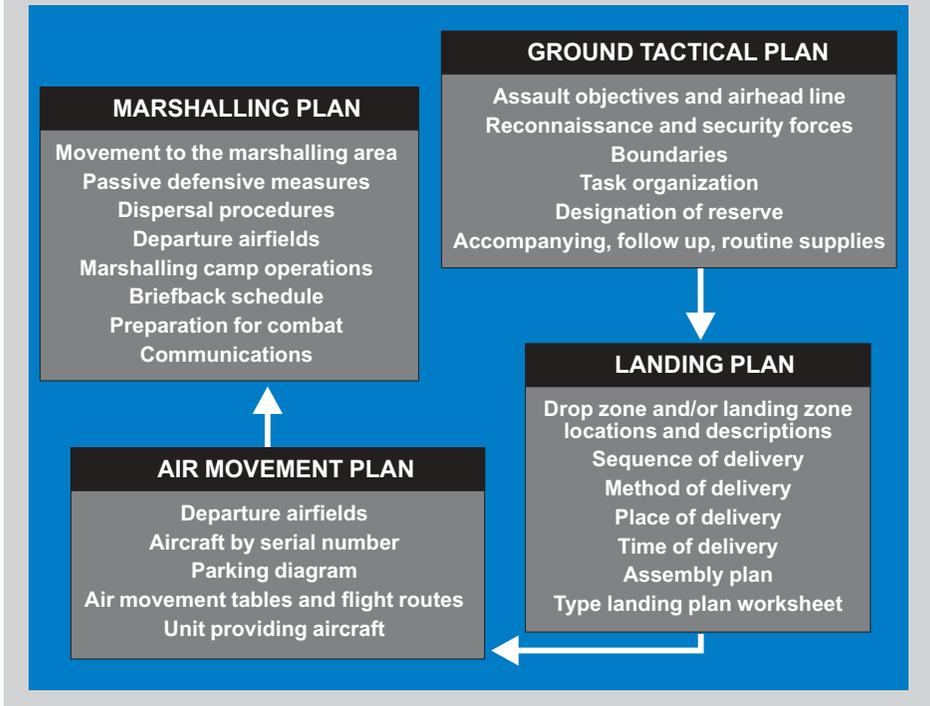


Figure VIII-3. Elements of Airborne Planning (Reverse-Planning Sequence)

landing area and to facilitate the landing and ground tactical plans is the use of the **joint airborne advance party**.

- **Air Movement Plan.** The air movement plan is the airlift mission commander's plan to deliver the airborne force to the objective area IAW the airborne mission commander's overall plan. It should be developed in close coordination with the JFACC, the DIRMOBFOR, the AMD within AOC, and the ground force commander.
- **Marshalling Plan.** This plan is developed last in the reverse-planning process and is based on the requirements of the other plans. It provides the needed information and procedures for units of the airborne force to prepare for combat, move to departure airfields, and load aircraft. The marshalling plan also provides detailed instructions for facilities and services needed during marshalling.
- If airdrop is part of the operation, **platform loads are prepared during marshalling.** When planning the preparation and marshalling of platform loads, **the following factors should be anticipated:**
  - additional lead-time may be required;
  - skilled rigging supervision is needed;
  - MHE may be required; and

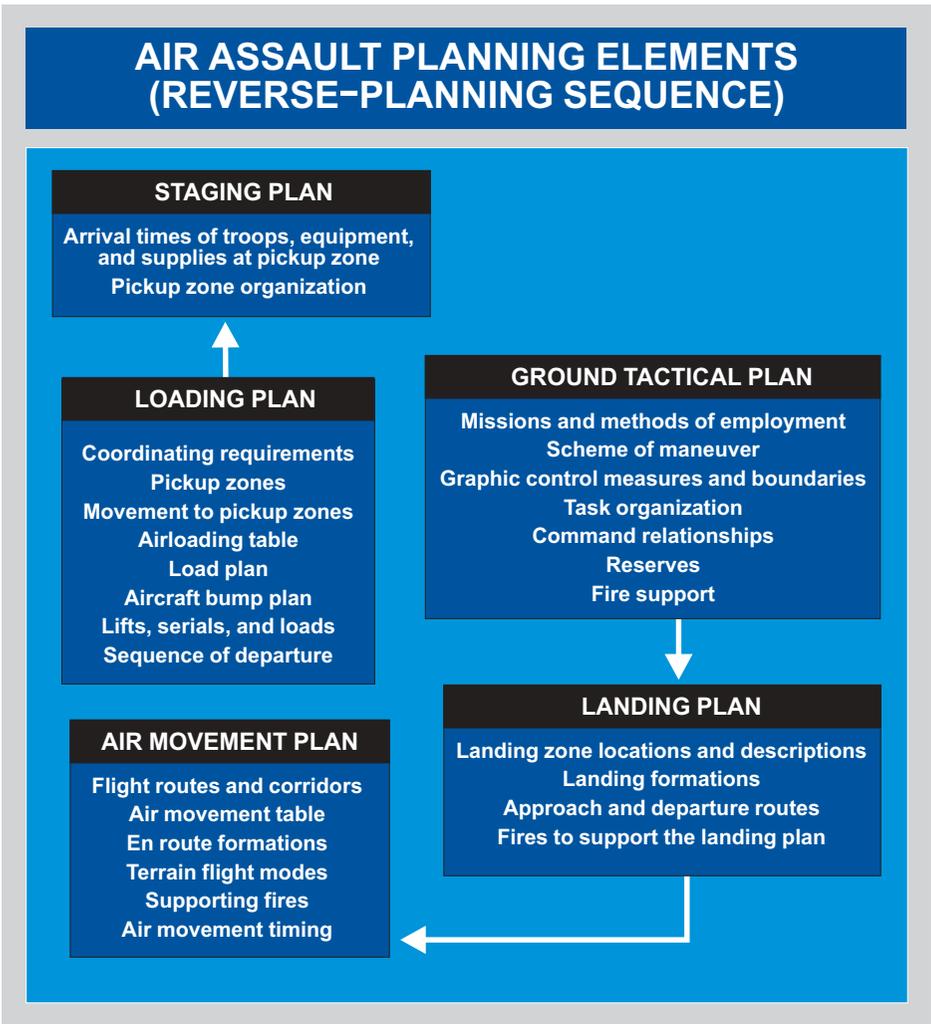


Figure VIII-4. Air Assault Planning Elements (Reverse-Planning Sequence)

- adequate facilities, to include a relatively clean and illuminated rigging area, should be provided if tactically feasible.
- **Loading Plan.** The loading plan is based on the air movement plan. It ensures that troops, equipment, and supplies are loaded on the correct aircraft. Unit integrity is maintained when aircraft loads are planned. However, assault forces and equipment should always be cross-loaded so that sufficient C2 assets

and combat power arrive at the LZ ready to fight should one or more aircraft fail to reach the LZ. Aircraft loads are also placed in priority to establish a bump plan, i.e., to ensure that essential troops and equipment are loaded ahead of less critical loads in case aircraft break down, do not arrive in time, or are not configured properly. Planning must cover the organization and operation of the pickup zone (PZ), including load positions, day and night markings, and communications. The loading plan is



*Airborne units arrive at the landing zones prepared to execute ground tactical plans.*

most important when mixing internal and external loads and/or when mixing aircraft types.

- **Staging Plan.** The staging plan is based on the loading plan and prescribes the arrival time of ground units (troops, equipment, and supplies) at the PZ in the proper order for movement. Loads must be ready before aircraft arrive at the PZ; usually, ground units should be in PZ posture at least 15 minutes before aircraft arrive. The staging plan also restates the PZ organization, defines flight routes to the PZ, and provides instructions for linkup of all aviation elements. Air-to-air linkup of aviation units should be avoided, especially at night when night vision goggles are being used.

d. **Airspace Control.** Airspace control is accomplished jointly. It is, therefore, prudent during airborne and/or air assault operations to ensure adequate protection of marshalling areas, resupply airfields, and the airhead once established. The airborne and air assault force conducts operations with short-range air defense systems. As the airhead is expanded during airborne operations, additional high-to-medium air defense is established and must

be linked to the area air defense commander (AADC). Joint forces provide air defense to the airborne and/or air assault operation with SEAD and defensive counterair as well as offensive counterair missions coordinated and controlled by the JFACC through the JAOC. In a joint simultaneous operation (amphibious, airborne, and/or air assault) the JFACC will normally be designated the AADC by the JFC.

*JP 3-52, Doctrine for Joint Airspace Control in the Combat Zone, provides further guidance on the AADC.*

*For further information on terminal airspace control TTP, see ALSA Center publication, Multiservice Procedures for Joint Air Traffic Control, also referenced as FM 100-104, MCRP 3-25A, NWP 3-56.3, and AFTTP(I) 3-2.23.*

e. **Logistics.** Such operations should be performed in as routine a manner as possible. Airborne and air assault operations are primarily focused at the operational and tactical levels of logistic support. Because the Army classifies their supplies by category, these supplies should be identified in the TPFDD and scheduled accordingly.



*Airborne and air assault operations are primarily focused at the operational and tactical levels of logistic support.*

- **Accompanying supplies** are those that are taken into the airhead by the assault and follow-on forces and include those supplies that are airdropped with the deploying unit.
- **Follow-on supplies** include all classes of supply and are air delivered after the initial assault. They are usually prepackaged, rigged, and stored for immediate distribution on request.
- **Routine supplies** are requested and delivered by normal supply procedures. The delivery begins depending on the tactical situation and the supply status of the force. After the initial assault, airland is generally preferred over airdrop because of its larger payload delivery capability and increased throughput.

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# APPENDIX A

## BRIEFING FOR AIRBORNE OPERATIONS

The following is a guide from which briefing officers may prepare outlines using those items that apply to the particular operation. The joint force operations officer conducts the briefing with the assistance of other joint and component staff officers as indicated. Before the briefing begins, briefing officers should distribute folders containing forms, maps, imagery, and other reference material required for the operation.

### 1. Commanding Officer

- a. Introduction of unit commanders.
- b. Concept of the operation.
- c. D-day and H-hour.
- d. Airlift units participating.
- e. Number of transport aircraft participating.
- f. Airfields to be used.
- g. General location of DZs and LZs.
- h. General airdrop procedures.
- i. Alternate objective areas.
- j. Recall procedures.

### 2. Weather Officer (Air Force)

- a. General weather trends.
- b. Weather over DZs and LZs, with special emphasis on visibility, cloud base, and surface wind.

- c. Winds at drop altitude.
- d. Mean effective wind over the DZ and/or LZ.
- e. Weather along proposed routes.
- f. Winds along proposed routes.
- g. Weather at return base.

### 3. Intelligence Officer

- a. Air station.
- b. Adversary capabilities.
- c. Aircraft.
- d. SAM and anti-aircraft artillery.
- e. Areas of expected small arms fire.
- f. Security.
- g. Evasion and escape.
- h. Procedures.
- i. Navigation aids.
- j. Routes and tactics.
- k. Information operations warfare.
- l. Survival.
- m. Challenge and countersign signals.
- n. Intelligence debriefing.
- o. Intelligence reports required.

#### 4. Operations Officer (Air Force)

- a. Marshalling.
  - Departure airfields.
  - Aircraft parking plan.
  - Aircraft chalk numbers.
  - Vehicle routes to be used on airfields.
- b. Aircraft loading and enplaning.
  - Total number of personnel and total amount of cargo.
  - Specific loads designated by chalk number.
  - Type of parachutes, equipment, and weight loads for heavy drop aircraft.
- c. Loading times.
- d. Collection of load manifests.
- e. Sequence of flight.
  - Description of serials by number or letter.
  - Serial commanders and deputy commanders.
  - Sequence of flights by serials.
  - Types of formations to be used.
  - Position of aircraft in formation.
  - Runways to be used.
  - Taxi routes.
  - Aircrew stations and time at aircraft.

- Start engines time.
- Taxi time.
- Abort procedures.
- Takeoff time.
- Time over target.
- Time of return to departure airfield or home base.
- f. Spare aircraft.
  - Parking plan for spare aircraft.
  - Procedures to be used.
  - Takeoff and form-up procedures.

#### 5. Navigation Officer (Air Force)

- a. Routes.
  - Courses, tracks, times, and distances.
  - Departure point.
  - Force rendezvous.
  - Initial point.
  - Line of flight over DZ and/or LZ.
  - Return route.
  - Last point of interception of force formation for aircraft having delayed takeoffs.
- b. Navigation aids.
  - En route.

- On the DZ and/or LZ (electronic and/or visual).
- c. Altitudes, airspeeds, and pressure setting procedures.
- Form up.
- Routes.
- Run in.
- Drop.
- Return.
- Turn off DZ.
- Alternate DZ or LZ information for above steps as applicable.
- Time check.
- d. Identification features as seen from the air.
- e. Specified areas of DZ on which each serial is to drop.
- f. Specified area for different landings.
- g. Visual aids on DZs.
- h. Alternate DZ or LZ if appropriate.

### **6. Communications and Signals Officer**

- a. Call sign and call words.
- b. Frequencies.
- c. Radio silence.
- d. Procedures for emergencies.
- e. Security and codes.

### **7. Operations Officer (Air Force Special Tactics or Supported Unit)**

- a. Signals for dropping.
- b. Drop or landing procedures.
- c. DZs and LZs.

### **8. Operations Officer (Air Force)**

- a. Emergency procedures.
- Abandon aircraft.
- Crash or emergency landing.
- Ditching.
- Emergency airfields.
- Search and rescue facilities.
- Salvo areas.
- Escort and/or cover by fighter aircraft.
- Number and type.
- Rendezvous point with formation.
- Fighter tactics.
- Landing and parking after return from mission.
- Formation recovery (peel-off and pattern for landing).
- Taxi route and parking plan.

- Time for final pilot briefing prior to “station time” for last minute information.
- Responsibility of pilots for passenger briefing after enplaning.
- Signals for drop.
- Emergency procedures.
- Flight safety rules.
- b. Miscellaneous.
  - Additional briefing or critiques.
  - Meals.
  - Transportation.
  - Time for completion of aircraft serviceability check or pre-flight check.
  - Reporting maintenance problems before engine start, prior to taxi, and prior to takeoff.

- Required reports.
- Questions pertaining to briefing.

### **9. Tactical Operations (Supported Unit)**

- a. Airborne unit involved.
  - Tactical Plan.
  - Landing plan.
  - DZs and LZs.
  - Terrain features.
  - Size.
- b. Ground intelligence pertaining to DZ and/or LZ.
- c. Ground information desired in postflight debriefing.
- d. Disposal of returned personnel or equipment.

## APPENDIX B

### REFERENCES

The development of JP 3-17 is based upon the following primary references.

1. National Security Decision Directive Number 280, 24 June 1987, *National Airlift Policy*.
2. Executive Order 12148, 20 July 1979, *Federal Emergency Management*.
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5. DOD Directive 4500.9, *Transportation and Traffic Management*.
6. DOD Regulation 4500.9-R, *Defense Transportation Regulation*.
7. DOD 4500.32-R, *Military Standard Transportation and Movement Procedures*.
8. DOD Directive 4500.43, *Operational Support Airlift*.
9. DOD 4515.13-R, *Air Transportation Eligibility*.
10. DOD Directive 5100.1, *Functions of the Department of Defense and Its Major Components*.
11. DOD Directive 5154.6, *Armed Service Medical Regulating*.
12. DOD Directive 5158.4, *United States Transportation Command*.
13. MCM-024-98, *Implementation of the Unified Command Plan*.
14. CM-1502-92, *A Doctrinal Statement of Selected Joint Operational Concepts*.
15. Allied Joint Tactical Publication 56(A), *Air to Air Refueling*.
16. JP 0-2, *Unified Action Armed Forces (UNAAF)*.
17. JP 1-01, *Joint Doctrine Development System*.
18. JP 1-02, *Department of Defense Dictionary of Military and Associated Terms*.
19. JP 2-0, *Doctrine for Intelligence Support to Joint Operations*.
20. JP 3-0, *Doctrine for Joint Operations*.

21. JP 3-02, *Joint Doctrine for Amphibious Operations.*
22. JP 3-05, *Doctrine for Joint Special Operations.*
23. JP 3-10.1, *Joint Tactics, Techniques, and Procedures for Base Defense.*
24. JP 3-11, *Joint Doctrine for Operations in Nuclear, Biological, and Chemical (NBC) Environments.*
25. JP 3-13, *Joint Doctrine for Information Operations.*
26. JP 3-35, *Joint Deployment and Redeployment Operations.*
27. JP 3-52, *Doctrine for Joint Airspace Control in the Combat Zone.*
28. JP 3-56.1, *Command and Control for Joint Air Operations.*
29. JP 3-61, *Doctrine for Joint Public Affairs.*
30. JP 4-0, *Doctrine for Logistic Support of Joint Operations.*
31. JP 4-01, *Joint Doctrine for the Defense Transportation System.*
32. JP 4-01.2, *Joint Tactics, Techniques, and Procedures for Sealift Support to Joint Operations.*
33. JP 4-01.3, *Joint Tactics, Techniques, and Procedures for Movement Control.*
34. JP 4-01.8, *Joint Tactics, Techniques, and Procedures for Joint Reception, Staging, Onward Movement, and Integration.*
35. JP 4-02, *Doctrine for Health Service Support in Joint Operations.*
36. JP 4-02.2, *Joint Tactics, Techniques, and Procedures for Patient Movement in Joint Operations.*
37. JP 4-04, *Joint Doctrine for Civil Engineering Support.*
38. JP 4-05.1, *Joint Tactics, Techniques, and Procedures for Manpower Mobilization and Demobilization Operations: Reserve Component (RC) Callup.*
39. JP 6-0, *Command, Control, Communications, and Computer (C4) Systems Support to Joint Operations.*
40. JP 6-02, *Joint Doctrine for Employment of Operational/Tactical Command, Control, Communications, and Computer Systems.*

41. CJCSM 3122.01, *Joint Operation Planning and Execution System Vol I: (Planning Policies and Procedures)* (in development).
42. CJCSM 3122.03, *Joint Operation Planning and Execution System Vol I: (Planning Formats and Guidance)*.
43. CJCSM 3122.04, *Joint Operation Planning and Execution System Vol II: (Supplemental Planning and Execution Formats and Guidance)*. (SECRET)
44. CJCSI 6110.01, *CJCS-Controlled Tactical Communications Assets*.
45. CJCSM 3122.02, *Crisis Action Time-Phased Force and Deployment Data Development and Deployment Execution*.
46. Air Land Sea Application Center Publication, *Multiservice Procedures for Joint Air Traffic Control*. Also referenced as FM 100-104, MCRP 3-25A, NWP 3-56.3, and AFTTP(I) 3-2.23.
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53. AFDD 2-6.1, *Airlift Operations*.
54. AFDD 2-6.2, *Air Refueling*.
55. AFDD 2-6.3, *Air Mobility Support*.
56. DODR 4500-9, Part 3 *Movement of Units in Air Force Aircraft*.

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# APPENDIX C

## ADMINISTRATIVE INSTRUCTIONS

### 1. User Comments

Users in the field are highly encouraged to submit comments on this publication to: Commander, United States Joint Forces Command, Joint Warfighting Center Code JW100, 116 Lake View Parkway, Suffolk, VA 23435-2697. These comments should address content (accuracy, usefulness, consistency, and organization), writing, and appearance.

### 2. Authorship

The lead agent for this publication is the US Transportation Command. The Joint Staff doctrine sponsor for this publication is the Director for Operations (J-3).

### 3. Supersession

This publication supersedes JP 3-17, 18 July 1995, *Joint Tactics, Techniques, and Procedures for Theater Airlift Operations*, and JP 4-01.1, 20 July 1996, *Joint Tactics, Techniques, and Procedures for Airlift Support to Joint Operations*.

### 4. Change Recommendations

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b. When a Joint Staff directorate submits a proposal to the Chairman of the Joint Chiefs of Staff that would change source document information reflected in this publication, that directorate will include a proposed change to this publication as an enclosure to its proposal. The Military Services and other organizations are requested to notify the Director, J-7, Joint Staff, when changes to source documents reflected in this publication are initiated.

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# GLOSSARY

## PART I — ABBREVIATIONS AND ACRONYMS

AACG	arrival airfield control group
AADC	area air defense commander
ABCCC	airborne battlefield command and control center
ACL	allowable cabin load
A/DACG	arrival/departure airfield control group
AE	aeromedical evacuation
AECT	aeromedical evacuation control team
AFCC	Air Force component commander
AFRC	Air Force Reserve Command
AFTTP	Air Force technical training publication
AIS	automated information system
AIT	automatic identification technology
ALCF	airlift control flight
ALCS	airlift control squadron
ALOC	air line of communications
ALSA	air land sea application
ALTRV	altitude reservation
AMC	Air Mobility Command
AMD	air mobility division
AME	air mobility element
AMOCC	Air Mobility Operations Control Center
AMOG	air mobility operations group
AMOS	air mobility operations squadron
AMS	air mobility squadron
AMX	air mobility express
ANG	Air National Guard
AOC	air operations center
AOR	area of responsibility
APOD	aerial port of debarkation
APOE	aerial port of embarkation
AR	air refueling
ARFOR	Army Forces
ATC	air traffic control
ATO	air tasking order
AWACS	Airborne Warning and Control System
BCD	battlefield coordination detachment
C2	command and control
C3	command, control, and communications
C4	command, control, communications, and computers
CCT	combat control team
CDS	container delivery system
CJCS	Chairman of the Joint Chiefs of Staff

## Glossary

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CJCSI	Chairman of the Joint Chiefs of Staff Instruction
CJTF	commander, joint task force
COA	course of action
COCOM	combatant command (command authority)
COMAFFOR	commander, Air Force forces
CONUS	continental United States
CRAF	civil reserve air fleet
CRC	control and reporting center
CSAR	combat search and rescue
DACG	departure airfield control group
DIRMOBFOR	Director of Mobility Forces
DOD	Department of Defense
DTS	Defense Transportation System
DV	distinguished visitor
DZ	drop zone
DZC	drop zone controller
DZSO	drop zone safety officer
DZST	drop zone support team
DZSTL	drop zone support team leader
EMCON	emissions control
EPW	enemy prisoner of war
FM	field manual
FOB	forward operating base
GAMSS	Global Air Mobility Support System
GATES	Global Air Transportation Execution System
GDSS	Global Decision Support System
GLO	ground liaison officer
GRL	global reach laydown
GTN	Global Transportation Network
HN	host nation
HNS	host-nation support
IAW	in accordance with
ICAO	International Civil Aviation Organization
ISB	intermediate staging base
ITV	in-transit visibility
J-3	operations directorate of a joint staff
J-4	logistics directorate of a joint staff
JA/ATT	joint airborne and air transportability training
JAOC	joint air operations center
JCS	Joint Chiefs of Staff
JCSE	joint communications support element

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JFACC	joint force air component commander
JFC	joint force commander
JFSOCC	joint forces special operations component commander
JJ	joint inspection
JMC	joint movement center
JOA	joint operations area
JOPEX	Joint Operation Planning and Execution System
JP	joint publication
JRSOI	joint reception, staging, onward movement, and integration
JTB	Joint Transportation Board
JTF	joint task force
JTTP	joint tactics, techniques, and procedures
LNO	liaison officer
LRST	long-range surveillance team
LZ	landing zone
MAF	mobility air forces
MAGTF	Marine air-ground task force
MCC	mobility control center
MCRP	Marine Corps reference publication
MHE	materials handling equipment
MOA	memorandum of agreement
MOG	maximum (aircraft) on the ground
MOOTW	military operations other than war
MRT	maintenance recovery team
MSE	mission support element
MST	mission support team
NAF	numbered air force
NAMS	National Air Mobility System
NAVAID	navigation aid
NEO	noncombatant evacuation operation
NGO	nongovernmental organization
NWP	Naval warfare publication
O&M	operations and maintenance
OCONUS	outside the continental United States
OPCON	operational control
OPLAN	operation plan
OPORD	operation order
OPSEC	operations security
OSA	operational support airlift
PACAF	Pacific Air Forces
PI	point of impact
PJ	pararescue jumper
PMCT	port movement control team

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## Glossary

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PMR	patient movement requirement
PMRC	patient movement requirement center
POE	port of embarkation
POL	petroleum, oils, and lubricants
PR	Phoenix Raven
PZ	pickup zone
SAAF	small austere airfield
SAAM	special assignment airlift mission
SAM	special airlift mission
SEAD	suppression of enemy air defenses
SecDef	Secretary of Defense
SECOMP	secure en route communications package
SIOP	Single Integrated Operational Plan
SOF	special operations forces
ST	special tactics
STT	special tactics team
TAC	terminal attack control
TACC	tanker/airlift control center (USAF)
TACON	tactical control
TACP	tactical air control party
TACS	Theater Air Control System
TACT	tactical aviation control team
TALCE	tanker airlift control element
TALO	theater airlift liaison officer
TAMCA	theater army movement control agency
TC-AIMS	Transportation Coordinator's Automated Information for Movement System
TOC	tactical operations center
TPFDD	time-phased force and deployment data
TTP	tactics, techniques, and procedures
TWCF	Transportation Working Capital Fund
USAF	United States Air Force
USAFE	United States Air Forces, Europe
USC	United States Code
USEUCOM	United States European Command
USG	United States Government
USJFCOM	United States Joint Forces Command
USMC	United States Marine Corps
USN	United States Navy
USSOCOM	United States Special Operations Command
USTRANSCOM	United States Transportation Command
UTC	unit type code

WMD weapons of mass destruction  
WOC wing operations center

## PART II — TERMS AND DEFINITIONS

**accompanying supplies.** Unit supplies that deploy with forces. (JP 1-02)

**administrative control.** Direction or exercise of authority over subordinate or other organizations in respect to administration and support, including organization of Service forces, control of resources and equipment, personnel management, unit logistics, individual and unit training, readiness, mobilization, demobilization, discipline, and other matters not included in the operational missions of the subordinate or other organizations. Also called ADCON. (JP 1-02)

**adverse weather aerial delivery system.** The precise delivery of personnel, equipment, and supplies during adverse weather, using a self-contained aircraft instrumentation system without artificial ground assistance, or the use of ground navigational aids. Also called AWADS. (JP 1-02)

**aerial port.** An airfield that has been designated for the sustained air movement of personnel and materiel as well as an authorized port for entrance into or departure from the country where located. Also called APORT. (JP 1-02)

**aerial port control center.** The agency responsible for the management and control of all aerial port resources and for the receipt and dissemination of all airlift requirements received from the airlift control team as the joint force commander's agent. Also called APCC. (This term and its definition modify the existing term and its definition and are approved for inclusion in the next edition of JP 1-02.)

**aeromedical evacuation.** The movement of patients under medical supervision to and between medical treatment facilities by air transportation. Also called AE. (JP 1-02)

**aeromedical evacuation cell.** The interface between validation and execution; an aeromedical evacuation cell is established in the tanker airlift control center/air mobility operations control center. The aeromedical evacuation cell provides the critical link between command and control, operations, and medical direction. It performs operational mission planning, tasking, and scheduling, and mission monitoring of airlift and aeromedical evacuation assets to support patient movement in coordination with the patient movement requirement center. (Approved for inclusion in the next edition of JP 1-02.)

**aeromedical evacuation control officer.** An officer of the air transport force or air command controlling the flow of patients by air. (JP 1-02)

**aeromedical evacuation control team.** A cell within the air operations center and one of the core teams in the air mobility division. Provides command and control for theater aeromedical evacuation elements. It is responsible to the director of mobility forces for current aeromedical evacuation operational planning and mission execution. The aeromedical evacuation control team analyzes patient movement requirements; coordinates airlift to meet aeromedical evacuation requirements; tasks the appropriate aeromedical evacuation elements including special medical requirements, when necessary; and passes mission information to the patient movement requirement center. Also called AECT. (Approved for inclusion in the next edition of JP 1-02.)

**aeromedical evacuation system.** A system that provides: a. control of patient movement by air transport; b. specialized medical aircrew, medical crew augmentees, and specialty medical attendants and equipment

for inflight medical care; c. facilities on or in the vicinity of air strips and air bases for the limited medical care of intransit patients entering, en route via, or leaving the system; and d. communication with originating, destination, and en route medical facilities concerning patient transportation. Also called AES. (JP 1-02)

**airborne.** 1. In relation to personnel, troops especially trained to effect, following transport by air, an assault debarkation, either by parachuting or touchdown. 2. In relation to equipment, pieces of equipment that have been especially designed for use by airborne troops during or after an assault debarkation. It also designates some aeronautical equipment used to accomplish a particular mission. 3. When applied to materiel, items that form an integral part of the aircraft. 4. The state of an aircraft, from the instant it becomes entirely sustained by air until it ceases to be so sustained. A lighter-than-air aircraft is not considered to be airborne when it is attached to the ground, except that moored balloons are airborne whenever sent aloft. Also called ABN. (JP 1-02)

**airborne operation.** An operation involving the air movement into an objective area of combat forces and their logistic support for execution of a tactical, operational, or strategic mission. The means employed may be any combination of airborne units, air transportable units, and types of transport aircraft, depending on the mission and the overall situation. (JP 1-02)

**air delivery.** See airdrop; air landed; air movement; air supply. (JP 1-02)

**air delivery container.** A sling, bag, or roll, usually of canvas or webbing, designed to hold supplies and equipment for air delivery. (JP 1-02)

**air delivery equipment.** Special items of equipment (such as parachutes, air delivery containers, platforms, tie downs, and related items) used in air delivery of personnel, supplies, and equipment. (JP 1-02)

**air direct delivery.** The intertheater air movement of cargo or personnel from an airlift point of embarkation to a point as close as practicable to the user's specified final destination, thereby minimizing transshipment requirements. Air direct delivery eliminates the traditional Air Force two step intertheater and intratheater airlift transshipment mission mix. (This term and its definition modify the existing term and its definition and are approved for inclusion in the next edition of JP 1-02.)

**airdrop.** The unloading of personnel or materiel from aircraft in flight. See also air movement; high velocity drop; low velocity drop. (JP 1-02)

**air facility.** An installation from which air operations may be or are being conducted. See also facility. (JP 1-02)

**airfield.** An area prepared for the accommodation (including any buildings, installations, and equipment), landing, and takeoff of aircraft. (JP 1-02)

**airhead.** 1. A designated area in a hostile or threatened territory which, when seized and held, ensures the continuous air landing of troops and materiel and provides the maneuver space necessary for projected operations. Normally it is the area seized in the assault phase of an airborne operation. 2. A designated location in an area of operations used as a base for supply and evacuation by air. (JP 1-02)

**air landed.** Moved by air and disembarked, or unloaded, after the aircraft has landed or

while a helicopter is hovering. See also air movement. (JP 1-02)

**air landed operation.** An operation involving movement by air with a designated destination for further ground deployment of units and personnel and/or further ground distribution of supplies. (This term and its definition modify the existing term and its definition and are approved for inclusion in the next edition of JP 1-02.)

**airlift capability.** The total capacity expressed in terms of number of passengers and/or weight/cubic displacement of cargo that can be carried at any one time to a given destination by available airlift. See also airlift requirement. (JP 1-02)

**airlift control team.** A cell within the air operations center and one of the core teams in the air mobility division. The airlift control team brings intratheater airlift functional expertise from the theater organizations to plan, coordinate, manage, and execute intratheater airlift operations in the area of responsibility and joint operations area for the joint force air component commander. US Transportation Command and Air Mobility Command may augment the airlift control team with intratheater airlift expertise. These two sources of airlift expertise integrate into a single airlift control team within the air mobility division. Also called ALCT. (Approved for inclusion in the next edition of JP 1-02.)

**airlift mission commander.** A commander designated when airlift aircraft are participating in airlift operations specified in the implementing directive. The airlift mission commander is usually designated by the commander of the deployed airlift unit, but may be selected by the Air Force component commander or joint force air component commander depending on the nature of the mission. (JP 1-02)

**airlift requirement.** The total number of passengers and/or weight/cubic displacement of cargo required to be carried by air for a specific task. See also airlift capability. (JP 1-02)

**air logistic support operation.** An air operation, excluding an airborne operation, conducted within a theater to distribute and recover personnel, equipment, and supplies. (JP 1-02)

**air mobility.** The rapid movement of personnel, materiel and forces to and from or within a theater by air. This includes both airlift and air refueling. (This term and its definition modify the existing term "airmobility" and its definition and are approved for inclusion in the next edition of JP 1-02.)

**Air Mobility Command.** The Air Force component command of the US Transportation Command. Also called AMC. (JP 1-02)

**air mobility control team.** A cell within the air operations center and one of the core teams in the air mobility division. The air mobility control team is the centralized source of air mobility command, control, and communications for the director of mobility forces during mission execution. The director of mobility forces uses the air mobility control team to direct (or redirect as required) air mobility forces in concert with other air and space forces to respond to requirement changes, higher priorities, or immediate execution limitations. The air mobility control team deconflicts all air mobility operations into, out of, and within the area of responsibility or joint operations area. The air mobility control team maintains execution process and communications connectivity for tasking, coordination, and flight with the air operations center's combat operations division, subordinate air mobility units, and mission forces. Also called

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AMCT. (Approved for inclusion in the next edition of JP 1-02.)

**air mobility division.** Located in the air operations center to plan, coordinate, task, and execute the air mobility mission. Consists of the air mobility control team, airlift control team, aerial refueling control team, aeromedical evacuation control team, and the air mobility element. Coordinates with the joint force commander's movement requirements and control authority, the theater Air Mobility Operations Control Center, if established, and the Air Mobility Command's tanker airlift control center as required. Also called AMD. (This term and its definition modify the existing term and its definition and are approved for inclusion in the next edition of JP 1-02.)

**air mobility element.** The air mobility element provides air mobility integration and coordination of US Transportation Command-assigned air mobility forces. The air mobility element receives direction from the director of mobility forces and is the primary team for providing coordination with the tanker/airlift control center. Direct delivery intertheater air mobility missions, if required, will be coordinated through the air mobility division and tasked by the Air Mobility Command tanker/airlift control center. The tanker/airlift control center commander maintains operational control of direct delivery missions during execution. The air mobility element ensures the integration of intertheater air mobility missions with theater air and space operations planning. Also called AME. (This term and its definition modify the existing term and its definition and are approved for inclusion in the next edition of JP 1-02.)

**air mobility express.** An express airlift system that is activated when Department of Defense requirements dictate. It is

comprised of express carrier aircraft and related continental United States infrastructure, Air Mobility Command airlift, and an in-theater rapid distribution system. Also called AMX. (Approved for inclusion in the next edition of JP 1-02.)

**air movement.** Air transport of units, personnel, supplies, and equipment including airdrops and air landings. See also airdrop. (This term and its definition modify the existing term and its definition and are approved for inclusion in the next edition of JP 1-02.)

**air operations center.** The principal air operations installation from which aircraft and air warning functions of combat air operations are directed, controlled, and executed. It is the senior agency of the Air Force Component Commander from which command and control of air operations are coordinated with other components and Services. Also called AOC. (JP 1-02)

**air refueling.** The capability to refuel aircraft in flight, which extends presence, increases range, and serves as a force multiplier. Also called AR. (JP 1-02)

**air refueling control team.** A cell within the air operations center and one of the core teams in the air mobility division. Part of the air operations center that coordinates aerial refueling planning, tasking, and scheduling to support combat air operations or to support a strategic airbridge within the area of responsibility or joint area of operations. Also called ARCT. (Approved for inclusion in the next edition of JP 1-02.)

**air supply.** The delivery of cargo by airdrop or air landing. (JP 1-02)

**air terminal.** A facility on an airfield that functions as an air transportation hub and accommodates the loading and unloading of airlift aircraft and the intransit processing

of traffic. The airfield may or may not be designated an aerial port. (JP 1-02)

**alert order.** 1. A crisis action planning directive from the Secretary of Defense, issued by the Chairman of the Joint Chiefs of Staff, that provides essential guidance for planning and directs the initiation of execution planning for the selected course of action authorized by the Secretary of Defense. 2. A planning directive that provides essential planning guidance and directs the initiation of execution planning after the directing authority approves a military course of action. An alert order does not authorize execution of the approved course of action. See also course of action; crisis action planning; execution planning. (JP 1-02)

**allocation (air).** The translation of the air apportionment decision into total numbers of sorties by aircraft type available for each operation or task. See also allocation. (JP 1-02)

**allocation (transportation).** Distribution by designated authority of available transport capability to users. (This term and its definition modify the existing term and its definition and are approved for inclusion in the next edition of JP 1-02.)

**allowable cabin load.** The maximum payload that can be carried on an individual sortie. Also called ACL. (JP 1-02)

**allowable load.** The total load that an aircraft can transport over a given distance, taking into account weight and volume. (JP 1-02)

**chalk number.** The number given to a complete load and to the transporting carrier. (JP 1-02)

**change of operational control.** The date and time (Coordinated Universal Time) at which a force or unit is reassigned or

attached from one commander to another where the gaining commander will exercise operational control over that force or unit. Also called CHOP. See also operational control. (JP 1-02)

**channel airlift.** Common-user airlift service provided on a scheduled basis between two points. There are two types of channel airlift. A requirements channel serves two or more points on a scheduled basis depending upon the volume of traffic; a frequency channel is timed-based and serves two or more points at regular intervals. (JP 1-02)

**civil reserve air fleet.** A program in which the Department of Defense contracts for the services of specific aircraft, owned by a US entity or citizen, during national emergencies and defense-oriented situations when expanded civil augmentation of military airlift activity is required. These aircraft are allocated, in accordance with Department of Defense requirements, to segments, according to their capabilities, such as international long range and short range cargo and passenger sections, national (domestic and Alaskan sections) and aeromedical evacuation and other segments as may be mutually agreed upon by the Department of Defense and the Department of Transportation. Also called CRAF. See also reserve. (This term and its definition modify the existing term and its definition and are approved for inclusion in the next edition of JP 1-02.)

**combatant command.** A unified or specified command with a broad continuing mission under a single commander established and so designated by the President, through the Secretary of Defense and with the advice and assistance of the Chairman of the Joint Chiefs of Staff. Combatant commands typically have geographic or functional responsibilities. See also specified command; unified command. (JP 1-02)

**combatant command (command authority).**

Nontransferable command authority established by title 10 (“Armed Forces”), United States Code, section 164, exercised only by commanders of unified or specified combatant commands unless otherwise directed by the President or the Secretary of Defense. Combatant command (command authority) cannot be delegated and is the authority of a combatant commander to perform those functions of command over assigned forces involving organizing and employing commands and forces, assigning tasks, designating objectives, and giving authoritative direction over all aspects of military operations, joint training, and logistics necessary to accomplish the missions assigned to the command. Combatant command (command authority) should be exercised through the commanders of subordinate organizations. Normally this authority is exercised through subordinate joint force commanders and Service and/or functional component commanders. Combatant command (command authority) provides full authority to organize and employ commands and forces as the combatant commander considers necessary to accomplish assigned missions. Operational control is inherent in combatant command (command authority). Also called COCOM. See also combatant command; combatant commander; operational control; tactical control. (JP 1-02)

**combatant commander.** A commander of one of the unified or specified combatant commands established by the President. See also combatant command. (This term and its definition modify the existing term and its definition and are approved for inclusion in the next edition of JP 1-02.)

**combat loading.** The arrangement of personnel and the stowage of equipment and supplies in a manner designed to

conform to the anticipated tactical operation of the organization embarked. Each individual item is stowed so that it can be unloaded at the required time. (JP 1-02)

**command and control.** The exercise of authority and direction by a properly designated commander over assigned and attached forces in the accomplishment of the mission. Command and control functions are performed through an arrangement of personnel, equipment, communications, facilities, and procedures employed by a commander in planning, directing, coordinating, and controlling forces and operations in the accomplishment of the mission. Also called C2. (JP 1-02)

**command and control system.** The facilities, equipment, communications, procedures, and personnel essential to a commander for planning, directing, and controlling operations of assigned forces pursuant to the missions assigned. (JP 1-02)

**common use.** Services, materiel, or facilities provided by a Department of Defense agency or a Military Department on a common basis for two or more Department of Defense agencies, elements, or other organizations as directed. (JP 1-02)

**common-user airlift service.** The airlift service provided on a common basis for all Department of Defense agencies and, as authorized, for other agencies of the US Government. (JP 1-02)

**common-user transportation.** Transportation and transportation services provided on a common basis for two or more Department of Defense (DOD) agencies and, as authorized non-DOD agencies. Common-user assets are under the combatant command (command authority) of the Commander, US Transportation Command, excluding Service-unique or theater-

assigned transportation assets. See also common use. (This term and its definition modify the existing term and its definition and are approved for inclusion in the next edition of JP 1-02.)

**continental United States.** United States territory, including the adjacent territorial waters, located within North America between Canada and Mexico. Also called CONUS. (JP 1-02)

**coordinating authority.** A commander or individual assigned responsibility for coordinating specific functions or activities involving forces of two or more Military Departments, two or more joint force components, or two or more forces of the same Service. The commander or individual has the authority to require consultation between the agencies involved, but does not have the authority to compel agreement. In the event that essential agreement cannot be obtained, the matter shall be referred to the appointing authority. Coordinating authority is a consultation relationship, not an authority through which command may be exercised. Coordinating authority is more applicable to planning and similar activities than to operations. (JP 1-02)

**CORONET.** A peacetime movement of air forces in support of rotations, exercises, or aircraft movements for logistic purposes. (This term and its definition are applicable only in the context of this publication and should not be referenced outside the context of JP 3-17.)

**course of action.** 1. Any sequence of activities that an individual or unit may follow. 2. A possible plan open to an individual or commander that would accomplish, or is related to the accomplishment of the mission. 3. The scheme adopted to accomplish a job or mission. 4. A line of conduct in an engagement. 5. A product of the Joint Operation Planning and Execution

System concept development phase. Also called COA. (JP 1-02)

**crisis.** An incident or situation involving a threat to the United States, its territories, citizens, military forces, possessions, or vital interests that develops rapidly and creates a condition of such diplomatic, economic, political, or military importance that commitment of US military forces and resources is contemplated in order to achieve national objectives. (JP 1-02)

**crisis action planning.** 1. The Joint Operation Planning and Execution System process involving the time-sensitive development of joint operation plans and orders in response to an imminent crisis. Crisis action planning follows prescribed crisis action procedures to formulate and implement an effective response within the time frame permitted by the crisis. 2. The time-sensitive planning for the deployment, employment, and sustainment of assigned and allocated forces and resources that occurs in response to a situation that may result in actual military operations. Crisis action planners base their plan on the circumstances that exist at the time planning occurs. Also called CAP. See also Joint Operation Planning and Execution System. (JP 1-02)

**debarkation.** The unloading of troops, equipment, or supplies from a ship or aircraft. (JP 1-02)

**deliberate planning.** 1. The Joint Operation Planning and Execution System process involving the development of joint operation plans for contingencies identified in joint strategic planning documents. Deliberate planning is accomplished in prescribed cycles that complement other Department of Defense planning cycles in accordance with the formally established Joint Strategic Planning System. 2. A planning process for the deployment and

employment of apportioned forces and resources that occurs in response to a hypothetical situation. Deliberate planners rely heavily on assumptions regarding the circumstances that will exist when the plan is executed. See also Joint Operation Planning and Execution System. (JP 1-02)

**departure airfield.** An airfield on which troops and/or materiel are enplaned for flight. See also airfield. (JP 1-02)

**departure area.** The general area encompassing all base camps, bivouacs, and departure airfield facilities. (JP 1-02)

**deployment order.** A planning directive from the Secretary of Defense, issued by the Chairman of the Joint Chiefs of Staff, that authorizes and directs the transfer of forces between combatant commands by reassignment or attachment. A deployment order normally specifies the authority that the gaining combatant commander will exercise over the transferred forces. (JP 1-02)

**Director of Mobility Forces.** Normally a senior officer who is familiar with the area of responsibility or joint operations area and possesses an extensive background in air mobility operations. When established, the Director of Mobility Forces serves as the designated agent for all air mobility issues in the area of responsibility or joint operations area, and for other duties as directed. The Director of Mobility Forces exercises coordinating authority between the air operations center (or appropriate theater command and control node), the tanker airlift control center, the air mobility operations control center (when established and when supporting subordinate command objectives), and the joint movement center, in order to expedite the resolution of air mobility issues. The Director of Mobility Forces may be sourced from the theater's organizations or US Transportation Command. Additionally, the Director of

Mobility Forces, when designated, will ensure the effective integration of intertheater and intratheater air mobility operations, and facilitate the conduct of intratheater air mobility operations. Also called DIRMOBFOR. (This term and its definition modify the existing term and its definition and are approved for inclusion in the next edition of JP 1-02.)

**drop altitude.** The altitude above mean sea level at which airdrop is executed. See also drop height. (JP 1-02)

**drop height.** The vertical distance between the drop zone and the aircraft. See also drop altitude. (JP 1-02)

**dropmaster.** 1. An individual qualified to prepare, perform acceptance inspection, load, lash, and eject material for airdrop. 2. An aircrew member who, during parachute operations, will relay any required information between pilot and jumpmaster. (JP 1-02)

**drop zone.** A specific area upon which airborne troops, equipment, or supplies are airdropped. Also called DZ. (JP 1-02)

**dual-role tanker.** Dual-role tankers carry support personnel, supplies, and equipment for the deploying force while escorting and/or refueling combat aircraft to the area of responsibility. Dual-role tankers can minimize the total lift requirement while providing critical cargo and personnel at the combat aircraft's time of arrival. (Approved for inclusion in the next edition of JP 1-02.)

**embarkation.** The process of putting personnel and/or vehicles and their associated stores and equipment into ships and/or aircraft. See also loading. (JP 1-02)

**extraction zone.** A specified drop zone used for the delivery of supplies and/or equipment by means of an extraction technique from an aircraft flying very close to the ground. (JP 1-02)

**follow-up supplies.** Supplies delivered after the initial landings or airdrop to resupply units until routine supply procedures can be instituted. These supplies may be delivered either automatically or on an on-call basis and are prepared for delivery by supporting supply units. (JP 1-02)

**force enablement.** Air refueling and other actions that increase an aircraft's range, payload, loiter time, and flexibility, to allow it to accomplish a wider range of missions. (Approved for inclusion in the next edition of JP 1-02.)

**force extension.** Tankers escorting fighters are force extended when they are refueled by other tankers en route to their destination. Force extension is normally required when tankers are acting in a dual-role capacity because their cargo will likely preclude carrying enough fuel for the tanker and receivers to reach the final destination. On global attack missions, force extension can also be used to extend the effective range, payload, and loiter time of combat aircraft due to the increased offload capacity of the force extended tanker. (Approved for inclusion in the next edition of JP 1-02.)

**foreign humanitarian assistance.** Programs conducted to relieve or reduce the results of natural or manmade disasters or other endemic conditions such as human pain, disease, hunger, or privation that might present a serious threat to life or that can result in great damage to or loss of property. Foreign humanitarian assistance (FHA) provided by US forces is limited in scope and duration. The foreign assistance provided is designed to supplement or complement the efforts of the host nation civil authorities or agencies that may have the primary responsibility for providing FHA. FHA operations are those conducted outside the United States, its territories, and possessions. Also called FHA. (JP 1-02)

**forward operating base.** An airfield used to support tactical operations without establishing full support facilities. The base may be used for an extended time period. Support by a main operating base will be required to provide backup support for a forward operating base. Also called FOB. (JP 1-02)

**Global Air Transportation Execution System.** The Air Mobility Command's aerial port operations and management information system designed to support automated cargo and passenger processing, the reporting of in transit visibility data to the Global Transportation Network, and billing to Air Mobility Command's financial management directorate. Also called GATES. (Approved for inclusion in the next edition of JP 1-02.)

**Global Command and Control System.** Highly mobile, deployable command and control system supporting forces for joint and multinational operations across the range of military operations, any time and anywhere in the world with compatible, interoperable, and integrated command, control, communications, computers, and intelligence systems. Also called GCCS. See also command and control; command and control system. (JP 1-02)

**Global Decision Support System.** Command and control system for Air Mobility Command's mobility airlift and air refueling assets. Provides aircraft schedules, arrival and/or departure, and aircraft status data to support in-transit visibility of aircraft and aircrews. Also called GDSS. (Approved for inclusion in the next edition of JP 1-02.)

**Global Transportation Network.** The automated support necessary to enable US Transportation Command and its components to provide global transportation management. The Global Transportation Network provides the

integrated transportation data and systems necessary to accomplish global transportation planning, command and control, and in-transit visibility across the range of military operations. The designated Department of Defense in-transit visibility system provides customers with the ability to track the identity, status, and location of Department of Defense units and non-unit cargo, passengers, patients, forces, and military and commercial airlift, sealift, and surface assets from origin to destination across the range of military operations. The Global Transportation Network collects, integrates, and distributes transportation information to combatant commanders, Services, and other Department of Defense customers. Global Transportation Network provides US Transportation Command with the ability to perform command and control operations, planning and analysis, and business operations in tailoring customer requirements throughout the requirements process. Also called GTN. (This term and its definition modify the existing term and its definition and are approved for inclusion in the next edition of JP 1-02.)

**high-altitude low-opening parachute technique.** A method of delivering personnel, equipment, or supplies from airlift aircraft which must fly at altitudes above the threat umbrella. Also called HALO. (JP 1-02)

**high velocity drop.** A drop procedure in which the drop velocity is greater than 30 feet per second (low velocity drop) and lower than free drop velocity. See also airdrop. (JP 1-02)

**immediate airlift requests.** Requests generated that, due to their time-critical nature, cannot be filled by a planned mission. (JP 1-02)

**intertheater.** Between theaters or between the continental United States and theaters. See also intertheater traffic. (JP 1-02)

**intertheater airlift.** The common-user airlift linking theaters to the continental United States and to other theaters as well as the airlift within the continental United States. The majority of these air mobility assets is assigned to the Commander, United States Transportation Command. Because of the intertheater ranges usually involved, intertheater airlift is normally conducted by the heavy, longer range, intercontinental airlift assets but may be augmented with shorter range aircraft when required. Formerly referred to as strategic airlift. (This term and its definition modify the existing term and its definition and are approved for inclusion in the next edition of JP 1-02.)

**intertheater evacuation.** Evacuation of stabilized patients between the originating theater and points outside the theater, to include the continental United States and other theaters. En route care is provided by medical attendants qualified for the specific mode of transportation. See also en route care; evacuation; intratheater evacuation; patient. (JP 1-02)

**intertheater traffic.** Traffic between theaters exclusive of that between the continental United States and theaters. (JP 1-02)

**in-transit visibility.** The ability to track the identity, status, and location of Department of Defense units, and non-unit cargo (excluding bulk petroleum, oils, and lubricants) and passengers; medical patients; and personal property from origin to consignee or destination across the range of military operations. Also called ITV. See also Global Transportation Network. (JP 1-02)

**intratheater.** Within a theater. (JP 1-02)

**intratheater airlift.** Airlift conducted within a theater. Assets assigned to a geographic combatant commander or attached to a subordinate joint force commander normally conduct intratheater airlift operations. Intratheater airlift provides air movement and delivery of personnel and equipment directly into objective areas through air landing, airdrop, extraction, or other delivery techniques as well as the air logistic support of all theater forces, including those engaged in combat operations, to meet specific theater objectives and requirements. During large-scale operations, US Transportation Command assets may be tasked to augment intratheater airlift operations, and may be temporarily attached to a joint force commander. Formerly referred to as theater airlift. (This term and its definition modify the existing term and its definition and are approved for inclusion in the next edition of JP 1-02.)

**intratheater evacuation.** Evacuation of stabilized patients between points within the theater. En route care is provided by medical attendants qualified for the specific mode of transportation. See also evacuation; intertheater evacuation. (JP 1-02)

**joint airborne advance party.** An advance ground party that provides terminal guidance, air traffic control, ground control measures, intelligence gathering, and surface weather observation in the objective area of an airlift operation. It may consist of US Air Force combat control team members and a US Army long-range surveillance team or similar forces. Also called JAAP. (JP 1-02)

**joint air operations center.** A jointly staffed facility established for planning, directing, and executing joint air operations in support of the joint force commander's operation or

campaign objectives. Also called JAOC. See also joint air operations. (JP 1-02)

**joint force air component commander.** The commander within a unified command, subordinate unified command, or joint task force responsible to the establishing commander for making recommendations on the proper employment of assigned, attached, and/or made available for tasking air forces; planning and coordinating air operations; or accomplishing such operational missions as may be assigned. The joint force air component commander is given the authority necessary to accomplish missions and tasks assigned by the establishing commander. Also called JFACC. See also joint force commander. (JP 1-02)

**joint force commander.** A general term applied to a combatant commander, subunified commander, or joint task force commander authorized to exercise combatant command (command authority) or operational control over a joint force. Also called JFC. (JP 1-02)

**Joint Mobility Control Group.** The Joint Mobility Control Group is the focal point for coordinating and optimizing transportation operations. This group is comprised of seven essential elements. The primary elements are US Transportation Command's Mobility Control Center, Joint Operational Support Airlift Center, Global Patient Movement Requirements Center, Tanker/Airlift Control Center, Military Sealift Command's Command Center, Military Traffic Management Command's Command Operations, and the Joint Intelligence Center-US Transportation Command. Also called JMCG. (This term and its definition modify the existing term and its definition and are approved for inclusion in the next edition of JP 1-02.)

**Joint Operation Planning and Execution System.** A system that provides the foundation for conventional command and control by national- and combatant command-level commanders and their staffs. It is designed to satisfy their information needs in the conduct of joint planning and operations. Joint Operation Planning and Execution System (JOPES) includes joint operation planning policies, procedures, and reporting structures supported by communications and automated data processing systems. JOPES is used to monitor, plan, and execute mobilization, deployment, employment, sustainment, and redeployment activities associated with joint operations. Also called JOPES. See also joint operation planning. (JP 1-02)

**joint reception, staging, onward movement, and integration.** A phase of joint force projection occurring in the operational area. This phase comprises the essential processes required to transition arriving personnel, equipment and materiel into forces capable of meeting operational requirements. Also called JRSOI. (JP 1-02)

**joint suppression of enemy air defenses.** A broad term that includes all suppression of enemy air defense activities provided by one component of the joint force in support of another. Also called J-SEAD. (JP 1-02)

**jumpmaster.** The assigned airborne qualified individual who controls paratroops from the time they enter the aircraft until they exit. See also stick commander (air transport). (JP 1-02)

**jump speed.** The airspeed at which paratroops can jump with comparative safety from an aircraft. (JP 1-02)

**landing plan.** 1. In amphibious operations, a collective term referring to all individually prepared naval and landing force

documents that, taken together, present in detail all instructions for execution of the ship-to-shore movement. 2. In airlift operations, the sequence, method of delivery, and place of arrival of troops and materiel. (JP 1-02)

**landing zone.** Any specified zone used for the landing of aircraft. Also called LZ. (JP 1-02)

**line of communications.** A route, either land, water, and/or air, that connects an operating military force with a base of operations and along which supplies and military forces move. Also called LOC. (JP 1-02)

**loading time.** In airlift operations, a specified time established jointly by the airlift and airborne commanders concerned, when aircraft and loads are available and loading is to begin. (JP 1-02)

**loadmaster.** An Air Force technician qualified to plan loads, to operate auxiliary materials handling equipment, and to supervise loading and unloading of aircraft. (JP 1-02)

**logistics.** The science of planning and carrying out the movement and maintenance of forces. In its most comprehensive sense, those aspects of military operations which deal with: a. design and development, acquisition, storage, movement, distribution, maintenance, evacuation, and disposition of materiel; b. movement, evacuation, and hospitalization of personnel; c. acquisition or construction, maintenance, operation, and disposition of facilities; and d. acquisition or furnishing of services. (JP 1-02)

**long ton.** 2,240 pounds. Also called LT; L/T or LTON. (JP 1-02)

**maneuver.** 1. A movement to place ships, aircraft, or land forces in a position of

advantage over the enemy. 2. A tactical exercise carried out at sea, in the air, on the ground, or on a map in imitation of war. 3. The operation of a ship, aircraft, or vehicle, to cause it to perform desired movements. 4. Employment of forces in the battlespace through movement in combination with fires to achieve a position of advantage in respect to the enemy in order to accomplish the mission. (JP 1-02)

**marshalling.** 1. The process by which units participating in an amphibious or airborne operation group together or assemble when feasible or move to temporary camps in the vicinity of embarkation points, complete preparations for combat, or prepare for loading. 2. The process of assembling, holding, and organizing supplies and/or equipment, especially vehicles of transportation, for onward movement. (JP 1-02)

**mobility.** A quality or capability of military forces which permits them to move from place to place while retaining the ability to fulfill their primary mission. (JP 1-02)

**multi-point refueling system.** A limited number of KC-135 aircraft can be equipped with external wing-mounted pods to conduct drogue air refueling, while still maintaining boom air refueling capability on the same mission. This dual refueling capability makes KC-135s with multi-point refueling systems ideal for use as ground alert aircraft. Also known as MPRS. (Approved for inclusion in the next edition of JP 1-02.)

**National Air Mobility System.** A broad and comprehensive system of civilian and military capabilities and organizations that provides the President and Secretary of Defense and combatant commanders with rapid global mobility. This system effectively integrates the management of airlift, air refueling, and air mobility support

assets, processes, and procedures into an integrated whole. Also called NAMS (Approved for inclusion in the next edition of JP 1-02.)

**Navy-unique fleet essential aircraft.**

Combatant commander-controlled airlift assets deemed essential for providing air transportation in support of naval operations' transportation requirements. This capability is intended to provide a balance and supplement to other airlift assets to ensure the Navy's ability to respond to emergency and wartime requirements. Also called NUFEA. (Approved for inclusion in the next edition of JP 1-02.)

**operational control.** Command authority that may be exercised by commanders at any echelon at or below the level of combatant command. Operational control is inherent in combatant command (command authority) and may be delegated within the command. When forces are transferred between combatant commands, the command relationship the gaining commander will exercise (and the losing commander will relinquish) over these forces must be specified by the Secretary of Defense. Operational control is the authority to perform those functions of command over subordinate forces involving organizing and employing commands and forces, assigning tasks, designating objectives, and giving authoritative direction necessary to accomplish the mission. Operational control includes authoritative direction over all aspects of military operations and joint training necessary to accomplish missions assigned to the command. Operational control should be exercised through the commanders of subordinate organizations. Normally this authority is exercised through subordinate joint force commanders and Service and/or functional component commanders. Operational control normally provides full

authority to organize commands and forces and to employ those forces as the commander in operational control considers necessary to accomplish assigned missions; it does not, in and of itself, include authoritative direction for logistics or matters of administration, discipline, internal organization, or unit training. Also called OPCON. See also combatant command; combatant command (command authority); tactical control. (JP 1-02)

**operational support airlift.** Operational support airlift (OSA) missions are movements of high-priority passengers and cargo with time, place, or mission-sensitive requirements. OSA aircraft are those fixed-wing aircraft acquired and/or retained exclusively for OSA missions, as well as any other Department of Defense-owned or controlled aircraft, fixed- or rotary-wing, used for OSA purposes. Also called OSA. (JP 1-02)

**operation order.** A directive issued by a commander to subordinate commanders for the purpose of effecting the coordinated execution of an operation. Also called OPOD. (JP 1-02)

**outsized cargo.** Cargo which exceeds the dimensions of oversized cargo and requires the use of a C-5 or C-17 aircraft or surface transportation. A single item that exceeds 1,000 inches long by 117 inches wide by 105 inches high in any one dimension. (This term and its definition modify the existing term and its definition and are approved for inclusion in the next edition of JP 1-02.)

**oversized cargo.** 1. Large items of specific equipment such as a barge, side loadable warping tug, causeway section, powered, or causeway section, nonpowered. Requires transport by sea. 2. Air cargo exceeding the usable dimension of a 463L pallet loaded to the design height of 96 inches, but equal to or less than 1,000 inches

in length, 117 inches in width, and 105 inches in height. This cargo is air transportable on the C-5, C-17, C-141, C-130, KC-10 and most civilian contract cargo carriers. (This term and its definition modify the existing term and its definition and are approved for inclusion in the next edition of JP 1-02.)

**planned airlift requests.** Requests generated to meet airlift requirements, which can be forecast or where requirements can be anticipated and published in the air tasking order. (JP 1-02)

**port of debarkation.** The geographic point at which cargo or personnel are discharged. This may be a seaport or aerial port of debarkation; for unit requirements; it may or may not coincide with the destination. Also called POD. See also port of embarkation. (JP 1-02)

**port of embarkation.** The geographic point in a routing scheme from which cargo or personnel depart. This may be a seaport or aerial port from which personnel and equipment flow to port of debarkation; for unit and nonunit requirements, it may or may not coincide with the origin. Also called POE. See also port of debarkation. (JP 1-02)

**rapid global mobility.** The timely movement, positioning, and sustainment of military forces and capabilities across the range of military operations. (Approved for inclusion in the next edition of JP 1-02.)

**retrograde cargo.** Cargo evacuated from a theater. (JP 1-02)

**routine supplies.** Those items delivered as a result of normal requisitioning procedures to replace expended supplies or to build up reserve stocks. (JP 1-02)

**serial.** 1. An element or a group of elements within a series which is given a numerical or

alphabetical designation for convenience in planning, scheduling, and control. A serial can be a group of people, vehicles, equipment, or supplies and is used in airborne, air assault, amphibious operations, and convoys. (JP 1-02)

**Service-unique transportation assets.**

Transportation assets that are: a. Assigned to a Military Department for functions of the Secretaries of the Military Departments set forth in Sections 3013(b), 5013(b), and 8013(b) of Title 10 of the United States Code, including administrative functions (such as motor pools), intelligence functions, training functions, and maintenance functions; b. Assigned to the Department of the Army for the execution of the missions of the Army Corps of Engineers; c. Assigned to the Department of the Navy as the special mission support force of missile range instrumentation ships, ocean survey ships, cable ships, oceanographic research ships, acoustic research ships, and naval test support ships; the naval fleet auxiliary force of fleet ammunition ships, fleet stores ships, fleet ocean tugs, and fleet oilers; hospital ships; Marine Corps intermediate maintenance activity ships, Marine Corps helicopter support to senior Federal officials; and, prior to the complete discharge of cargo, maritime prepositioning ships; d. Assigned to the Department of the Air Force for search and rescue, weather reconnaissance, audiovisual services, and aeromedical evacuation functions, and transportation of senior Federal officials. (JP 1-02)

**single manager for transportation.** The United States Transportation Command is the Department of Defense single manager for transportation, other than Service-unique or theater-assigned transportation assets. (JP 1-02)

**single port manager.** Through its transportation component commands, the

US Transportation Command is the Department of Defense-designated single port manager for all common-user aerial and sea ports worldwide. The single port manager performs those functions necessary to support the strategic flow of the deploying forces' equipment and sustainment from the aerial and sea port of embarkation and hand-off to the combatant commander in the aerial and sea port of debarkation (APOD and SPOD). The single port manager is responsible for providing strategic deployment status information to the combatant commander and to manage workload of the APOD and SPOD operator based on the commander's priorities and guidance. The single port manager is responsible through all phases of the theater aerial and sea port operations continuum, from a unimproved airfield and bare beach deployment to a commercial contract supported deployment. Also called SPM. (JP 1-02)

**small austere airfield.** Unsophisticated airfield, usually with a short runway, that is limited in one or a combination of the following: taxiway systems, ramp space, security, materials handling equipment, aircraft servicing, maintenance, navigation aids, weather observing sensors, and communications. Also called SAAF. See also airfield. (JP 1-02)

**special tactics team.** US Air Force special operations task-organized element that may include combat control, pararescue, and combat weather personnel who are organized, trained, and equipped to establish and control the air-ground interface at an airhead in the objective area. Functions include assault zone reconnaissance and surveillance, establishment, and terminal control; terminal attack control; combat search and rescue; combat casualty care and evacuation staging; and tactical weather observations and forecasting. Also called STT. (This

term and its definition modify the existing term and its definition and are approved for inclusion in the next edition of JP 1-02.)

**staged crews.** Aircrews specifically positioned at intermediate airfields to take over aircraft operating on air routes, thus relieving complementary crews of flying fatigue and speeding up the flow rate of the aircraft concerned. (JP 1-02)

**station time.** In air transport operations, the time at which crews, passengers, and cargo are to be on board and ready for the flight. (JP 1-02)

**stick (air transport).** A number of paratroopers who jump from one aperture or door of an aircraft during one run over a drop zone. (JP 1-02)

**supply by air.** See airdrop; air movement. (JP 1-02)

**support.** 1. The action of a force that aids, protects, complements, or sustains another force in accordance with a directive requiring such action. 2. A unit that helps another unit in battle. 3. An element of a command that assists, protects, or supplies other forces in combat. (JP 1-02)

**supported commander.** 1. The commander having primary responsibility for all aspects of a task assigned by the Joint Strategic Capabilities Plan or other joint operation planning authority. In the context of joint operation planning, this term refers to the commander who prepares operation plans or operation orders in response to requirements of the Chairman of the Joint Chiefs of Staff. 2. In the context of a support command relationship, the commander who receives assistance from another commander's force or capabilities, and who is responsible for ensuring that the supporting commander understands the

assistance required. See also support; supporting commander. (JP 1-02)

**supporting commander.** 1. A commander who provides augmentation forces or other support to a supported commander or who develops a supporting plan. Includes the designated combatant commands and Defense agencies as appropriate. 2. In the context of a support command relationship, the commander who aids, protects, complements, or sustains another commander's force, and who is responsible for providing the assistance required by the supported commander. See also supported commander. (JP 1-02)

**sustainment.** The provision of personnel, logistic, and other support required to maintain and prolong operations or combat until successful accomplishment or revision of the mission or of the national objective. (JP 1-02)

**tactical control.** Command authority over assigned or attached forces or commands, or military capability or forces made available for tasking, that is limited to the detailed direction and control of movements or maneuvers within the operational area necessary to accomplish missions or tasks assigned. Tactical control is inherent in operational control. Tactical control may be delegated to, and exercised at any level at or below the level of combatant command. When forces are transferred between combatant commands, the command relationship the gaining commander will exercise (and the losing commander will relinquish) over these forces must be specified by the Secretary of Defense. Tactical control provides sufficient authority for controlling and directing the application of force or tactical use of combat support assets within the assigned mission or task. Also called TACON. See also combatant command; combatant command

(command authority); operational control. (JP 1-02)

**Tanker Airlift Control Center.** The Air Mobility Command direct reporting unit responsible for tasking and controlling operational missions for all activities involving forces supporting US Transportation Command's global air mobility mission. The Tanker Airlift Control Center is comprised of the following functions: current operations, command and control, logistic operations, aerial port operations, aeromedical evacuation, flight planning, diplomatic clearances, and weather,. Also called TACC. (This term and its definition modify the existing term and its definition and are approved for inclusion in the next edition of JP 1-02.)

**tanker airlift control element.** A mobile command and control organization deployed to support intertheater and intratheater air mobility operations at fixed, en route, and deployed locations where air mobility operational support is nonexistent or insufficient. The tanker airlift control element (TALCE) provides on-site management of air mobility airfield operations to include command and control, communications, aerial port services, maintenance, security, transportation, weather, intelligence, and other support functions, as necessary. The TALCE is composed of mission support elements from various units and deploys in support of peacetime, contingency, and emergency relief operations on both a planned and "no notice" basis. Also called TALCE. (This term and its definition modify the existing term and its definition and are approved for inclusion in the next edition of JP 1-02.)

**terminal control.** 1. The authority to direct the maneuver of aircraft which are delivering ordnance, passengers, or cargo to a specific location or target. Terminal control is a type of air control. 2. Any

electronic, mechanical, or visual control given to aircraft to facilitate target acquisition and resolution. (JP 1-02)

**theater airlift liaison officer.** An officer specially trained to implement the theater air control system and to control tactical airlift assets. Theater airlift liaison officers are highly qualified, rated airlift officers with tactical (airdrop) airlift experience, and assigned duties, supporting US Army units. Also called TALO. (JP 1-02)

**theater-assigned transportation assets.** Transportation assets that are assigned under the combatant command (command authority) of a geographic combatant commander. (JP 1-02)

**time-phased force and deployment data.** The Joint Operation Planning and Execution System database portion of an operation plan; it contains time-phased force data, non-unit-related cargo and personnel data, and movement data for the operation plan, including the following: a. In-place units; b. Units to be deployed to support the operation plan with a priority indicating the desired sequence for their arrival at the port of debarkation; c. Routing of forces to be deployed; d. Movement data associated with deploying forces; e. Estimates of non-unit-related cargo and personnel movements to be conducted concurrently with the deployment of forces; and f. Estimate of transportation requirements that must be fulfilled by common-user lift resources as well as those requirements that can be fulfilled by assigned or attached transportation resources. Also called TPFDD. (JP 1-02)

**transportation component command.** The three component commands of United States Transportation Command: Air Force Air Mobility Command; Navy Military Sealift Command; and Army Military Traffic Management Command. Each

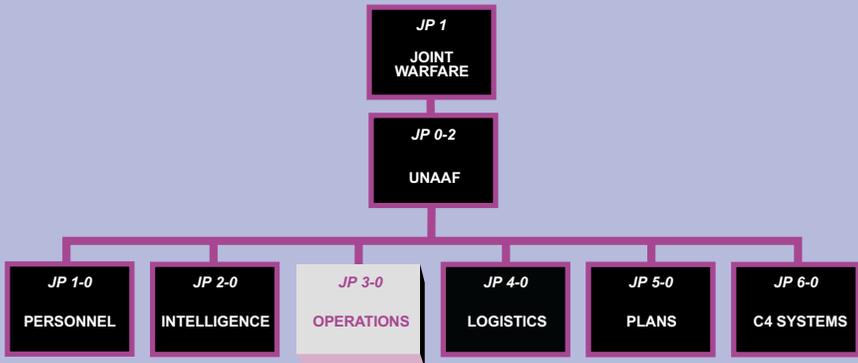
transportation component command remains a major command of its parent Service and continues to organize, train, and equip its forces as specified by law. Each transportation component command also continues to perform Service-unique missions. Also called TCC. See also United States Transportation Command. (JP 1-02)

**warning order.** 1. A preliminary notice of an order or action which is to follow. 2. A crisis action planning directive issued by the

Chairman of the Joint Chiefs of Staff that initiates the development and evaluation of courses of action by a supported commander and requests that a commander's estimate be submitted. 3. A planning directive that describes the situation, allocates forces and resources, establishes command relationships, provides other initial planning guidance, and initiates subordinate unit mission planning. (JP 1-02)

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# JOINT DOCTRINE PUBLICATIONS HIERARCHY



All joint doctrine and tactics, techniques, and procedures are organized into a comprehensive hierarchy as shown in the chart above. **Joint Publication (JP) 3-17** is in the **Operations** series of joint doctrine publications. The diagram below illustrates an overview of the development process:

