TAGS

MULTI-SERVICE TACTICS, TECHNIQUES, AND PROCEDURES FOR THE THEATER AIR-GROUND SYSTEM

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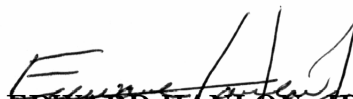**AIR LAND SEA APPLICATION CENTER**

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MULTI-SERVICE TACTICS, TECHNIQUES, AND PROCEDURES

FOREWORD

This publication has been prepared under our direction for use by our respective commands and other commands as appropriate.

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PREFACE

1. Purpose

Each component brings unique capabilities to a joint operation. Successful theater operations require effective synchronization of all forces: ground, air, naval, space, and special operations. Coordinated operations permit the joint force commanders (JFCs) to rapidly develop the situation and dominate the enemy throughout the battlespace in order to meet their operational objectives. The TAGS consists of an overarching joint C2 architecture and Service coordination links which facilitate the integration, synchronization, planning, and execution of joint air-ground operations. The TAGS is a system of systems, a synergy of the various component air-ground systems, orchestrating the planning and execution of air-ground operations. The objective of this publication is to describe how each of the component systems operates within the TAGS. For the purpose of this publication, the TAGS refers to organizations, personnel, equipment, and procedures that participate in the planning and execution of all air-ground operations. Key to the TAGS is an understanding of the systems and how to maximize each component to achieve quick and decisive results in combat.

2. Scope

This publication provides a generic concept and procedures for Theater Air-Ground System (TAGS) operations. It is a "primer" for all planners to facilitate the integration of air and ground operations. It discusses the basics of joint and component air-ground systems and operations, an overview of the joint air tasking order (ATO) cycle, and the command and decision-making process at component and joint force levels. This unclassified publication describes a generic TAGS; therefore, practitioners in mature theaters should refer to theater manuals and special operations instructions for theater-specific procedures. This publication has worldwide application and can serve as a model for any level of conflict.

3. Applicability

The tactics, techniques, and procedures (TTP) described in this publication apply to all elements of a joint force. This publication uses approved joint and Service doctrine and terminology as its foundation. The publication identifies methodologies to employ existing Service command and control systems in order to facilitate air-ground operations.

4. Implementation Plan

Participating Service command offices of primary responsibility (OPRs) will review this publication, validate the information and, where appropriate, reference and incorporate it in Service manuals, regulations, and curricula as follows:

Army. Upon approval and authentication, this publication incorporates the procedures contained herein into the US Army Doctrine and Training Literature Program as directed by the Commander, US Army Training and Doctrine Command (TRADOC). Distribution is in accordance with applicable directives.

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Marine Corps. The Marine Corps will incorporate the procedures in this publication in US Marine Corps training and doctrine publications as directed by the Commanding General, US Marine Corps Combat Development Command (MCCDC). Distribution is in accordance with the Marine Corps Publication Distribution System (MCPDS).

Navy. The Navy will incorporate these procedures in US Navy training and doctrine publications as directed by the Commander, Navy Warfare Development Command (NWDC)[I5]. Distribution is in accordance with Military Standard Requisition and Issue Procedure Desk Guide (MILSTRIP Desk Guide) and Navy Standing Operating Procedure Publication 409 (NAV SOP Pub 409).

Air Force. The Air Force will incorporate the procedures in this publication in accordance with applicable governing directives. Distribution is in accordance with Air Force Instruction (AFI) 33-360.

5. User Information

a. TRADOC, MCCDC, NWDC, Headquarters AFDC, and the Air Land Sea Application (ALSA) Center developed this publication with the joint participation of the approving Service commands. ALSA will review and update this publication as necessary.

b. This publication reflects current joint and Service doctrine, command and control organizations, facilities, personnel, responsibilities, and procedures. Changes in Service protocol, appropriately reflected in joint and Service publications, will likewise be incorporated in revisions to this document.

c.   We encourage recommended changes for improving this publication. Key your comments to the specific page and paragraph and provide a rationale for each recommendation. Send comments and recommendations directly to—

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MULTI-SERVICE TACTICS, TECHNIQUES AND PROCEDURES
FOR THE THEATER AIR GROUND SYSTEM

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Overview

This MTTP discusses the basic understanding of joint and component air-ground operations, the joint targeting process, and the command decision-making process at component and joint force levels. This manual has application for planning and warfighting personnel at all echelons. It is written for air-ground practitioners at all echelons down to Air Force Wing, Army Battalion, Naval Expeditionary Force, and Marine Air-Ground Task Forces (MAGTF).

The Joint Force

Chapter I summarizes the joint task force (JTF) level considerations, organizational options, and command relationships that influence air-ground operations. It further describes the role of the joint force commander and discusses in broad terms the roles and responsibilities of the joint force air component commander (JFACC) and other elements of the TAGS, including the area air defense commander (AADC) and airspace control authority (ACA). A brief introduction to the joint air operations center (JAOC) is provided.

Army Component

Chapter II describes how the US Army integrates and synchronizes its capabilities within the joint force. It outlines the Army's operations framework and discusses how it influences air operations, and explains the Army approach to planning operations. The Army air-ground system (AAGS) is the focus of the chapter. The various elements of the AAGS and fire support coordination system are discussed in detail, including the tactical air control party (TACP), fire support coordinator (FSCOORD), battlefield coordination detachment (BCD), Army Air and Missile Defense Command (AAMDC), and deep operations coordination cell (DOCC).

Air Force Component

Chapter III provides a basic understanding of how the Air Force views the employment of air and space power and the Air Force contribution to the TAGS. It discusses the Air Force's TAGS-related missions and responsibilities in a joint operation, operational factors that influence the way missions are accomplished, and the Air Force component command and control (C2) system. This chapter presents the tenets of airpower and Air Force core competencies from an air and space perspective. A discussion of the Air Force air and space operations center (AFAOC) clarifies the roles and missions of each of its subcomponents. A detailed description of Air Force capabilities, weapon systems, organization, planning considerations, and command and control architectures is included.

Navy Component

Chapter IV provides a general understanding of the roles that naval forces can accomplish in the JFC's campaign, the doctrinal tools currently in use, and the C2 systems used to apply naval air power to the JFC's mission. It includes a description of Navy capabilities, weapon systems, organization, planning considerations, and command and control architectures that function as part of the TAGS. This chapter also discusses Tomahawk land attack missile (TLAM) operations, command and control, integration of TLAMs into the TAGS, the sea-based JFACC concept, and amphibious operations.

Marine Corps Component

Chapter V provides a detailed description of Marine Corps capabilities, weapon systems, organization, planning considerations, and command and control architectures that function as part of the TAGS. This chapter highlights the various types of Marine air ground task forces (MAGTFs); tailoring of MAGTFs to support diverse missions; size, capabilities, and composition of MAGTFs; and examines the roles of MAGTFs in detail. It also addresses the Marine Corps process for planning amphibious operations and joint or multinational operations. It discusses, in detail, coordination links for the Marine Air Command Control System (MACCS), fire support, and targeting.

Theater Air Ground System Operations

Chapter VI integrates the component-specific capabilities, missions, and doctrine to give an understanding of how the TAGS operates. It expands earlier discussions on the role of the joint force commander in the TAGS, outlines TAGS coordination links, and focuses on the integration of the air tasking order (ATO) and targeting cycles. The in-depth discussion of the ATO development process includes target development, close air support (CAS) sortie distribution, force allocation, and force execution. There are additional sections on defensive counterair and interdiction.

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Chapter I

THE JOINT FORCE

1. Background

It is important that personnel assigned to, or working with, the Theater Air-Ground System (TAGS) understand the decision processes and problems associated with the operational and tactical levels of command. Armed with this knowledge, commanders and staffs will better understand TAGS functions and how to work within the system to receive or give support. Actions at the joint force level establish the requirements for TAGS, including the combatant commander's guidance, perspective, and strategy for the area of responsibility (AOR); the joint force commander's (JFC's) joint operations area (JOA) strategy (if the JFC is not the combatant commander), command organization and relationships; the campaign plan; assignment of objectives; and apportionment of forces. This chapter summarizes the joint task force (JTF) level considerations and organizational options that influence theater air-ground operations. It describes the role of the JFC, command relationships, the role and responsibilities of the joint component commanders, and TAGS liaison requirements.

2. Establishing the JTF

The Secretary of Defense, a combatant commander, subordinate unified commander, or an existing JTF commander establishes JTFs. Joint forces are established on either a geographic or functional basis. Establishing a joint force based on a geographic area is the most common method of assigning responsibility. This TAGS publication applies to a JTF established on a geographic area basis since functional JTFs are typically associated with unified commands for transportation, space, special operations, and strategic operations.

3. The Joint Force Commander (JFC)

If a combatant commander decides to delegate authority for an assigned mission, a subordinate JFC may be designated to command a subordinate JTF. In this publication, JFC means either a geographic combatant commander or a subordinate who is designated a JFC. The JFC has the authority to organize forces to best accomplish the assigned mission, based on the concept of operations, by establishing subordinate commands, assigning responsibilities, establishing or delegating appropriate command and support relationships, and establishing coordinating instructions for the component commanders. The JFC has full authority to assign missions, redirect efforts, and direct coordination among subordinate commanders, and exercises operational control (OPCON) over assigned and normally over attached forces. The JFC assembles a joint staff with appropriate members in key positions of responsibility from each service or functional component having significant forces assigned to the command. The manner in which JFCs organize their forces directly affects the responsiveness and versatility of joint force operations. According to JP 3-0, the JFC's vision and concept of operations are the basis for organizing forces to accomplish the mission.

4. Components of the Joint Force

All joint forces include Service component commands, which provide administrative and logistic support. Functional component commands can be appropriate when forces from two or more Services must operate in the same dimension or medium or there is a need to accomplish a distinct aspect of the assigned mission. The responsibilities and authority of a functional component command must be assigned by the establishing JFC. Functional component commands are necessary when the scope of operations requires that similar capabilities or functions of forces from more than one Service be directed toward closely related objectives, and where unity of command and effort are primary considerations. Joint force land, air, maritime, and special operations components are examples of functional components. Normally, functional component commanders also serve as Service component commanders. Normally, joint forces are organized with a combination of Service and functional component commands with operational responsibilities (Figure I-1). Functional component commands are component commands of a joint force and do not constitute a "joint force" with the authorities and responsibilities of a joint force, even when they are composed of forces from two or more Military Departments. When a functional component command employs forces from more than one Service, the functional component commander's staff must be joint and requires advanced planning for efficient operation.

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                    │  Joint Force    │
                    │  Commander      │
                    │  (JFC)          │
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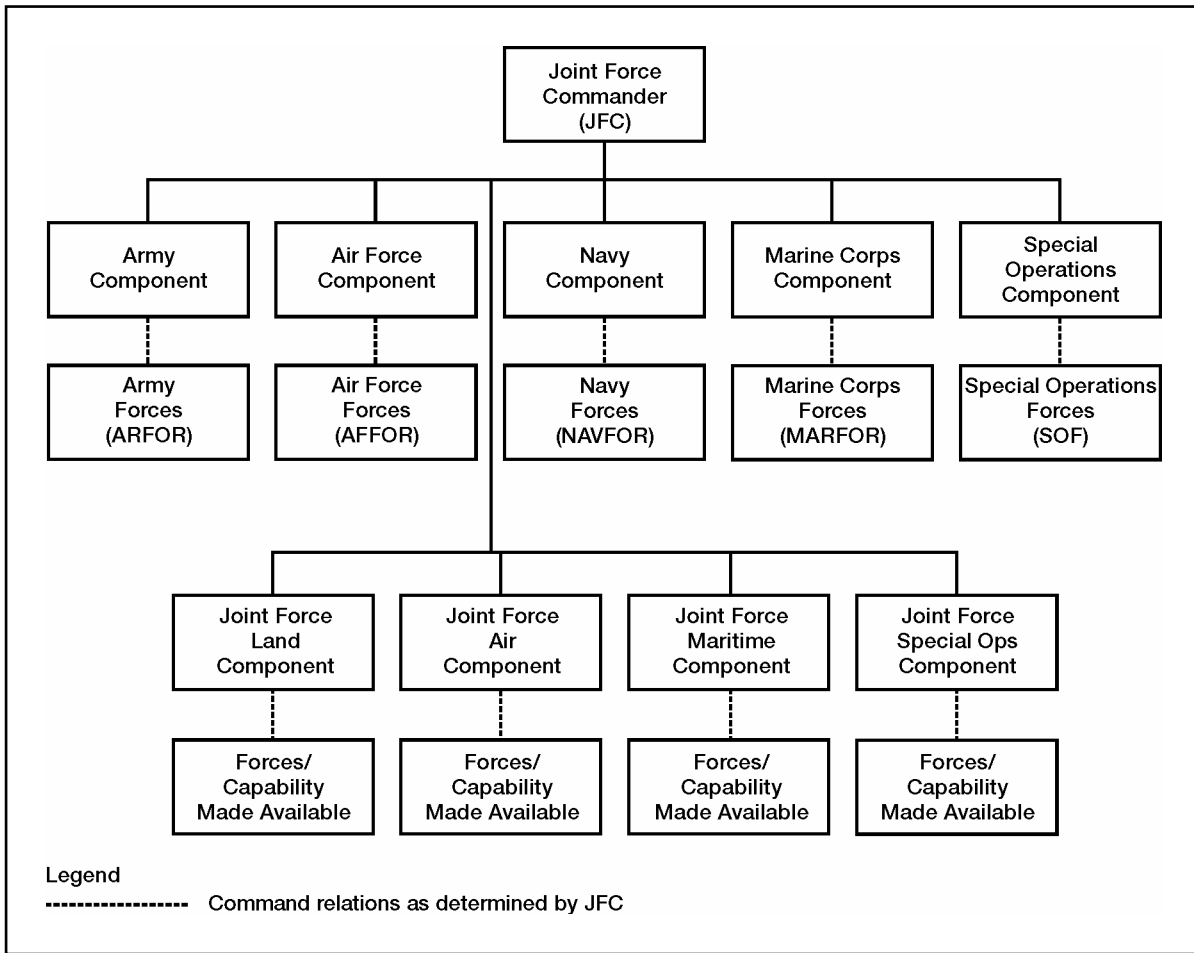
Figure I-1. Theater Organization Overview

5. The JFACC

a. The role of a JFACC requires specific attention when considering theater air operations as a whole and the TAGS specifically. The JFC normally designates a JFACC to exploit the capabilities of joint air operations. The JFACC directs this exploitation through a cohesive joint air operations plan (JAOP), the daily ATO, and other guidance and direction as well as a responsive and integrated control system.

b. The JFC establishes the JFACC's authority, command relationships, and responsibilities. These typically include exercising OPCON over assigned and attached forces or tactical control (TACON) over forces available for tasking, or receiving direct support (DS) from other military capabilities/forces. The JFACC also normally plans, coordinates, allocates, controls, and tasks joint air operations based on the JFC's guidance and objectives, including the air apportionment decision. In some cases, it may be necessary for a carrier battle group commander to perform these responsibilities, especially in a crisis before a JFACC has been designated or when significant land-based assets are not available or required. Specific JFACC responsibilities include:

(1) Developing a JAOP to support joint force objectives as assigned by the JFC.

(2) Recommending to the JFC apportionment of the joint air effort, after consulting with other component commanders. Air apportionment is the determination and assignment of the total expected air effort, by percentage and/or priority, that should be devoted to the various air operations for a given period of time. The JFC may also issue JFACC mission-type orders that apportion by the desired effect to be achieved. Apportionment may be done by day or by phase.

(3) Performing the duties of the airspace control authority (ACA) when assigned that responsibility by the JFC.

(4) Performing the duties of the area air defense commander (AADC) when assigned that responsibility by the JFC.

6. Joint Air Operations Center (JAOC)

a. The heart of the JFACC organization is the JAOC which is structured to operate as a fully integrated facility and staffed to fulfill all of the JFACC's responsibilities. The JFACC staff should be organized and manned to represent the composition of the functional component command. This representation provides the JFACC the expertise needed to employ the capabilities/forces effectively. JFACC organizations may differ based on the specific AOR or JOA requirements and operations.

b. Five organizations or functions common to all JAOCs are: strategy, plans, operations, air mobility, and ISR (intelligence, surveillance, and reconnaissance). The strategy function involves developing strategies and CONOPS to employ available forces to meet defined objectives. It includes planning future joint air operations and may include drafting the JAOP, if not previously completed. The strategy function also includes developing the air operations directive (AOD) to support the JFC's and JFACC's objectives for a particular ATO. The plans function involves building the daily ATO. The operations function concerns the execution of the ATO. Air mobility includes developing and integrating air mobility forces into the ATO through both planning and execution. The ISR function consists of supporting ISR capabilities and ensuring integration and synchronization during planning and operations.

c. Component Liaisons. The component commanders have ready access to the JFACC and the JAOC staff through their component liaisons. These liaison officers work for their respective component commanders and work with the JFACC and JAOC staff. Senior component liaisons serve as conduits for direct coordination between the JFACC and their respective component commanders. Senior liaisons possess the credibility and authority to represent their component commander on time sensitive and critical issues.

d. Coordination Elements. Each component normally provides liaison elements that work within the JAOC, such as the battlefield coordination detachment (BCD), naval and amphibious liaison element (NALE), special operations liaison element (SOLE), space liaison officer (SLO), Marine liaison officer (MARLO), air mobility element (AME), and Air Force liaison element (AFLE). These liaison elements consist of experienced warfare specialists who provide component planning and tasking expertise and coordination capabilities. These experts help integrate their component's participation in joint operations and coordinate and deconflict component direct support air operations with joint air operations.

7. Joint Liaison Requirements

Effective liaison between forces is essential for coordinated TAGS operations and is a key factor in the success of joint operations. A notional joint force liaison structure is depicted in Figure I-2. Liaison officers (LNOs) serve as their parent commanders' eyes and ears as well as their representative to the JFACC on matters of Service capabilities and limitations. LNOs need to have clearly defined parameters within which to take action and make decisions on operational matters. Functional component commanders, when also Service component commanders, use parent Service liaison elements. If the JFACC is sea-based, space and communication limitations may restrict liaison element size and capability. Succeeding chapters discuss Service component liaison elements in detail.
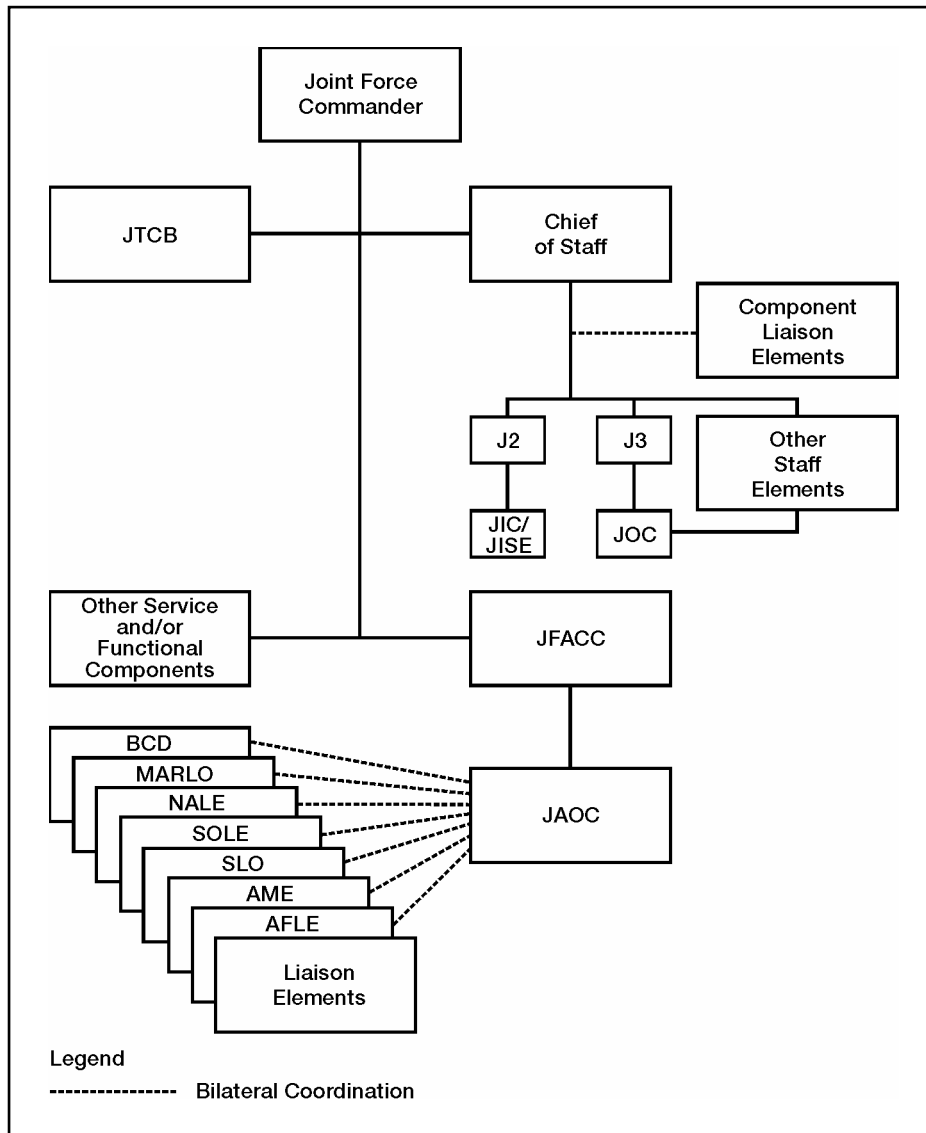
Figure I-2. Notional Joint Force Liaison Structure

8. Targeting

Targeting is the process of selecting targets and matching them with the appropriate response, lethal or non-lethal, disruptive or destructive. Targeting is done in accordance with the JFC's campaign plan, taking into account operational requirements and capabilities, and assessing the effects of attacks against specified targets. It is performed at all levels within the joint force. From a TAGS perspective, targeting directly affects the preparation of the ATO. For TAGS to work effectively, the joint targeting process and the joint ATO cycle must be synchronized. Personnel working ATO development must understand the targeting process to fully realize its impact on TAGS. The JFC may establish or task organizations to accomplish broad targeting oversight functions, or may delegate the responsibility to a subordinate commander. If the JFC so designates, a joint targeting coordination board (JTCB) may be established as an integrating center for this effort or as a JFC-level review mechanism. In either case, it needs to be a joint activity, composed of representatives from the staff, all components and, if required, their subordinate units. The JTCB typically reviews targeting information, develops targeting guidance and priorities, and may prepare joint target lists. The JTCB should also maintain a complete list of restricted targets and areas where Special Operations forces are operating to avoid endangering current or future operations.

9. Area Air Defense Commander (AADC) and Airspace Control Authority (ACA)

Because the TAGS involves activities and communications between all air-ground systems, it is important to define two additional responsibilities that affect the structure and execution of the TAGS: the AADC and the ACA.

a. Within a unified command, subordinate unified command, or JTF, the commander will assign overall responsibility for air defense to a single commander, commonly referred to as the area air defense commander (AADC). Normally, this will be the component commander with the preponderance of air defense capability and the command, control, and communication capability to plan and execute integrated air defense operations. Representation from the other components involved will be provided, as appropriate, to the air defense commander's headquarters.

b. The JFC may designate a commander to assume overall responsibility for the operation of the airspace control system, known as the airspace control authority (ACA). The ACA develops broad policies and procedures for airspace control and coordinates, as required, among units within the AOR/JOA, subject to the authority and approval of the JFC.

c. The responsibilities of the JFACC, ACA, and AADC are interrelated and should normally be assigned to one individual. Regardless of who fulfills these functions and responsibilities, the JFACC, ACA, and AADC must be integrated to unite overall air operations in support of the JFC's campaign.

10. Conclusion

The early assignment of duties and responsibilities to the component commanders and the joint staff is critical in the first stages of crisis management or in the establishment of the JTF. Early assignment of responsibilities such as the JFACC, ACA, and AADC allows maximum time to coordinate and plan operations.

Chapter II

ARMY COMPONENT

1. Background

This chapter describes the process of synchronizing and integrating US Army capabilities within the TAGS. It outlines the Army component capabilities and provides an overview of planning considerations and the command and control architecture in support of ground operations and the Army air-ground system (AAGS). This chapter is designed for sailors, airmen, and Marines who work in joint, multinational, and interagency air-ground operations with the Army.

2. Mission

The Army's mission is to fight and win our Nation's wars. The Army's unique contribution to national security is prompt, sustained land dominance across the range of military operations and across the spectrum of conflict. Its strategic responsiveness, overseas stationing, and force projection capability are powerful deterrents to would-be challengers. The Army is the major ground force provider for decisive combat operations. Whether fighting a large conventional force, elusive insurgency, effects of a natural disaster, or preempting open conflict, the constant aim of the Army is to seize the initiative, maintain momentum, and exploit success.

3. Component Operations

Army component operations are inherently joint and often multinational. Army forces must be prepared to conduct operations with various governmental and nongovernmental agencies, other Services, and the forces of other nations. Army doctrine and systems, especially C2, are designed to expedite the employment of fires, supporting forces, and maneuver as a combined arms to achieve JFC objectives. FM 3.0 is the Army's keystone warfighting doctrinal manual. Successful joint air-ground operations require a fundamental understanding of force capabilities and some key aspects of Army doctrine and operations.

a. Tenets of Army Operations. The five tenets of Army operations—initiative, agility, depth, synchronization, and versatility—build on the principles of war and describe the characteristics of successful operations. These tenets are essential to victory. While they do not guarantee success, their absence risks failure. The TAGS assists Army commanders in the application of all five characteristics.

(1) Initiative. From an operational perspective, initiative is setting or dictating the terms of action throughout the battle or operation. Initiative implies an offensive spirit in all operations. To set the terms of battle, commanders eliminate or reduce the number of enemy options. They compel the enemy to conform to friendly operational purposes and tempo, while retaining freedom of action. Army leaders anticipate events throughout the battlespace. Through effective C2, they enable their forces to act before, and react faster than, the enemy. Intitiative requires delegating decision-making authority to the lowest practical level.

(2) Agility. Agility is the ability to move and adjust quickly and easily. It springs from trained and disciplined forces. Agility requires that subordinates act to achieve the

commander's intent and fight through any obstacle to accomplish the mission. Operational agility stems from the capability to deploy and employ forces across the range of Army operations. Army forces and commanders shift among offensive, defensive, stability, and support operations as circumstances and missions require. This capability is not merely physical; it requires conceptual sophistication and intellectual flexibility. Tactical agility (both mental and physical) is the ability of a friendly force to react faster than the enemy. It is essential to seizing, retaining, and exploiting the initiative. Agile commanders quickly comprehend unfamiliar situations, creatively apply doctrine, and make timely decisions.

(3) Depth. Depth is the extension of operations in time, space, and resources. Commanders use depth to obtain space for effective maneuver, time to conduct operations, and resources to achieve and exploit success. Depth enables momentum in the offense, elasticity in the defense, and staying power in all operations. In the offense and defense, depth entails attacking the enemy throughout the area of operations (AO)—simultaneously when possible, sequentially when necessary—to deny him freedom to maneuver. Offensive depth allows commanders to sustain momentum and press the fight. Defensive depth creates opportunities to maneuver against the enemy from multiple directions as attacking forces are discovered. The TAGS helps Army commanders attack the enemy simultaneously, throughout the battlespace, by facilitating rapid integration and coordination to effectively employ available fires. Operations in depth degrade enemy freedom of action, reduce their flexibility and endurance, and disrupt their plans and coordination.

(4) Synchronization. Synchronization is arranging activities in time, space, and purpose to mass maximum relative combat power at a decisive place and time. Through synchronization, commanders arrange battlefield operating systems to mass the effects of combat power at a chosen place and time to overwhelm an enemy or dominate the situation. Synchronization is a means, not an end. Commanders balance synchronization against agility and initiative; they never surrender the initiative or miss a decisive opportunity for the sake of synchronization. Some activities (such as electronic warfare, suppressing enemy air defenses, and shifting maneuver forces) might occur before the decisive operation and at locations distant from each other. Though separated in time and space, such actions are closely synchronized by commanders to mass overwhelming effects at the decisive time and place. Synchronization often requires explicit coordination and rehearsals among participants. In the TAGS, continuous and aggressive involvement by liaison officers, strong command, disciplined operations, and detailed situational awareness are essential to synchronizing operations and limiting fratricide.

(5) Versatility. Versatility is the ability of Army forces to meet the global, diverse mission requirements of full-spectrum operations. Competence in a variety of missions and skills allows Army forces to transition quickly from one type of operation to another, with minimal changes to the deployed force structure. Versatility depends on adaptive leaders, competent and dedicated soldiers, and well-equipped units. Effective training, high standards, and detailed planning also contribute. Time and resources limit the number of tasks any unit can perform well. Within these constraints, commanders maximize versatility by developing the multiple capabilities of units and soldiers. Versatility contributes to the agility of Army units and is a characteristic of multifunctional units. Commanders can take advantage of this by knowing each unit's capabilities and carefully tailoring forces for each mission. Military police, for example, can provide a mobile, lethal show of force, restore civil order, process detainees, and support peacekeeping operations.

Engineer units can rebuild infrastructure, construct ports and base camps, and maintain lines of communications. At higher echelons, versatility implies the ability to assume more complex responsibilities. For example, a corps headquarters can serve as an Army Forces (ARFOR) headquarters or, with augmentation, a JTF headquarters.

   b. Battlespace. Battlespace is the environment, factors, and conditions commanders must understand to apply combat power successfully, protect the force, or complete the mission. This includes air, land, sea, space, enemy and friendly forces, facilities, weather, terrain, the electromagnetic spectrum, and the information environment within the operational areas and areas of interest. Battlespace is conceptual—a higher commander does not assign it. Commanders determine their battlespace based on their concept of operations, accomplishing the mission, and protecting the force. Commanders use their experience, professional knowledge, and understanding of the situation to visualize and change their battlespace as current operations transition to future operations. Battlespace is not synonymous with AO. However, because battlespace is conceptual, Army forces conduct operations only within that portion delineated by their AO.

      (1) Battlespace has an associated area of influence and area of interest. An area of influence is a geographical area in which a commander can directly influence operations by maneuver or fire support systems normally under the commander's command or control. Areas of influence surround and include the associated AO.

      (2) An area of interest is that area of concern to the commander, including the area of influence and areas adjacent to it. It extends into enemy territory, to the objectives of current or planned operations. This area also includes areas occupied by enemy forces that could jeopardize accomplishment of the mission.

   c. Battlefield Organization. The battlefield organization is the allocation of forces in the AO by purpose. The purposes are categorized into three all-encompassing categories of operations: decisive, shaping, and sustaining. Purpose unifies all elements of the battlefield organization by providing the common focus for all actions. Commanders organize forces according to purpose by determining whether each unit's operation will be decisive, shaping, or sustaining. These decisions form the basis of the concept of operations. When circumstances require a spatial reference, commanders describe the AO in terms of deep, close, and rear areas. These spatial categories are especially useful in operations that are generally contiguous and linear and feature a clearly defined enemy force.

      (1) Decisive Operations. Decisive operations directly accomplish the task assigned by the higher headquarters and conclusively determine the outcome of major operations, battles, and engagements. There is only one decisive operation for any major operation, battle, or engagement for any given echelon. The decisive operation may include multiple actions conducted simultaneously throughout the AO. Commanders weight the decisive operation by economizing on combat power allocated to shaping operations.

      (2) Shaping Operations. Shaping operations at any echelon create and preserve conditions for the success of the decisive operation. They support the decisive operation by affecting enemy capabilities and forces, or by influencing enemy decisions. Shaping operations include lethal and nonlethal activities and use all elements of combat power to neutralize or reduce enemy capabilities. They may occur before, during, or after the start of the decisive operation. They may involve any combination of forces and occur throughout the AO.

(3) Sustaining Operations. The purpose of sustaining operations is to generate and maintain combat power. Sustaining operations are operations at any echelon that enable shaping and decisive operations by providing combat service support (CSS, rear area and base security, movement control, terrain management, and infrastructure development.

(4) Close, Deep, and Rear Areas. Despite the increasingly nonlinear nature of operations, there may be situations where commanders describe decisive, shaping, and sustaining operations in spatial terms. Typically, linear operations involve conventional combat and concentrated maneuver forces. Ground forces share boundaries and orient against a similarly organized enemy force. Terrain or friendly forces secure flanks and protect CSS operations. In some multinational operations, the capabilities and doctrine of partners may dictate spatial organization of the AO. In such situations, commanders designate close, deep, and rear areas.

(a) Close Areas. The close area is the area in which forces are in immediate contact with the enemy and fighting between committed forces and readily available tactical reserves of both combatants is occurring, or where commanders envision close combat taking place. Typically, the close area assigned to a maneuver force extends from its subordinates' rear boundaries to its own forward boundary. Commanders plan to conduct decisive operations through maneuver and fires in the close area and position most of the maneuver force within it.

(b) Deep Areas. The deep area is an area forward of the close area that commanders use to shape enemy forces before they are encountered or engaged in the close area. Typically, the deep area extends from the forward boundary of subordinate units to the forward boundary of the controlling echelon. Thus, the deep area relates to the close area not only in terms of geography but also in terms of purpose and time.

(c) Rear Areas. The rear area for any command extends from its rear boundary forward to the rear boundary of the next lower level of command. This area is provided primarily for the performance of support functions and is where the majority of the echelon's sustaining operations occur. Operations in rear areas assure freedom of action, continuity of operations, sustainment, and C2. Their focus on providing CS (combat support) and CSS, however, leaves units in the rear area vulnerable to attack.

d.   Command Posts. To command and control their designated area of operations, brigade through corps commanders normally establish three command posts (CPs): a tactical (TAC) CP, main CP, and a rear (REAR) CP. The function of each varies; however, Table II-1 reflects the generic functions usually accomplished at each.

Table II-1. Command Post Functions

TAC	MAIN	REAR
PRIMARY Conducts the close fight	**PRIMARY** Orchestrates the battle Conducts the deep fight Plans future fights	**PRIMARY** Supports the battle Conducts rear area operations
SECONDARY Monitors the deep and rear fights Plans	**SECONDARY** Coordinates CSS Monitors the battle Conducts close fight when TAC CP displaces	**SECONDARY** Serves as the backup to the main CP Plans

e. Capabilities. The Army supports JFCs by providing tailored force packages to accomplish joint missions and dominate enemies and situations on land. The ability of Army forces to tailor (select forces based upon a mission) and task organize (temporarily organize units to accomplish a tactical mission) gives them extraordinary agility. It allows operational and tactical level commanders to organize their units to make best use of available resources. The ability to task organize means Army forces can shift rapidly among offensive, defensive, stability, and support operations. The fundamental basis for the organization and operation of Army forces is combined arms. Combined arms is the synchronization or simultaneous application of several arms (such as infantry, armor, field artillery, engineers, air defense, and aviation) to achieve an effect on the enemy that is greater than if each arm was used against the enemy separately or in sequence. As part of the TAGS, Army forces can provide lethal and non-lethal fires in support of air operations through suppression of enemy air defenses (SEAD), ground base defense, and attack and interdiction of enemy aviation and missile forces. The Army provides the following capabilities to the TAGS:

(1) Maneuver. Maneuver is the employment of forces, through movement combined with fire or fire potential, to achieve a position of advantage with respect to the enemy. Maneuver is the means by which commanders concentrate forces at decisive points to achieve surprise, psychological shock, physical momentum, and dominance. Ground forces gain unique advantages from maneuver warfare that are essential to seizing, physically occupying, and holding key terrain. These advantages cannot be replicated by other means.

(2) Fire Support System. Fire support is the collective and coordinated use of indirect fire weapons, armed aircraft, and other lethal and non-lethal means in support of a commander's battle plan. The commander employs the fire support system to support the scheme of maneuver, mass fires, and delay, disrupt, or destroy enemy forces in depth.

(3) Army Aviation. Army aviation performs the full spectrum of combat, combat support, and CSS missions. Aviation units destroy enemy forces by fire and maneuver, perform target acquisition and reconnaissance, enhance C2, and move combat personnel, supplies, and equipment in compliance with the scheme of maneuver. Army aviation functions in the following roles:

(a) Attack Helicopter Operations. Normally, attack helicopters are employed as maneuver forces in combined arms operations to accomplish the commander's missions. They are ideally suited for rapidly developing situations in which available reaction time is

minimal or where terrain restricts ground forces. They can operate effectively in deep, close, and rear battles. Attack helicopters may contribute to theater missile defense (TMD) through attack operations against theater missile launchers and supporting infrastructure. Additionally, the Army may provide attack helicopter operations for other Services in a DS role, if tasked.

(b) Aerial Observation. Army aviation provides aerial observation and request for fires.

(c) Air Reconnaissance. Air reconnaissance units obtain and report real-time and near-real-time intelligence to support effective targeting and battle damage assessment.

(d) Electronic Warfare (EW). Fixed- and rotary-wing aircraft provide a variety of EW support, including direction finding, electronic combat, communications intercept, and electronic target acquisition.

(e) Airborne and Air Assault Operations. Army aviation, as part of a joint or single-service operation, can provide airlift support to airborne or air assault forces to operations in close, deep, and rear areas during both day and night.

(f) Air Movement of Weapons Systems and/or Ammunition. Cargo and utility aircraft offer both speed of movement and flexibility for the employment of fire support units. They provide the commander another alternative to rapidly displace weapons systems in support of deep operations or as a rapid reaction response to threats in the rear area.

(g) Joint air attack team (JAAT) operations. A JAAT operation is a coordinated attack by rotary and fixed wing aircraft normally supported by artillery or naval surface fire support. JAAT operations capitalize on the strengths of each platform and minimize friendly aircraft exposure and vulnerability. These operations require detailed coordination among components. Upon receipt of a JAAT mission, the mission commander assumes responsibility for the coordination and execution of JAAT operations. (For more detailed information on JAAT operations see FM 90-21.)

(h) Aeromedical Evacuation (MEDEVAC). The Army Medical Department (AMEDD) performs the critical MEDEVAC CSS mission. AMEDD-designated units operate utility helicopters to evacuate the sick and wounded to medical facilities. These units also move medical personnel, equipment, and supplies as required.

(4) Army Air Defense. The Army's air and missile defense forces respond to immediate enemy air threats. Army air defense artillery (ADA) provides dedicated low-to-high altitude air and missile defense systems to protect the force and selected geopolitical assets. ADA and other combined arms forces integrate fires to ensure freedom of maneuver for our forces from enemy air and missile threats. The unity of effort under the AADC's weapons control and air defense procedures as well as horizontal and vertical coordination among air and missile defense elements ensure synchronization between the Army and the other Services.

4. Planning

a. The Army uses the military decision making process (MDMP) at the battalion level and above to plan and synchronize operations. During MDMP, Army units plan for the

employment of all available capabilities including available air support. A primary product of the MDMP is operations plans (OPLANs) and operations orders (OPORDS). Army combat plans and orders are important to the TAGS because they provide the task organization, mission statement, commander's intent, and concept of operation of Army units conducting the operation. Key components include—

(1) Task Organization. Information regarding how the command is task organized to accomplish the mission is located immediately preceding paragraph 1, Situation, or as an annex (normally, Annex A) to an order or plan.

(2) Mission Statement. The mission statement is the commander's expression of the task the unit must accomplish and for what purpose. It explains the essence of the operation: who, what, when, where, and why. A precise, clear mission statement that subordinates understand before and during the operation is vital to mission success. At operational levels of command, commanders anticipate change by continually reassessing the stated mission in light of changing strategic and operational conditions.

(3) Commander's Intent.   The commander's intent is the commander's clear, concise statement of what the force must do to succeed with respect to the enemy and the terrain, and his desired end state and purpose. It links the mission and the concept of operations by stating key tasks that, along with the mission, are the basis for subordinates to exercise initiative when unanticipated opportunities arise or when the original concept of operation no longer applies.

(4) Concept of the Operation. The concept of the operation is the commander's clear, concise statement of where, when, and how he intends to concentrate combat power to accomplish the mission in accordance with the higher commander's intent. It broadly outlines considerations necessary for developing a scheme of maneuver. It includes actions within the battlefield organization, designation of the main effort, the commander's plan to defeat the enemy, and specific command and support relationships. These relationships are then included in the task organization and organization for combat in plans and orders. More detailed information on how the Army commander coordinates air power to support the scheme of maneuver is located in the air support appendix of the fire support annex (normally Annex D).

(5) Logistics. Paragraph 4, Service Support, outlines key logistical considerations for employment and sustainment of assets.

(6) Communications. Paragraph 5, Command and Signal, outlines the command hierarchy and assigns appropriate frequencies, call signs, and codewords for units and attachments in support of planned operations.

b. Battlefield Operating Systems (BOS). Armed with a coherent and focused intent, commanders and staffs develop the concept of operations and synchronize the BOS. The BOS are the physical means (soldiers, organizations, and equipment) used to accomplish the mission. The BOS group related systems together according to battlefield use. The seven BOS are intelligence, maneuver, fire support, air defense, mobility/countermobility/survivability, combat service support, and command and control. Information about specific tasks associated with each BOS is in FM 7-15.

c. Fire Planning. Fire planning is a continuous process, usually top-down driven or intitiated, of planning Targeting Process. Targeting is the process of selecting targets and matching the appropriate response to them based on operational requirements and

capabilities. Emphasis is on identifying resources that the enemy can least afford to lose, degrading the enemy's ability to take the initiative, and forcing the enemy to conform to friendly battle plans. A target may be an enemy function, formation, facility, equipment, or piece of terrain. Targeting is a significant part of the Army's participation in the TAGS planning process. The Army commander uses the targeting process to shape the battlespace and to synchronize fire support and maneuver. It enables the attack of the right target with the best weapon at the right time. The selection of targets must support the ground commander's battle plan. The targeting process requires coordination among multidisciplined groups, which include fire support, intelligence, operations, planning cell, and liaison personnel.

(1) Decide-Detect-Deliver-Assess. The Army and Marine Corps use a proactive methodology to conduct targeting called decide-detect-deliver-assess (D3A), which is applicable to all targeting situations and any echelon of command.

(a) Decide. The decide function provides the focus and priorities for intelligence collection management and attack planning. Decisions include which targets should be acquired and attacked, where and when they will most likely be found, who can locate them, how they should be attacked, and whether CA is required.

- To assist the commander in deciding what targets to attack, the staff uses a process called intelligence preparation of the battlespace (IPB). IPB is a continuous systematic analysis of the enemy, weather, and terrain in a specific geographic area to evaluate threat capabilities and predict likely enemy courses of action.

- IPB facilitates target value analysis (TVA). TVA involves detailed analysis of enemy doctrine, tactics, equipment, organization, and expected behavior, linking the effects of attacking a target directly to the targeting function. TVA listings indicate which targets are important, which are vulnerable, and when and where they are likely to be most vulnerable.

- Through TVA, the staff identifies those assets that the enemy commander requires for the successful completion of his mission. These are identified as high-value targets (HVTs). Because these targets are key to the enemy commander's success, they are normally given a higher priority for attack.

- If an HVT can be successfully acquired (is vulnerable to attack) and such an attack supports the commander's scheme of maneuver, the target may be nominated as a high-payoff target (HPT). Once HPTs have been identified and nominated, they are grouped into a list, which identifies them for a specific point in the battle, in order of priority. The completed HPTL is submitted to the commander and, when approved, becomes a formal part of the fire support plan. It is then passed to the units and targeting elements. HPTs, when successfully attacked, contribute substantially to the success of the friendly commander's plans.

(b) Detect. Detect maximizes all available assets, ensuring that appropriate sensors are in position at prescribed times to search for specific HPTs. When detected, the target location is communicated to command elements for confirmation of the attack decision or directly to an attack system if target detection is designated as an attack trigger event. The intelligence section (G2/S2) is the main staff element responsible for the detection efforts against HPTs.

(c) Deliver. The attack of targets must satisfy the guidance developed in the decide function, requiring a number of tactical and technical decisions/actions. The tactical decisions include the time of attack, the desired effects, and the specific attack system to be used. The technical decisions include the precise delivery means, the number and type of munitions, the unit to conduct the attack, and the attacking unit's response time.

(d) Assess. CA is a timely and accurate estimate of damage resulting from the use of military force, either lethal or non-lethal, against a target. As a part of the targeting process, CA specifically pertains to the results of attacks on targets designated by the commander. Although primarily an intelligence function, it requires extensive coordination with operational elements to be effective.

d. Air Operations. Control of the airspace enables land forces to execute operations, without interference from enemy air forces, and maintain tactical flexibility. Enemy strengths in terms of forces, supplies, and combat reserves are most vulnerable to air attack when concentrated before dispersing to battle areas. While the urgency of enemy actions may require direct attack against forces in contact, air power is more efficiently used to interdict in depth those targets whose destruction, disruption, or delay will deny the enemy the time and space to employ forces effectively. A synchronized, systematic, and persistent plan of attack between air and land commanders is essential. Air component functions that contribute directly to land operations are counterair, close air support (CAS), air interdiction (AI), special operations (Special Operations), airlift, and surveillance and reconnaissance. Land forces also contribute to air operations by providing fires, including long-range rocket, missile, and cannon interdiction, attack helicopter missions, and electronic warfare. Long-range fires support SEAD, ground base defense, and attack and interdiction of enemy aviation and theater missile forces.

5. Command and Control

a. The Army Air-Ground System (AAGS). The Army's control system for synchronizing, coordinating, and integrating air operations with the commander's scheme of maneuver is the AAGS. The AAGS initiates, receives, processes, and executes requests for air support and disseminates information and intelligence produced by aerial assets. Although some elements within AAGS, such as the tactical air control party (TACP), belong to different Services or other nations, they function as a single entity in planning, coordinating, deconflicting, and integrating air support operations with ground operations. The Army elements of the AAGS consist of: operations, fire support, air defense, C2, and coordination/liaison elements (Figure II-1). NOTE: The term "Army airspace command and control (A2C2)" does not denote that any airspace contiguous to the battlefield or any other geographical dimension of airspace is designated "Army" airspace, but refers to management, integration, and utilization of airspace by airspace users over the Army's area of operations. Neither does it imply command of any asset that is not assigned or OPCON to an Army commander.
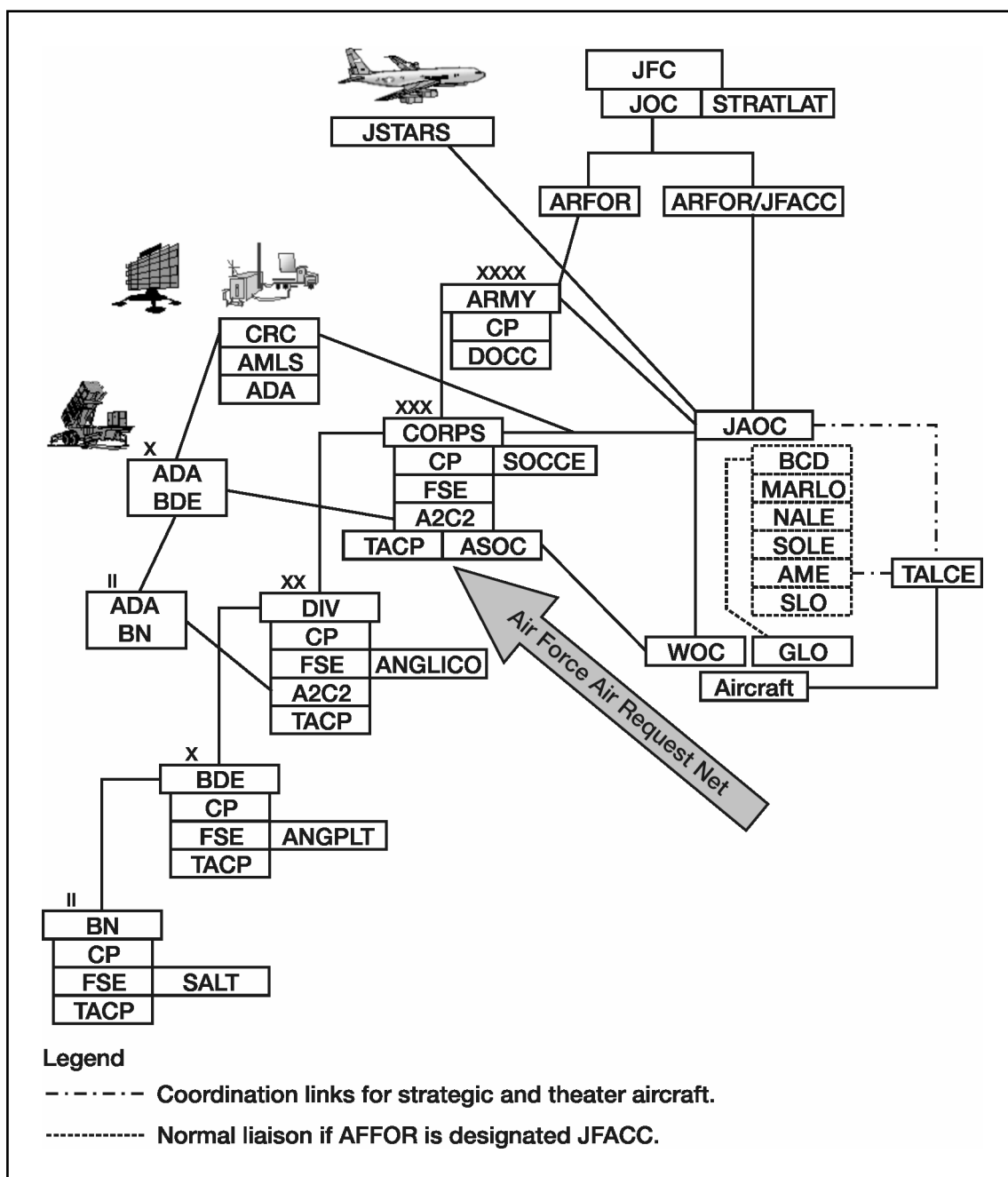
Figure II-1. AAGS Coordination Links

(1) Operations. In joint operations, adjustments are made for Service-specific operating procedures. At each echelon down to division level, the commander is responsible for integrating fire support, deconflicting the airspace, and coordinating air support as required. The AAGS is the Army's operational approach to the functional activity of airspace C2. The operations officer (G-3) is responsible for staff supervision of all Army component air-ground operations except CSS airlift, which is the responsibility of the

logistics officer (G-4), and air reconnaissance and surveillance, which is the responsibility of the intelligence officer (G-2).

(2) Fire Support. The FSCOORD directs the overall fire support system and ensures that all available fire support means are fully synchronized with the battle plan. The FSCOORD also advises the commander on the best use of available fire support resources, develops and implements the fire support plan, and issues necessary orders in the name of the commander. In addition, the FSCOORD plans and coordinates engagement of surface targets, target acquisition, radar emplacement, counterfire operations, and deception operations by fire support means. At maneuver brigade through corps level, the FSCOORD is also the commander of the field artillery unit supporting the force. A deputy FSCOORD or fire support officer (FSO assists him on the combined arms staff at these levels. The FSCOORD normally operates through a fire support element (FSE) as part of a fire support cell at each echelon of command (Figure II-2). A fire support cell may include liaison elements from the Air Force and Navy. The four basic tasks of fire support are: support the force in contact, support the force commander's battle plan, synchronize fire support, and sustain the fire support system.
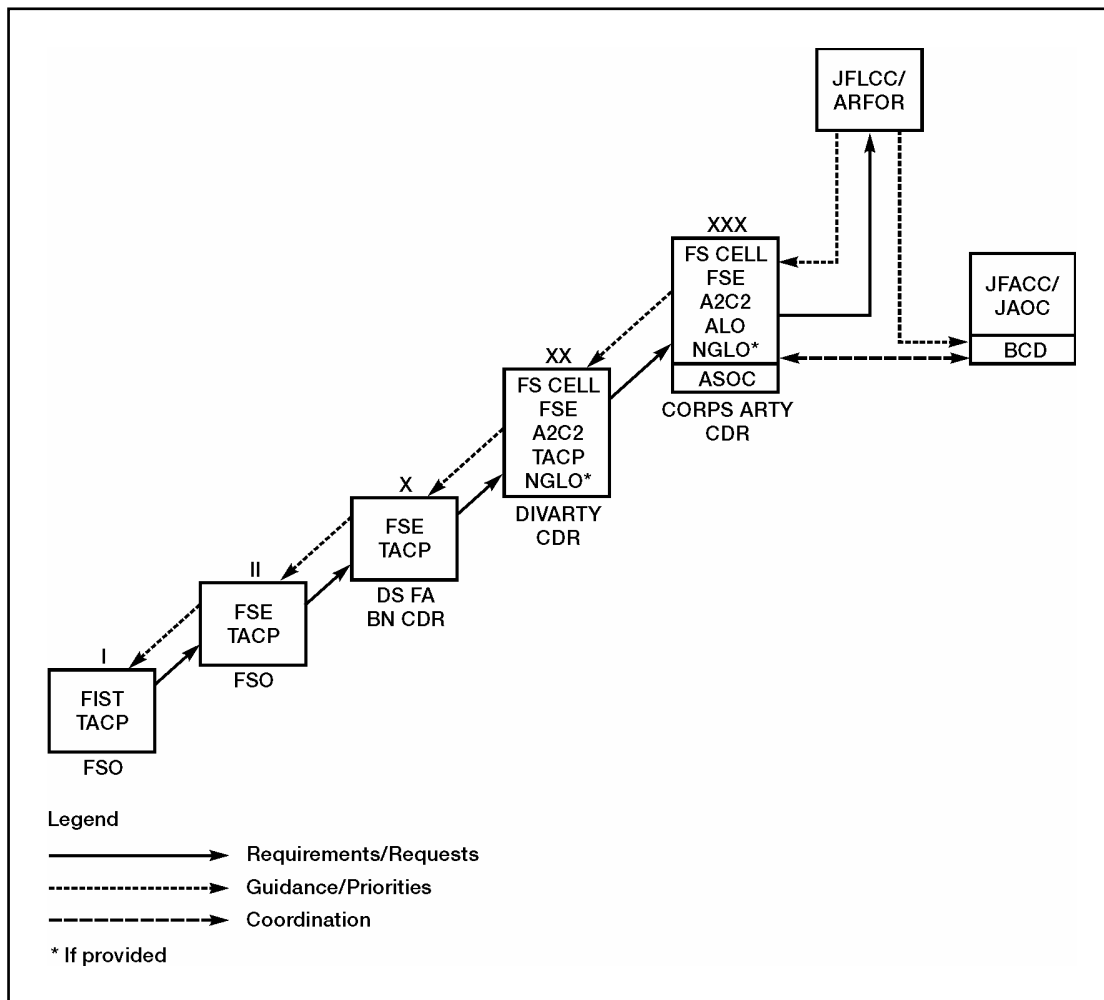
Figure II-2. Fire Support Coordination

(3) Army Air Defense. The JFC's designated AADC establishes rules of engagement (ROE) and establishes control of units through positive and procedural controls. In conjunction with the ACA, the AADC implements procedural airspace controls that facilitate the integration and synchronization of air defense assets into air operations to optimize airspace use, protect friendly units, and prevent fratricide. These airspace control measures are disseminated and updated via the airspace control order (ACO), which may be published in conjunction with the ATO. Positive control is accomplished by utilizing the electromagnetic spectrum to track and identify friendly, hostile, and unknown air assets.

(a) Army air defense operations are planned and coordinated at all echelons within the land component and integrated into the AADC's theater air defense plan. The AADC, through the supporting JAOC, may delegate execution of DCA operations to a Service's principal air defense command and control agency, such as the Air Force's control and reporting center (CRC), which may direct the execution of air defense for the theater. Further, the AADC may decentralize execution of the air defense plan to regional air defense commanders. (See Chapter VI for more details on joint air defense operations.)

(b) The commander of the Army Air and Missile Defense Command (AAMDC) is the echelon above corps (EAC) ADA commander, the theater army air and missile defense coordinator (TAAMDCOORD) and special staff officer. In addition, the JFC and AADC may designate the AAMDC commander to serve as the deputy area air defense commander (DAADC) responsible for integrating Army air and missile defense assets into joint counterair operations. The AAMDC commander assists in developing Army input to the air operations plan and incorporating corps air and missile defense requirements into the counterair plan. As the TAAMDCOORD, the AAMDC commander develops the air and missile defense annex to the OPORD and, in his DAADC role, provides land-based active air defense input to the AADC's theater air defense plan. All planning is coordinated and performed simultaneously, resulting in a fully integrated joint counterair plan.

(c) Based on the factors of METT-TC, the JFC and the AADC will determine whether a deputy AADC (DAADC) for land-based active defense force operations should be designated. Normally, the AAMDC commander assumes the role of the DAADC because of his experience; the AAMDC has the necessary personnel and equipment to support the DAADC mission. Once designated, the DAADC becomes the principal integrator of land-based active defense force operations and will deploy a liaison team to the JAOC to assist in performing these duties. The AAMDC liaison team, as the senior Army air defense element at the JFACC/AADC's location, is the primary interface at the JAOC for all land-based active defense force operations. The battlefield coordination detachment (BCD) air defense section will coordinate its activities with the AAMDC liaison team and may augment the team as needed. The DAADC and AAMDC liaison team—

• Assists the AADC develop the air defense plan.

• Integrates land-based air and missile defense into theater DCA operations.

• Advises the AADC regarding ROE (such as weapons control status, weapons control procedures, states of readiness/emission, and fire control orders), airspace control measures (ACM), weapons control procedures, and air defense warnings (ADW).

• Advises the AADC on matters regarding land-based air and missile defense operations.

• Advises the AADC on land-based air and land defense capabilities.

(d) The EAC ADA brigade(s), under command of the AAMDC, normally provide air and missile defense coverage for selected critical assets (such as ports, airfields, logistics bases, and cities). The corps ADA brigade commander ensures that corps air defense requirements are integrated into the theater air defense plan by coordinating activities with the AAMDC, adjacent corps, and subordinate divisions. The EAC and corps level ADA brigades and their respective high- to medium-altitude air defense (HIMAD) units are all data linked and normally operate under the weapons control procedures and measures of a CRC. If this data link to the CRC is inoperable, units revert to established lost data communications procedures. Short-range air defense (SHORAD) units normally operate under procedural controls for air defense engagements and provide air defense coverage for the division commander's air defense priorities.

(4) Army Airspace Command and Control (A2C2) Element. Under the JFC's ACA, the A2C2 element is the Army's principal organization responsible for airspace control in the Army's area of operations and is normally located in the TOC. Only corps and divisions have dedicated A2C2 elements, although a limited A2C2 capability exists at brigade and

battalion levels, primarily through ADA and aviation liaison to the operations/S3 sections. Corps and divisional A2C2 elements coordinate and disseminate airspace control information and requirements under the staff responsibility of the G-3, and are supervised by the G-3 Air. Armor and light units of the Army, from corps through battalion, differ in the structure of their A2C2 elements. Normally, the principal staff sections and liaison elements collocated with or included within an A2C2 element consist of representatives from: ADA, Army aviation, Army Air Traffic Services (ATS), Air Force liaison officer (ALO), FSE, EW, and airlift staff representative of the G-4 section. A2C2) element tasks include—

(a) Identify and forward Army airspace needs and requests to the ACA to be included in the airspace control plan/order and to resolve conflicts.

(b) Maintain A2C2 overlays and develop A2C2 procedures, plans, standing operating procedures, and annexes to orders/plans.

(c) Coordinate and integrate airspace user requirements within the area of operations for deconfliction and approval by the airspace control plan and order.

(d) Coordinate Army airspace use with other components of a joint force and with adjacent units.

(e) Advise subordinate and higher headquarters of significant activities affecting airspace use.

(f) Advise subordinate and higher headquarters of the impact of airspace control measures or restrictions on the ground battle.

(g) Staff and obtain approval for special use airspace.

(5) Battlefield Coordination Detachment (BCD). The primary ARFOR liaison to the JFACC is the BCD. The Army component commander establishes a BCD to perform liaison between the ARFOR and the JFACC. The BCD is collocated with the JFACC's senior air operations control agency, normally the JAOC. It is responsible to the Army component commander and coordinates with, and receives, objectives, guidance, and priorities from the G-3. Guidance and priorities must be sufficiently clear to permit the BCD to adjudicate ARFOR needs for air support. The BCD is organized into a headquarters element and six subsections: plans, operations, intelligence, air defense artillery, airspace management, and airlift.

(a) The BCD plans section collocates with the JAOC's combat plans division. Its primary functions are—

• Relay and coordinate Army requests for air support and JFACC requests for support from ground units.

• Provide the JAOC with the Army commander's intent, guidance, objectives, priorities for air support, fire support coordinating measures, and planned concept of operations.

• Assist in planning, coordinating, and synchronizing J-SEAD and EW operations.

• Monitor publication and distribution of the ATO.

(b) The BCD operations section is collocated with the JAOC's combat operations division. Its primary functions are—

- Monitor execution of the current ATO as it pertains to missions planned against Army component-nominated targets and the overall air operations.

- Coordinate all changes that affect the current ATO and changes in the land forces' current operations, objectives, priorities, nominated targets, and fire support coordinating measures.

- Keep abreast of current theater policy regarding the integration of ground and air forces and effects coordination of target attacks beyond a given fire support coordination line (FSCL).

(c) The BCD intelligence section provides intelligence personnel support to the BCD plans and operations sections and establishes liaison with the JAOC Intelligence, Surveillance, and Reconnaissance Division. Its primary functions are—

- Provide information on enemy ground order of battle and assist in interpreting this information.

- Process, justify, and coordinate Army requests for reconnaissance and EW support.

- Obtain Army intelligence reports and facilitate the exchange of intelligence data. Coordinate intelligence data for unique targeting requirements.

- Forward validation of ARFOR-nominated targets before attack.

- Ensure timely processing of CA to the ARFOR headquarters and identify new targets for attack.

- Process ARFOR requests for immediate air reconnaissance and EW support.

- Provide the current ARFOR intelligence picture to the JAOC operations division.

(d) The BCD air defense section works with the operations and plans divisions of the JAOC. Its primary functions are—

- Coordinate air defense, theater missile defense, and airspace requirements with the JAOC and the land force air defense headquarters. Represent the Army component during development of the ACO, the air defense plan, and ROE.

- Coordinate with the JAOC, Army component headquarters, and Army air defense headquarters on changes in ROE, identification procedures, air defense warning, ADA employment and deployment, and reporting requirements.

NOTE: When the AAMDC is deployed in theater, the AAMDC liaison team at the JFACC/AADC's location is the senior Army air defense element and the primary interface at the JAOC for all land-based active air defense force operations. The BCD ADA section coordinates its activities with the AAMDC liaison team and may augment the AAMDC liaison team as needed.

(e) The BCD airspace management section works with both the operations and plans divisions of the JAOC. Its primary functions are—

- Coordinate special electronics mission aircraft and deconflict airspace for Army Tactical Missile System (ATACMS) fire missions.

- Inform and advise the ARFOR airspace control element of the impact of additions or conflicts on airspace activities and control measures.

- Integrate planned Army aviation missions into the ATO and coordinate special electronic mission aircraft and the ATACMS firings.

(f) The BCD airlift section is collocated with the Air Force component airlift control team (ALCT). Its primary functions are—

- Coordinate and monitor airlift missions in support of Army component operations.

- Advise the director, mobility forces (DIRMOBFOR), and staff on all matters pertaining to ARFOR operations and intelligence.

- Monitor publication, distribution, and execution of the theater airlift portion of the ATO.

(6) Deep Operations Coordination Cell (DOCC). The DOCC provides the commander at the Army and corps level with a cell dedicated to shaping the battlefield. The DOCC, with the assistance of the component staff (SOCCE if SOF forces are used) and liaison elements—

(a) Integrates operational fires with the scheme of maneuver.

(b) Plans targeting objectives and priorities.

(c) Integrates target lists and fire support coordinating measures.

(d) Coordinates special targets.

(e) Tracks target execution by other components and subordinate echelons.

(f) Synchronizes corps, EAC, and joint deep operations.

(g) Coordinates and synchronizes employment of joint EW assets.

(h) Monitors execution of the deep battle, ATO, land force participation in J–SEAD operations, SO missions, and unique targets of special interest to the commander.

(7) Liaisons. In addition to the liaison staffing cited above, other liaison activities that support the TAGS include—

(a) Ground Liaison Officer (GLO). The Army provides GLOs at each air wing operations center (WOC) supporting ground operations. GLOs provide Army expertise, brief pilots on the ground situation, and participate in the debriefing of pilots upon return from missions. GLOs receive and report operational and intelligence data to the BCD.

(b) Air Defense Liaison. The Army provides an air defense artillery coordination officer (ADAFCO) to the CRC to assist in the rapid engagement of airborne targets. ADAFCOs may also be provided to the airborne warning and control system (AWACS) to further assist in the ground-to-air battle. At the division and corps level, ADA liaison to the G-3 Air is vital to the integration of SHORAD and HIMAD fires into joint air operations to protect the force and prevent fratricide.

(c) Airspace Management Liaison. The Army provides airspace management liaison to the JAOC. This liaison handles real-time Army airspace management issues that may arise during execution of air operations.

b. Levels of Command.

(1) Army Component Level. The Army component commander plans operations to fulfill JFC-assigned responsibilities. Operations at the component level involve the deployment, maneuver, and fires of land forces over extended terrain and the integration of all Army and other component support into the overall campaign. The Army component headquarters staff is oriented toward planning and directing combat operations, with emphasis on planning future operations. The details of using maneuver, fires, and allocated support are left to the judgment of subordinate commanders.

(2) Echelons Above Corps. At EAC, the fire support function is performed by the DOCC (Table II-2). Given the JFC's guidance and campaign plan, the army-level commander provides guidance to the DOCC on shaping the future fight. Each subordinate corps provides target nominations and reconnaissance requests to the army-level DOCC as well as recommendations for overall targeting objectives for the future battle. The army-level commander approves resource allocation and distributes CAS sorties and the corresponding requirements to provide SEAD. At this level, the commander takes an active role in the targeting process, primarily in target and reconnaissance nomination and prioritization. Based on the commander's intent and guidance, the ground maneuver plan, and the G-2's evaluations and estimates, the DOCC conducts target planning and battle management to shape the battlefield, resulting in CAS, AI, and reconnaissance (RECCE) nominations to the JFACC.   The DOCC uses the Advanced Field Artillery Tactical Data System (AFATDS) to interface with all other fire support organizations. A description of the AFATDS is found under the corps and division FSE paragraph below.

Table II-2. Fire Support Coordination Facilities

Force Echelon	Fire Support Organization	FSCOORD	Assisted by
Army	DOCC	Army Deep Operations Chief	Deputy Army Deep Operations Chief
Corps	FSE	Corps Artillery Commander	Corps Deputy FSCOORD and AFSCOORD
Division	FSE	DIVARTY Commander	DIVARTY AFSCOORD
Brigade	FSE	FA Battalion Commander	Brigade FSO
Battalion/Squadron	FSE	FSO	Fire Support NCO
Company/Troop	FIST	FSO	Fire Support NCO

(3) Corps and Division Levels. At corps and division levels, the FSE, A2C2 section, Army aviation LNO, and the Air Force TACP synchronize the TAGS. Close integration and continuous coordination among the FSCOORD, G-3 Air, and ALO are critical to success. The FSEs and TACPs at corps and division are similar in structure.

(a) Fire Support Element. Corps and division TAC and main CPs have FSEs under the FSCOORD's supervision. The FSE is the central clearinghouse for planning, coordinating, and synchronizing all categories of fire support on surface targets. The exact organization varies among units and depends on the mission, availability of fire support

assets, and command preferences. Generally, it will include planning, targeting, and current operations elements. Field artillery has the dual mission of integrating all available fire support and providing field artillery fires. AFATDS is the multi-Service (Army/Marine Corps) integrated battlefield management and decision support system used by the FSE. It receives, processes, and disseminates the ATO/ACO, air support requests, fire support coordinating measures, and friendly situation reports. AFATDS receives air battle information from the air picture it receives from the Air and Missile Defense Warning System (AMDWS) via TADIL-J. AFATDS can provide for preplanned fires for inclusion in the ATO and automatically generate immediate air requests if "air" is selected as the desired attack means. An AFATDS terminal is also located at the BCD in the JAOC.

(b) G-3 Air and A2C2 Element. The G-3 Air performs a pivotal role in the implementation of the AAGS and integration of the TAGS at corps and division levels. The G-3 Air supervises the A2C2 element and receives, coordinates, plans, prioritizes, approves, and integrates preplanned requests for CAS with the FSE and other staff planners. The G-3 Air also coordinates redistribution of CAS resources, is responsible for the coordination and approval of requests for immediate CAS, and monitors the air support operations center's (ASOC) employment of air assets. The G-3 Air advises the commander on employment of Army aviation and has staff responsibility for managing airspace use within the command's AOR.

(c) Army Aviation. When Army aviation is employed as a maneuver element, the aviation brigade commander is responsible for coordinating air-ground synchronization with the G-3 Air and the FSE. The aviation brigade normally provides full-time liaison support to the division G-3 Air section to better facilitate AAGS and TAGS functions.

(d) Electronic Warfare Section. The G-3 controls the use of EW; however, the EW section is normally a staff element of the G-2 and usually collocates with the FSE and G-3 Air to facilitate target acquisition and fire support planning and execution.

(e) G-2 Collection Management and Dissemination. The G-2 agency coordinates airspace requirements for special electronic mission aircraft (SEMA) and unmanned aerial vehicles (UAV) and provides liaison to support the A2C2 effort. Reconnaissance and surveillance requests that cannot be supported by organic or DS assets are forwarded to higher headquarters.

(4) Brigade and Battalion Levels. The DS artillery battalion commander is the FSCOORD for the supported maneuver brigade. The brigade FSCOORD organizes fire support elements in each maneuver battalion and company. When Army aviation supports another maneuver brigade, the aviation unit commander, normally through an LNO, provides direct coordination with the supported unit. The brigade and battalion ALOs and enlisted terminal attack controllers (TACs) coordinate Air Force air support directly with higher level TACPs and the S3 Air. Preplanned air and fire support requests are compiled at each level and forwarded via the fire support net. Approved targets that cannot be attacked using organic or DS assets are passed to the next higher echelon for engagement. Immediate air requests can be made directly to the ASOC from any echelon for targets of opportunity.

(5) Company Level. The fire support team (FIST) and the battalion CAS control team synchronize fire support at the maneuver company level. The battalion fire support officer (FSO) supervises the company FISTs and usually coordinates CAS through the CAS control team. Often, the CAS control team will be collocated with a committed company or

the main effort to put them in a position as far forward as possible to provide the best terminal control to CAS aircraft. In some situations, the aviation attack company commander may talk directly to a ground maneuver company commander to coordinate engagement areas, responsibility, threat location, and other force synchronization requirements.

6. Conclusion

TAGS is critical to Army operations because it provides the commander with a system that integrates the different Services' air-ground systems. TAGS functions cross the full range of military operations and provide ground commanders with an enhanced capability to fight the close, deep, and rear battles. TAGS facilitates success in current operations while allowing ground commanders to shape the battlefield to influence future operations. Army commanders expect the TAGS to provide the framework to synchronize supporting air operations with the ground effort. The ability of the commander's FSCOORD, G-3 Air, and ALO to work closely together in all aspects of planning, synchronizing, and executing operations is critical to the ground battle's success.

Chapter III

AIR FORCE COMPONENT

1. Background

This chapter provides a basic explanation of how the Air Force views the employment of air and space power and the Air Force contribution to the TAGS. It discusses the TAGS-related missions and responsibilities in a joint force operation, operational factors that influence the way missions are accomplished, and the Air Force component C2 system. This chapter presents the tenets of airpower and Air Force core competencies from an air and space perspective.

2. Mission

The mission of the United States Air Force (USAF) is to defend the United States through control and exploitation of air and space. Airmen accomplish this mission by applying the principles of war, tenets of airpower, and Air Force core competencies through the functions of airpower. The Air Force recognizes the phrase "air and space" to acknowledge the inherent differences in the two media and the associated technical realities. **The phrase "air and space" as used throughout this chapter, is not recognized by the other Services.**

a. Air and Space Power Functions. The Air Force's basic functions are the broad, fundamental, and continuing activities of air and space power. Air Force forces (AFFOR) employ air and space power globally through these basic functions to achieve strategic, operational, and tactical level objectives in war and military operations other than war (MOOTW). It is this inherent versatility, when combined with the speed, flexibility, and global nature of our reach and perspective, that generates the Air Force contribution to joint force capabilities. These functions can be conducted at any level of war and enable the Air Force to shape and control the battlespace. Air and space power functions include counterair, counterland, counterspace, countersea, strategic attack, counterinformation, C2, airlift, air refueling, spacelift, SO employment, intelligence, surveillance, reconnaissance, combat search and rescue (CSAR), navigation and positioning, and weather service. Those functions most commonly associated with the TAGS are counterair, counterland, countersea, and counterinformation. A brief discussion of these functions appears below. A more detailed discussion of all Air Force functions is located in Air Force Doctrine Document 1 (AFDD1).

(1) Counterair. Counterair consists of operations to attain and maintain a desired degree of air superiority by the destruction or neutralization of enemy forces. Counterair's two elements, OCA and DCA, enable friendly use of otherwise contested airspace and disable the enemy's air and surface-to-air missile capabilities, thus reducing the threat posed against friendly forces. Air and space superiority is normally the first priority of air and space forces.

(2) Counterland. Counterland involves operations conducted to attain and maintain a desired degree of superiority over surface operations by the destruction or neutralization of enemy forces. Although normally associated with support to friendly surface forces, the term "counterland" can refer to the identical function without the presence of friendly surface forces. This independent attack of adversary surface operations by air and space

forces is the essence of asymmetric application and can be key during initial phases of a conflict. Specific traditional functions associated with air and space counterland operations are AI and CAS.

(a) Air Interdiction. AI is air operations conducted to destroy, neutralize, or delay the enemy's military potential before it can be brought to bear effectively against friendly forces at such distance from friendly forces that detailed integration of each air mission with the fire and movement of friendly forces is not required. Interdiction attacks enemy C2 systems, personnel, materiel, logistics, and their supporting systems to weaken and disrupt the enemy's efforts and may achieve tactical, operational, or strategic objectives. The land component commander is the supported commander for interdiction in the land area of operations. Interdiction and surface force maneuver can be mutually supporting. Surface force operations can support interdiction operations by forcing the enemy to consume supplies at an accelerated rate and to move forces to meet emerging threats. These movements and supply efforts then become targets or objectives for air and space forces. Interdiction can also support surface operations by forcing the enemy to react to friendly attack and, in doing so, expose vulnerabilities to surface maneuver forces. Additionally, attacks on enemy C2 systems contribute to operations that interfere with an adversary's ability to mass, maneuver, withdraw, supply, and reinforce surface forces. For additional discussion of interdiction operations, see Chapter VI of this publication or JP 3-03.

(b) Close Air Support. CAS consists of air action by fixed and rotary wing aircraft against hostile targets, which requires detailed integration of each air mission with the fire and movement of friendly forces. CAS provides direct support to help friendly surface forces carry out their assigned tasks. In fluid, high intensity warfare, the need for tight control, unpredictability of the tactical situation, and proliferation of lethal ground-based air defenses make CAS especially challenging. CAS should be planned to prepare the conditions for success or reinforce successful attacks of surface forces. CAS can disrupt attacks, help create breakthroughs, provide cover for withdrawals, or help guard flanks. To be most effective, CAS should normally be used at decisive points in a battle or operation and massed to apply concentrated combat power and saturate defenses.

(3) Countersea. Countersea functions are an extension of Air Force functions into a maritime environment. Specialized collateral functions are sea surveillance, antiship warfare, protection of sea lines of communications through antisubmarine and anti-air warfare, aerial mine laying, and air refueling in support of naval campaigns.

(4) Counterinformation. Counterinformation seeks to establish information superiority through control of the information realm. Counterinformation creates an environment where friendly forces can conduct operations without suffering substantial losses, while simultaneously denying the enemy the ability to conduct their operations. The focus of the effort is on countering the enemy's ability to attain informational advantage. Counterinformation, like counterair and counterspace, consists of offensive and defensive aspects.

(a) Offensive counterinformation (OCI). OCI operations are actions taken to control the information environment. The purpose is to disable selected enemy information operations. OCI operations are designed to destroy, degrade, or limit enemy information capabilities and depend on an understanding of an adversary's information capabilities.

Examples of OCI include jamming radars and corrupting data acquisition, and transformation, storage, or transmission of an adversary's information.

(b) Defensive counterinformation (DCI). DCI consists of those actions taken to protect our information, information systems, and information operations from the adversary. DCI programs, such as operations security (OPSEC), information security (INFOSEC), and counterintelligence assess the threat and reduce friendly vulnerabilities to an acceptable level. Improving security procedures to safeguard equipment and information can prohibit unintentional and unwanted release of information.

3. Component Operations

Component commanders are responsible for planning long-range operations to accomplish their assigned missions. The commander Air Force forces (COMAFFOR) envisions assigned missions in terms of functions (for example, strategic attack, counterland, or counterair). The COMAFFOR accomplishes the JFC assigned missions by developing and conducting operations, often in phases, that continue until the JFC's desired campaign end state is achieved.

a. Approach. The air environment consists of the entire expanse above the earth's surface and can be exploited best when considered as an indivisible whole. Air and space power grows from the ability to use a platform operating in or passing through the air medium for military purposes. Air and space power can be concentrated quickly on or above any point of the earth's surface, providing a relative advantage over surface-based forces.

b. Tenets of Air and Space Power. Air and space power is intrinsically different from either land or sea power, and its employment must be guided by axioms different than those of surface forces. The fundamental guiding truths of air and space power employment are known as tenets. Air Force tenets of airpower include—

(1) Air and space power is flexible and versatile. Although often used interchangeably, flexibility and versatility are distinctly different in meaning. Flexibility means air and space forces can exploit mass and maneuver simultaneously. At the operational level, flexibility allows air operations to shift, quickly and decisively, from one campaign objective to another. Versatility means air and space power can be employed equally effectively at the strategic, operational, and tactical levels of warfare. Air and space forces have the versatility to deploy globally and responsively in support of strategic, operational, or tactical objectives and can simultaneously achieve objectives at all three levels of war (in parallel operations).

(2) Air, space, and information forces produce synergistic effects. The proper application of coordinated air, space, and information forces can produce effects greater than the individual contributions of the same forces employed separately. Through the precise, coordinated application of the various elements of air, space, and surface force power, disproportionate pressure can be brought to bear on enemy leaders, forcing them to comply with our national will.

(3) Air, space, and information systems are uniquely suited to persistent operations; they allow air and space forces to visit and revisit targets continually, nearly at will. Because of their exceptional speed and range, air and space forces can operate from outside the JOA and still bring forces to bear against the enemy. Space forces in particular hold

the ultimate high ground, and as space systems advance and proliferate, they offer the potential for permanent presence over the entire globe.

(4) Air and space operations must achieve concentration of purpose. The versatility of air and space power makes it attractive for almost every combat task. The principles of mass and economy of force deal directly with concentrating overwhelming power at the decisive time and place (or places). The demand for air and space forces will often exceed the available forces and may result in attempts to fragment the integrated air and space effort to fulfill the many demands of the operation. A vital concept of air and space forces is its inherent ability to accomplish simultaneous strategic, operational, and tactical effects—to conduct parallel operations—and attain overwhelming effect (concentration of purpose) through carefully dispersed applications.

(5) Air and space operations must be prioritized. Given their flexibility and versatility, demands for air and space forces will likely exceed availability; therefore, establishing priorities is essential. The COMAFFOR assesses the possible uses of air forces and their strengths and capabilities to support the overall joint campaign, air operations, and the battle at hand. Limited resources require that air and space forces be applied where they can make the greatest contribution to the JFC's most critical current requirements. Factors involved in prioritizing air and space force operations include the principles of mass, offensive, and economy of force, the tenet of concentration, and the airman's strategic perspective.

(6) Air and space operations must be balanced. The inherent strategic application of air and space forces must be balanced against their ability to conduct operations at all levels of war, often simultaneously. Much of an air commander's skill is reflected in correctly and dynamically balancing the principles of war and the tenets of airpower to bring air and space power together to produce a synergistic effect. The commander must balance combat opportunity, necessity, effectiveness, efficiency, and the accomplishment of JFC-assigned missions against the associated risk to friendly air and space forces.

4. Command and Control

The COMAFFOR exercises command authority as defined by the JFC. COMAFFOR may be assigned responsibilities as a JFACC, ACA, and/or AADC (see discussion in Chapter VI). The COMAFFOR plans, coordinates, and executes AFFOR air operations and other assigned responsibilities through the component Theater Air Control System (TACS), which allows the required centralized planning and control and decentralized execution previously discussed. The AFFOR staff normally functions within the Air Force component TACS (see Figure III-1). If another component has JFACC responsibility, the COMAFFOR retains Service component responsibilities, which would also be accomplished through the TACS. The TACS depicted in Figure III-1 is the backbone of the AFFOR's contribution to the TAGS and consists of units specifically trained and equipped to support the C2 process. The TACS is designed to perform centralized planning and control and to facilitate decentralized execution. The elements that form the TACS are the AFAOC, other separate agencies, liaisons, and C2. See Figure III-1.
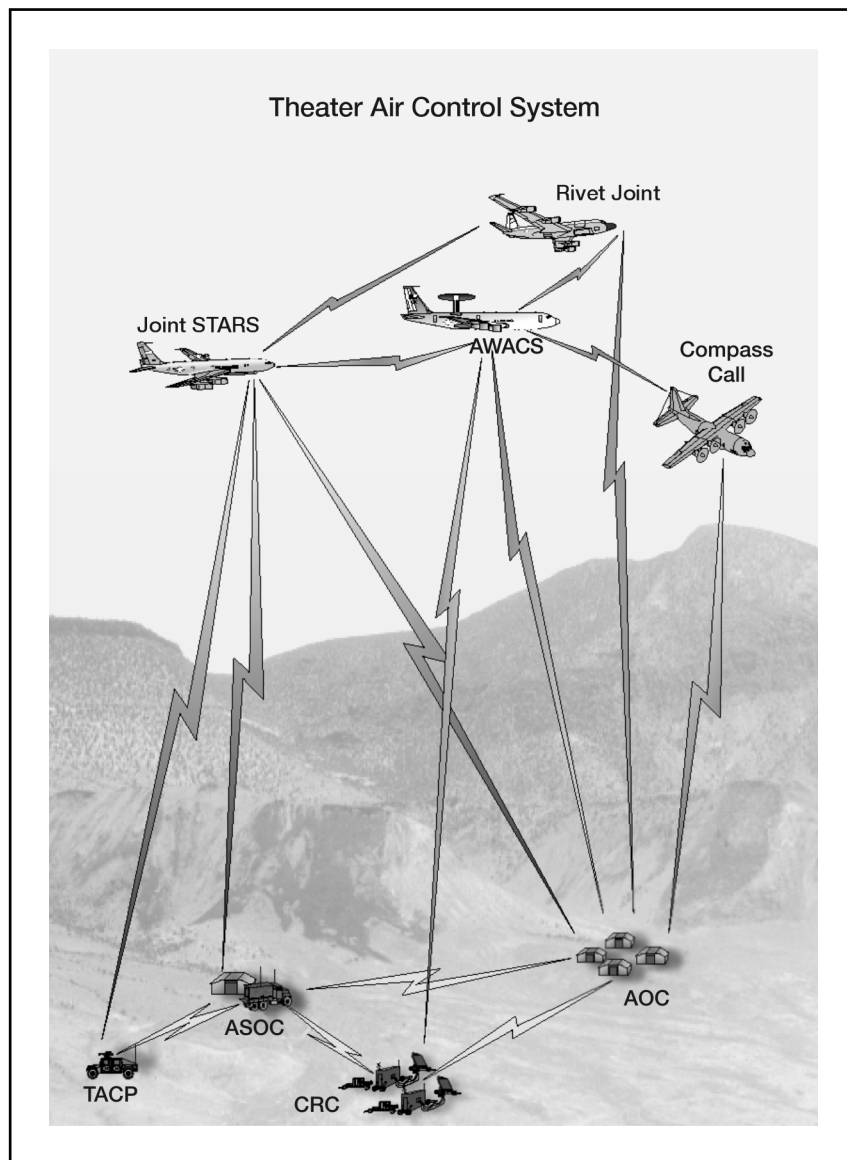
Figure III-1. TACS Coordination Links

a.   Air Force Air and Space Operations Center (AFAOC). The AFAOC is the air and space operations planning and execution focal point for the AFFOR, where centralized planning, direction, control, and coordination of air and space operations occur. AFAOC personnel are responsible for planning, executing, and assessing air and space operations and directing changes, as the situation dictates. This section describes a fully functional AFAOC that can be tailored and scaled to a specific or changing mission and to the associated task force that the USAF presents to the JFC. Thus, the USAF would not necessarily provide all of the elements described in the following sections if the situation does not warrant them.

(1) Primary AFAOC Functions

(a) Develop air operations strategy and planning documents that integrate air, space, and information operations to meet objectives and guidance.

(b) Task and execute day-to-day air operations, provide rapid reaction, positive control, and coordinated and deconflicted weapons employment, and integrate the total air effort.

(c) Receive, assemble, analyze, filter, and disseminate all-source intelligence and weather information to support air operations planning, execution, and assessment.

(d) Issue ACO and coordinate airspace control activities for the ACA when the COMAFFOR is designated ACA.

(e) Provide overall direction of air defense, including TMD, for the AADC when the COMAFFOR is designated AADC.

(f) Plan, task, and execute theater intelligence, surveillance and reconnaissance (ISR) missions.

(g) Conduct operational level assessment to determine mission and overall air operations effectiveness, as required by the JFC to support the theater CA effort.

(h) Produce and disseminate an ATO and changes.

(i) Provide for the integration and support of all air mobility missions.

(2) Air and Space Planning and Execution Process. Fundamental to the AFAOC is the integrated team concept. Individuals from various areas of expertise form these integrated teams. This concept places various experts in integrated teams to accomplish strategy development, operational level assessment, detailed planning, and ATO production and execution functions (see Figure III-2).
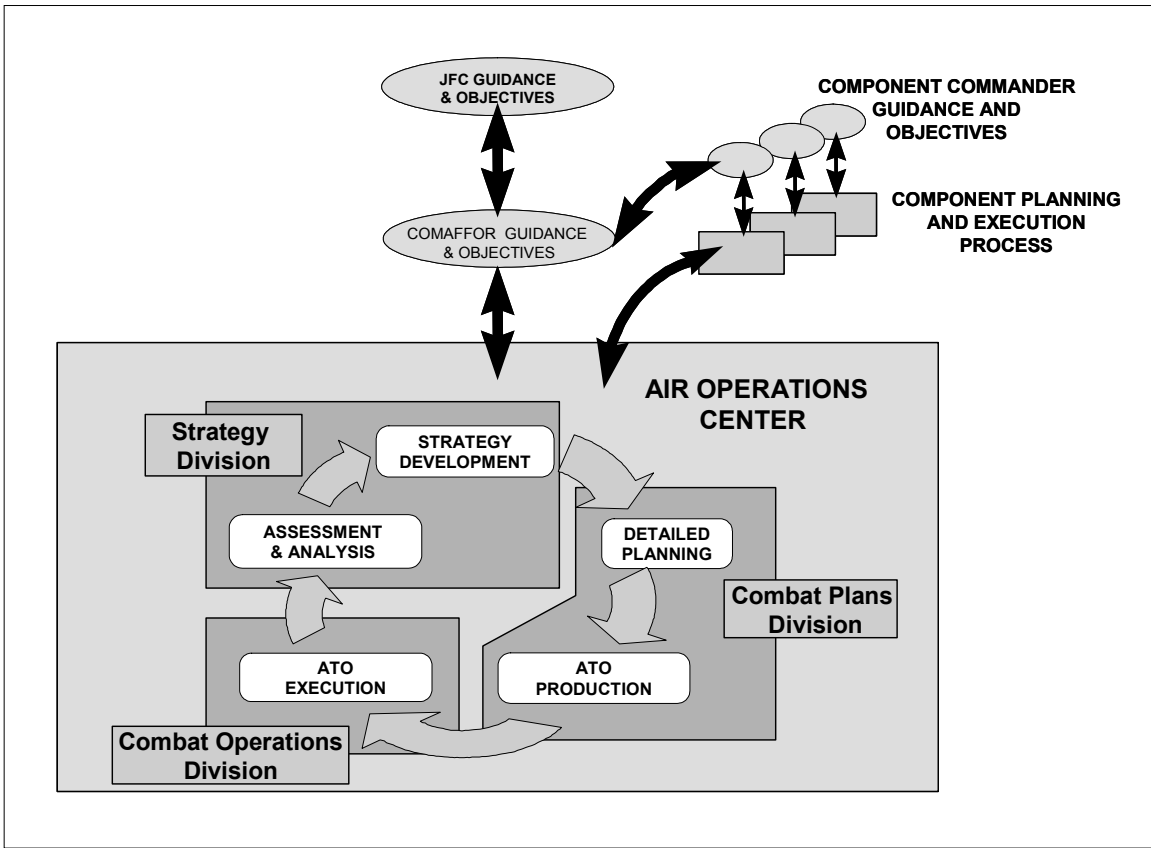
Figure III-2. Air and Space Planning Process

       (3) AFAOC Organization. Normally an AFAOC is led by an AFAOC director and has five divisions (strategy, combat plans, combat operations, air mobility, and ISR) with several core teams and numerous specialty and support teams. The AFAOC team concept represents a wide range of systems and capabilities. These teams are organized and integrated within the AFAOC to support the COMAFFOR, and if designated, the JFACC. The teams should be flexible, with an emphasis on integration of capabilities and the avoidance of stovepipes. The basic structure of an AFAOC is illustrated in Figure III-3. Specialty and support team members will move into the core teams as required.

Specialty Teams	Strategy Division	Combat Plans Division	Combat Operations Division	ISR Division	Air Mobility Division
Component Liaisons	Strategy Plans Team	GAT Team	Offensive Operations Team	Analysis Correlation and Fusion Team	Airlift Control Team
Area Air Defense	Operational Assessment Team	MAAP Team	Defensive Operations Team	Targets And Combat Assessment Team	Air Refueling Control Team
Information Warfare		ATO Production Team			Air Mobility Control Team
Logistics/Sustainment		C2 Planning Team		ISR Operations Team	Aeromedical Evacuation Control Team
Airspace Management				PED Management Team	Air Mobility Element
Weather					
Legal					
Rescue Coordination					
System Administration					
Air-to-Air Refueling					
Communication Operations					
(Others as Needed)					

Figure III-3. AFAOC Organization

(4) AFAOC Director. The AFAOC director is charged with the effectiveness of AFFOR air and space operations and focuses on planning, coordinating, allocating, tasking, executing, and assessing air power operations in the AOR based on commander's guidance and DIRMOBFOR coordination. It is the director's responsibility to ensure AFAOC functions necessary to complete the air and space planning and execution process are executed in a timely, efficient manner.

(5) Core Teams. The five divisions of the AFAOC (strategy, combat plans, combat operations, ISR, and air mobility) provide core teams that drive the planning and execution process.

(a) Strategy Division. The strategy division, located in the AFAOC, reports to the AFAOC director to maintain continuity with AFAOC processes but has a strong bond and special relationship with the COMAFFOR, and if designated, JFACC. This division develops, refines, disseminates, and assesses the progress of the air and space strategy, concentrating on long-range planning of air and space operations for theater activities. The strategy division should not become mired in the detailed, day-to-day ATO production or execution. Representatives from a range of functional areas, such as operations, intelligence, communications, logistics, and space are full-time members of the division. The strategy division has the following responsibilities:

- Develop the air and space estimate of the situation. The division will normally use the JFC's strategic appreciation to develop the estimate.

- Serve as the COMAFFOR's focal point for overall development and coordination of input to the joint air operations plan (JAOP) in support of the JFC's theater campaign.

- Develop the air and space strategy and assess its support of the theater campaign.

- Serve as the primary liaison with the JFC planners.

- Monitor and assess the progress of the air phases and provide overall operational level CA assessment with respect to air and space objectives.

- Develop alternative contingency plans and courses of action.

- Develop prioritized air objectives, air tasks, and measures of merit.

- Provide input to the development of an ISR plan for the JTF.

(b) The strategy division is normally comprised of two teams: strategy plans and operational assessment. Before the start of operations, the strategy plans team develops a proposed air and space strategy, air and space courses of action, and when the COMAFFOR is designated JFACC, the JAOP. After the start of operations, they modify the plan and provide guidance to the combat plans division and other AFAOC elements, as necessary. In some cases, there will not be a requirement for daily guidance from the strategy division. Rather, the dissemination of guidance is event driven and would probably occur as the end of a planned phase approaches, with a change in COMAFFOR or JFC guidance, or with a significant shift in the combat situation. The operational assessment team assesses the progress of air and space operations at the operational or campaign level. They assess the progress of each phase toward accomplishment of objectives and tasks based on the approved measures of merit for each task and objective. The information this team provides allows the the strategy plans team to address the air and space strategy. Operational assessment addresses the overall achievement of the desired AFFOR air and space objectives; it is not limited to battle damage assessment (BDA).

(c) Combat Plans Division. The combat plans division is responsible for the near-term air and space operations planning function of the AFAOC. This division develops detailed plans for the application of air and space resources, based on approved guidance received from the strategy division. These plans include the near-term guidance, allocation, and tasking instructions for assigned and attached forces. This is accomplished within the air and space planning and execution process through the preparation of ATOs. Combat plans transmits the ATO throughout the theater for execution. Generally, combat plans works the two ATO periods beyond the current ATO. The combat plans division has the following responsibilities:

- Develop CA methods tied to ISR, C2 plans, and ATOs to achieve JFC objectives.

- Determine the optimal combination of target, platform, weapon, and timing for missions included in the ATO.

- Ensure that AFFOR air and space tasking supports the overall JTF campaign.

- Produce and disseminate an operationally and tactically sound ATO.

- Generate SPINS and the daily ACO or ACO updates.

(d) The combat plans division is comprised of the GAT, MAAP, ATO production, and C2 planning teams. The MAAP team uses the JFC and COMAFFOR guidance, the authorized target list, optimal weapons selections, and asset availability to produce a time-phased road map for operations or MAAP. The MAAP team works closely with each component liaison and combat operations division to ensure that component concerns are addressed and operational objectives are efficiently achieved.

(e) The ATO/ACO production team receives the ATO shell (a detailed list of missions, forces, and timing) from the MAAP team and, with air mobility requirement's input from the air mobility division, refines the ATO in TBMCS. In addition, they integrate the ACO developed by the MAAP team with the ATO. The ATO/ACO production team has the following responsibilities:

- Builds mission packages that achieve campaign objectives.

- Integrates other components' direct support sorties into the ATO.

- Transmits the ATO/ACO to all required users when it is completed.

- Transfers responsibilities for the completed ATO/ACO to the combat operations division.

(f) Combat Operations Division. Combat operations is responsible for executing the current ATO. Combat operations analyzes, prioritizes, and, if necessary, makes recommendations to redirect assets. ACA and AADC representatives, with component LNO staffs, are part of this decisionmaking process. Combat operations has the following responsibilities:

- Execute the current ATO through constant monitoring of air missions under control of the TACS.

- Evaluate ISR feedback.

- Adjust the ATO, as necessary, in response to battlespace dynamics (for example, assigned targets are no longer valid, HPTs are detected, or enemy action threatens friendly forces).

- Coordinate emergency/immediate air support requests.

- Monitor to ensure that execution elements are adhering to ROE.

- Publish changes to the ACO.

- Provide feedback on status of the current ATO.

(g) Combat operations is normally comprised of two teams: offensive operations and defensive operations. The offensive operations team is responsible for executing the ATO, in accordance with commanders' guidance and in reaction to the current battlespace situation, for all offensive missions. The defensive operations team is responsible for execution of the ATO, in accordance with commanders' guidance and in reaction to the current battlespace situation, for all defensive missions. Both teams, as part of combat operations, monitor the battlespace and recommend changes to the ATO in response to unforeseen opportunities and challenges.

(h) Air Mobility Division. The air mobility division plans, coordinates, tasks, and executes the air mobility mission. The director of mobility forces (DIRMOBFOR) provides direction to the air mobility division to execute the air mobility mission and is

responsible for integrating the total air mobility effort. The air mobility division is located in the AFAOC. The AFAOC director ensures the air mobility division works as an effective division of the AFAOC in the air and space planning and execution process. The air mobility division coordinates with the JFC's movement requirements and control authority, the theater air mobility operations control center (AMOCC), if established, and the Air Mobility Command (AMC) tanker/airlift control center (TACC), as required to derive apportionment guidance, compute allocation, and collect requirements. As directed by the DIRMOBFOR, the air mobility division tasks attached theater air mobility forces through wing and unit CPs when those forces operate from permanent home bases or WOC if forward deployed. Under the direction of the DIRMOBFOR, the air mobility division has the following responsibilities:

- Integrate the flow of theater and USTRANSCOM-assigned air mobility assets in support of JFC objectives.

- Coordinate air mobility support for mobility requirements identified and validated by the JFC requirements and movement authority as appropriate.

- Participate in the air planning and execution process and coordinate with the AFAOC director to ensure the air mobility mission is incorporated in the ATO.

- Identify ISR requirements in support of the air mobility mission.

- Ensure that air mobility missions are visible in the AMC standard C2 system and reflected in the ATO/ACO.

(i) The air mobility division is comprised of five elements: the air mobility control team (AMCT), airlift control team (ALCT), air refueling control team (ARCT), air mobility element (AME), and the aeromedical evacuation control team (AECT).

- The AMCT serves as the DIRMOBFOR's centralized source of AMC control and communications during mission execution. The DIRMOBFOR uses the AMCT 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 AMCT deconflicts all air mobility operations into, out of, and within the area of operations. The AMCT maintains execution process and communications connectivity for tasking, coordination, and flight following with the AFAOC combat operations division, subordinate air mobility units, and mission forces.

- The ALCT brings intratheater airlift functional expertise from the theater organizations to plan, coordinate, manage, and execute intratheater airlift operations in the AOR/JOA. AMC may augment the ALCT with intratheater airlift expertise. These two sources of airlift expertise integrate into a single ALCT within the air mobility division.

- The ARCT coordinates aerial refueling planning, tasking, and scheduling to support combat air operations or to support intertheater airbridge within the AOR/JOA.

- The AME deploys to the theater as an extension of the AMC TACC. The AME is requested when a DIRMOBFOR is established and AMC-assigned air mobility aircraft are employed in support of a contingency. The DIRMOBFOR is responsible for integrating the expertise of the intertheater air mobility planners with the expertise of the AME. The AME provides air mobility integration and coordination of USTRANSCOM-assigned air mobility forces. The AME receives direction from the DIRMOBFOR and is the primary team for providing coordination with the TACC. Direct delivery intertheater air

mobility missions, if required, are coordinated through the air mobility division and tasked by the AMC TACC. The TACC commander maintains OPCON of direct delivery missions during execution. The AME ensures the integration of intertheater air mobility missions with intratheater air and space operations planning.

- The AECT provides aeromedical evacuation (AE) expertise to the DIRMOBFOR. The AECT is responsible to the DIRMOBFOR for current AE operational planning and mission execution. The AECT analyzes patient movement requests (PMRs); coordinates airlift to meet AE requirements; tasks the appropriate AE elements including special medical requirements, when necessary; and passes mission information to the patient movement requirements center (PMRC).

(j) Intelligence, Surveillance, and Reconnaissance Division. The ISR division provides combat ISR support to planning, execution, and assessment activities and is led by the Chief of ISR (CISR). The CISR has overall authority and responsibility for the ISR process within the AFAOC. The CISR should typically be an officer with extensive ISR expertise who will report to the AFAOC Director. Within the AFAOC, ISR is functionally aligned to fully integrate sensor experts, platform experts, and intelligence experts within the five divisions of the AFAOC. This symmetry ensures consistency of function and general alignment of responsibilities. ISR operations require the management of widespread supporting ISR assets (not C2 platforms) and capabilities ensuring integration and synchronization with operations.

- Predictive Battlespace Awareness (PBA) is the framework for integrating several independent ISR processes at the operational level of warfare. PBA consists of several key constructs: Intelligence Preparation of the Battlespace (IPB), ISR Campaign Planning, and ISR Management. These constructs encompass a distributed/reachback architecture of supporting entities that are geographically separated. Many key AFAOC ISR functions (e.g., analysis, target development, and BDA) are conducted and/or supported by disparate entities that are widely dispersed geographically. Centralized tasking and management, as well as distributed/reachback architecture, are required to integrate theater, national, and distributed joint/combined ISR capabilities. Relationships governing distributed/reachback ISR operations in support of COMAFFOR or JFACC activities are generally under the purview of the JFC.

- Major process inputs include the component target nomination list, JFC guidance, COMAFFOR guidance, JIPTL, joint integrated prioritized collection list (JIPCL), joint intelligence estimate, air estimate of the situation, JAOP, AOD, ADP, ACO, IPB, priority intelligence requirements (PIRs), no-strike target list, sensor/platform availability, joint/master target list, and joint/master collection requirements list. Major process outputs include the Intelligence, Surveillance, and Reconnaissance Annex (including the current imaging day (CID) matrix and planned imaging day (PID) matrix) to the ATO SPINS, updated IPB, and intelligence summary (INTSUM).

- ISR Division Core Teams. The ISR Division includes the following core teams: Analysis, Correlation, and Fusion Team; Targets and Combat Assessment Team; Collection Management Team; ISR Operations Team, and Processing, Exploitation, and Dissemination (PED) Team. Core team personnel provide intelligence products and services that support the entire AFAOC, joint force, and subordinate units. ISR core teams must work closely with all AFAOC specialty/support teams such as airspace, space, weather, and IW, fully integrating their products, services, and effects as well as

collaboratively plan ISR sensors and systems. In addition, ISR Division core personnel provide oversight and management of COMAFFOR ISR processes internal and external to the AFAOC to ensure that the appropriate ISR reporting, planning, tasking, and deconfliction occurs to build a common all-source threat and targeting picture.

The ISR Division interfaces with the other divisions and teams of the AFAOC in the following ways:

- Strategy Division (SD). The ISR Division assists in the development of the overall strategy and integrates related ISR efforts. ISR personnel also provide target development inputs to the guidance, acquisition, and targeting (GAT) recommendations for the JIPTL process supporting the JFC's JTCB. Subsequent products and intents of the SD are forwarded to the ISR Division and other ISR entities.

- Combat Plans Division (CPD). The ISR Division provides tailored collections planning, threat analysis, and targeting expertise necessary to develop detailed execution plans for air operations. ISR personnel are integrated throughout the CPD to synchronize the planned employment of all ISR capabilities and assets to support JFC objectives across the range of military operations. The CPD provides relevant SPINS inputs.

- Combat Operations Division (COD). The ISR Division provides current situational awareness, targeting, and ISR management for execution of the ATO. ISR personnel are integrated throughout the COD to synchronize the planned employment of all ISR capabilities and assets.

- Air Mobility Division (AMD). The AMD ISR does not produce ISR information but uses ISR information and products developed by other AFAOC ISR elements. This information is applied to the mobility mission. The AMD also provides guidance and direction to ISR elements subordinate to the DIRMOBFOR.

- Information Warfare. The CISR coordinates and integrates the IW Team's collection requirements, IPB, target development, and force application and COG analysis, as applicable, into the larger COMAFFOR ISR process. All efforts are based on operational objectives and support strategy development, operational planning, and execution of IW. The CISR coordinates with the IW team to leverage intelligence support from theater and national intelligence agencies for the IW planning effort.

(6) Specialty Teams. The specialty teams provide an AFAOC with diverse capabilities to help orchestrate theater air power. Many of these capabilities are provided to the AFAOC from agencies external to the AFAOC organization. It is crucial to the success of the AFAOC that these capabilities be interwoven into the air and space planning and execution process. The AFAOC incorporates certain functional leaders to help ensure the best use of like assets. The specialty team leader ensures team members are used efficiently and effectively throughout the AFAOC. The following are examples of specialty teams:

(a) Component Liaisons. These liaisons work for their respective component commanders and work with the COMAFFOR and staff. Each component normally provides liaison elements (BCD, SOLE, NALE, MARLO, etc.) that work within the AFAOC. These liaison elements consist of experienced warfare specialists who provide component planning and tasking expertise and coordination capabilities. They help integrate and coordinate their component's participation in joint air operations.

(b) Area Air Defense (AAD). The COMAFFOR may also be designated as the AADC. The AAD team integrates air defense operation of all defense systems to include all aspects of TMD.

(c) IW. The IW team is charged with coordinating the offensive and defensive aspects of counterinformation to include special programs and integrating IW efforts with the JAOP. The IW team will also act as the COMAFFOR's focal point for the integration of AFFOR capabilities with the IW portion of the JFC's campaign plan.

(d) Airspace Management. The COMAFFOR may also be designated as the ACA. The airspace management team coordinates and integrates use of the airspace control area. They help develop broad policies and procedures for airspace control and for coordination among units within the JOA. They are key to the development and promulgation of an ACP and the daily ACO. They must also provide the flexibility needed within the airspace control system to meet contingency situations that necessitate rapid employment of forces.

(e) Weather. The weather team provides climatological data for long-term planning and reports significant weather with emphasis on target weather affecting ATO execution.

(7) Support Teams. Support teams provide direct support to the AFAOC and to operational echelons above and below the AFAOC (headquarters and tactical units). Team chiefs report to the AFAOC Director and are responsible for effective integration throughout the divisions and specialty teams. When performing their tasks, they allow the core and specialty teams to focus on the air and space planning and execution process. Examples of support teams are systems administration, combat reports, information management, communications center, and supply.

b. Separate Agencies (Subordinate to the AFAOC).

(1) WOC. The WOC is a wing commander's C2 element. It may include a CP, command section, battlestaff, and other planning and support personnel. The WOC is subordinate to the AFAOC and functions as the operations center for units assigned/ attached to the wing for operations. As required, the WOC can connect with the AFAOC, CRC, and ASOC through voice and data communications. The WOC is responsible for translating tasks and missions.

(2) Tanker Airlift Control Element (TALCE). A TALCE is a mobile organization, responsible for providing continuous on-site management of air mobility airfield operations. It is a temporary organization composed of various mission support elements. TALCEs deploy to provide mission support when command and control, mission reporting, or required mission support functions are insufficient. In addition to providing command, control and communications capability, TALCEs provide aerial port, logistics, maintenance, security, weather, health service support, and intelligence services, as necessary. TALCE size is based on projected support requirements and designed to provide a capability at austere locations. The majority of TALCE capability is sourced by AMC; however, USAFE and PACAF have a limited TALCE capability. If a TALCE is supporting intertheater operations exclusively, AMC/CC, through the TACC/CC, normally retains OPCON and TACON. If a TALCE simultaneously supports both intertheater and intratheater operations, TACON and supporting/supported relationships are determined following

coordination between component commanders. The decision to delegate TACON of TALCEs is influenced by the presence of a suitable theater command and control capability.

(3) CRC. The CRC is a ground-based mobile element of the TACS. As an integrated C2 weapon system, the CRC allows for flexibility in the decentralization and delegation of battle management capability and authority. The CRC is capable of effective integration vertically with the AFAOC and horizontally with other tactical C2 elements, ISR platforms, and attack/support aircraft. In C2 architectures, the CRC is directly subordinate to the AFAOC in the execution of its battlespace and data link management responsibilities. It may be employed alone or in combination with other elements of the TACS, which may include integration with elements of the joint theater air ground system (TAGS). The CRC can accept delegated responsibility for planned, dynamic, functional, and/or geographic missions and tasks. The ability of the CRC to provide mutual support to, interface with, and complement other systems and operations, as the situation dictates, makes the CRC a force multiplier. The CRC can provide support and enabling tasks that facilitate the full spectrum of air power, including air tasking order (ATO) execution, airspace management, surveillance and combat ID, data link management, and theater air defense. A CRC consists of three effects-based operations unit-type codes (UTCs): interface coordination cell (ICC), wide area surveillance and ID (WASID), air battle execution (ABE) and two deployable radar (DR) UTCs. The CRC can deploy to main, limited, or bare operating bases. The ICC, WASID, and ABE UTCs are interdependent concerning employment and cannot be physically separated.

(4) AWACS. AWACS is an integrated Air Force command and control, surveillance, target detection, and tracking platform. It is directly subordinate to the AFAOC and supports decentralized execution of the ATO/ACO. AWACS is a force multiplier across the entire spectrum of conflict and is normally one of the first battle management assets to arrive in a theater of operations. It can detect threats and control assets below and beyond the coverage of ground-based C2. AWACS provides an accurate and reliable real-time battlespace picture of friendly, neutral, and hostile activity; C2 and air battle management of theater forces; all altitude/all weather surveillance of the battlespace; and early warning of enemy actions. It is vertically integrated with the AFAOC and may be employed alone or horizontally integrated with C2 and ISR elements of the joint theater air ground system. AWACS provides the theater with the ability to find, fix, track, and target airborne or maritime threats and to detect, locate, and identify emitters. AWACS can also exchange data with other C2 systems and shooters via TADIL-A and TADIL-J.

(5) ASOC. The ASOC plans, coordinates, and directs air support for land forces, normally at corps level and below. It is directly subordinate to the AFAOC and is responsible for the integration of air operations within its assigned corps sector to include CAS, AI, intratheater airlift, ISR, SEAD, and CSAR. The ASOC can be configured for rapid deployment. The ASOC director, normally the corps ALO, exercises OPCON of all subordinate TACPs. The ASOC also provides some logistical and administrative support to the TACPs under its OPCON. ASOC equipment includes satellite communications (SATCOM), microwave radio sets, radios, and TBMCS terminals.

(6) TACP. The TACP is the principal Air Force liaison element (AFLE) collocated with Army maneuver units from battalion through corps. The primary TACP mission is to advise ground commanders on the capabilities and limitations of air power. The TACP provides the primary terminal attack control of CAS in support of ground forces. TACPs and terminal attack controllers (TACs) coordinate airspace control measures and deconflict

the aircraft with Army fire support to prevent fratricide. TACPs are directly subordinate to the ASOC. TACPs may employ TACs at company/team level.

(a) ALO. An ALO is an aeronautically rated officer aligned with a ground maneuver unit who functions as the primary advisor to the ground commander on the capabilities and limitations of air power.

(b) Terminal Attack Controller (TAC). The TAC is the forward Army ground commander's CAS expert. TACs provide the ground commander recommendations on the use of CAS and its integration with ground maneuver. They are members of TACPs and perform terminal attack control of individual CAS missions. The TAC validates targets of opportunity, advises the commander on proper employment of air assets, submits immediate requests for CAS, controls CAS with supported commander's approval, and performs BDA.

(c) Forward Air Controller (Airborne) (FAC[A]). The FAC is a specifically trained and qualified aviation officer who exercises control from the air of aircraft engaged in CAS of ground troops. The FAC(A) is normally an airborne extension of the TACP.

(d) Tactical Air Coordinator (Airborne) (TAC[A]). Normally performed by JSTARS, or a FAC(A) in the absence of JSTARS, the TAC(A) provides communications relay between the TACP and attack aircraft as well as other agencies of the TACS. It also expedites CAS aircraft-to-FAC hand-off during "heavy traffic" CAS operations. Air Force two-ship FAC(A) flights, especially in higher threat environments, may divide responsibilities so one aircraft fills the normal FAC(A) role while the second becomes a TAC(A).

(7) Joint Surveillance Target Attack Radar System (JSTARS). JSTARS is an integrated Army-Air Force theater-wide battle management and/or C2 platform that conducts ground surveillance to develop an understanding of the enemy situation and support attack operations and/or targeting that contribute to the delay, disruption, and destruction of enemy forces. On-board battle managers provide direction based on wide area surveillance ground moving target indicator and synthetic aperture radar information developed by the JSTARS sensors. This data is also used to build a common tactical picture. JSTARS detects and locates stationary ground targets and tracks moving ground targets and rotating antennas; it also has a limited capability to detect, locate, and track helicopters. JSTARS provides air and ground commanders with situation development, targeting, attack planning, and limited post attack assessment information. Its C2 and communications capabilities support attack operations planning. JSTARS data is also transmitted to airborne and ground elements of the TACS capable of receiving and processing the J-Series messages using Joint Tactical Information Distribution System (JTIDS) Link 16 and to ground stations via the surveillance control data link (SCDL) and/or SATCOM.

c. Air Force Liaison Element (AFLE). When the COMAFFOR is not the JFACC, AFLEs provide interface between the COMAFFOR and the JFACC; this interface allows coordinating and synchronizing Air Force units in support of joint air operations. Normally, the AFLE is composed of personnel and equipment from a numbered Air Force staff and component organizations. AFLE manning is based on a cadre concept with personnel selected for their battle management expertise and knowledge of C2 concepts and procedures. Additional personnel augment the cadre who are specialists in the capabilities and tactics of the aircraft, intelligence, or weapons systems employed. The AFLE can be

tailored to perform a variety of missions and management functions to match the contingency or operation.

    d. Communications and Computers.

    (1) TBMCS. TBMCS is the primary C2 tool for theater integration of air assets. TBMCS is used to organize intelligence, build and disseminate the ATO/ACO, monitor and control the ATO/ACO execution, track progress of the air war, and control all air activity. TBMCS incorporates the former CTAPS, wing command and control system (WCCS), and combat intelligence system (CIS) functionality and is interoperable with the global command and control system (GCCS).

    (2) Theater Deployable Communications (TDC). TDC provide deployed base communications infrastructure and connectivity to the Defense Information Infrastructure (DII) for the combat air forces. This system consists of lightweight multiband satellite terminals (LMST) and modular communication packages. TDC augments and enhances services provided by legacy ground mobile forces (GMF) and Tri-Service Tactical Communications Program (TRI-TAC) systems.

    (3) Global Broadcast System (GBS). GBS provides high speed, high volume one-way information flow to units in garrison, deployed, in the field, or on the move. The GBS will be incorporated into, but will not replace, existing military satellite communications (MILSATCOM). It provides the capability to distribute quickly large information products such as imagery, weather, intelligence, and ATOs.

    (4) Initial Communications Packages. The major commands (MAJCOMs) use various initial communications packages such as the wing initial communications packages (WICP) in Air Combat Command, the mobility initial communications kit (MICK) in Air Mobility Command, and the Pacific Air Forces (PACAF) initial communications package (PICP). These packages include SATCOM, high frequency (HF), ultra high frequency (UHF), very high frequency (VHF), switchboard, message distribution terminal, and land mobile radio systems to support individual wing operations in theater.

    (5) Air Force Air Request Net (AFARN). AFARN is an HF or SATCOM network used by TACPs and the ASOC for requesting and coordinating CAS operations.

    (6) Air Operations Center Communication Packages. Air operations center communication packages are tailored to the scale and nature of the mission. These communication packages support message switching, telephone, data communications, SATCOM, troposcatter, and HF radio systems for theater communications.

    (7) Data Links. Data Links supported in theater include TADIL-A, TADIL-B, TADIL-C, TADIL-J, Army Tactical Data Link-1 (ATDL-1), and Ground Based Data Link (GBDL).

    (8) Tactical Air Direction (TAD) Net. TAD is a (UHF or VHF) net used by TACPs and ASOCs for directing and controlling aircraft in air support missions.

5. Conclusion

Air Force contributions to the TAGS are threefold. First, the Air Force gains control of the air and space environment and conducts other missions and support activities throughout the theater for the JTF as a whole. Second, it plans, coordinates, and controls air missions to achieve JFC assigned air operations objectives. Third, it produces C4

systems that enable the control of assets. By exchanging liaison elements with other components, the COMAFFOR can provide a comprehensive and unified air operation. Effective liaison is the key to planning and coordinating TAGS activities.

Chapter IV

NAVAL COMPONENT

1. Background

"Naval forces are a key component of our armed forces' forward presence operations and make a critical contribution during the transition from crisis to conflict. Forward-deployed naval forces are often the critical operational linkage between peacetime operations and the initial requirements of a developing crisis or major regional contingency." (Forward … from the Sea).

a.   This chapter provides a general understanding of the roles that naval forces can accomplish in the JFC's campaign, the doctrinal tools currently in use, and the C2 systems used to apply naval air power to the JFC's mission.

b.   Naval forces provide strike aircraft and TLAM from surface and subsurface platforms to attack targets. These resources are provided to the TAGS, as directed by the JFC. Naval carriers and land-based aircraft are equipped and manned with trained personnel to perform all types of air-to-ground missions, including CAS and AI. Ships and aircraft that are part of the naval force are an integral part of air defense and air space control of the joint operating area.

2. Mission

a.   The mission of the Navy is to train, equip, and maintain combat-ready naval forces capable of winning wars, deterring aggression, and maintaining freedom of the seas. The basic function of naval forces is to promote and defend our national interests by maintaining maritime superiority, contributing to regional stability, conducting operations on and from the sea, seizing or defending advanced naval bases, and conducting such land operations as may be essential to the prosecution of naval campaigns. Naval forces accomplish these functions by conducting deterrence operations, maintaining a forward deployed presence, and exercising a robust sealift capability.

b.   Although naval presence includes a wide range of forward-deployed Navy and Marine Corps units afloat and ashore, the basic building blocks remain the carrier battle group (CVBG). CVBG is comprised of the carrier (CV), its embarked carrier air wing (CVW) and surface combatants, and the amphibious ready groups (ARGs) with embarked Marine expeditionary units—special operations capable (MEU SOC). Using the building-block approach, US naval forces can be tailored with specific capabilities. The resulting naval expeditionary force—conceptually built around fleet operational forces and forward-deployed Marine air-ground task forces (MAGTFs)—can provide a highly flexible force for a wide range of missions, including long-range strike operations and early forcible entry to facilitate or enable the arrival of follow-on forces. The unique capabilities of naval expeditionary forces operating from a highly mobile sea base provide the President and Secretary of Defense freedom from political encumbrances that may inhibit or otherwise limit the scope of land-based operations.

3. Component Operations

Naval forces can provide the theater commander a tailored expeditionary force package from among the following: aircraft carriers and their associated air wings, submarines,

amphibious ships with embarked Marines, surface combatants, maritime patrol aircraft, mine warfare forces, and Navy special warfare forces (NSWF). Naval forces, including both carrier-based air and associated amphibious land combat elements, maneuver from the sea to dominate littoral areas. They possess the mobility and flexibility to mass strength against an enemy that cannot defend adequately everywhere. Naval forces provide an economy-of-force tool by forcing the enemy to be prepared to defend long coastal areas, thus weakening the enemy at the intended focus of effort. Carrier and cruise missile firepower can also operate independently or with other Services' air assets to provide quick interdiction or retaliatory strike capability. Naval expeditionary forces provide the JFC command, control, and communications; battlespace dominance; power projection; and self-sustainability.

a. Battlespace Dominance. Battlespace dominance consists of zones of superiority surrounding one or more units or even the entire force. Zones of superiority are used as a base of operations from which the force protects itself and projects power. The force maintains superiority by detecting, identifying, targeting, and neutralizing anything hostile that enters or passes through the zones. Naval forces establish multiple zones of superiority, as necessary for specific task forces separated from the main force. Based on the capabilities of sensor and weapon systems, these zones can reach out for hundreds of nautical miles. The protective zones of superiority around the naval force move with the force and can be extended to cover entities such as convoys, amphibious groups, land-masses, and forces moving ashore. Zones of superiority also protect those forces ashore as they establish their own defensive zones. Theater commanders may direct naval forces to conduct an independent mission if that force is capable of dominating the battlespace of the region concerned. Battlespace dominance applies to both war and MOOTW.

b. Power Projection. Power projection is the use of supporting arms to apply high intensity, concentrated offensive power at the time and location of the nation's choosing. Supporting arms include, but are not limited to, varieties of firepower; the synergy of sea, ground, and air operations; electronic warfare operations; deception and ruses; psychological operations; and special warfare operations. Taking the fight to the enemy has always been one of our nation's primary objectives in war. Even if no offensive action is planned, naval forces can be used as a credible show of force. This can influence a potential adversary's actions by providing unequivocal evidence that a combat-ready force stands poised to inflict significant damage to the nation's infrastructure and armed forces.

c. Force Sustainment. Successful global response to contingencies depends on the ability to project and sustain US forces in a theater of operations. Integrated support resources in the form of fleet-based sustainment and strategic assets provide naval expeditionary forces and joint and multinational forces the ability to operate in peacetime and in war, wherever and whenever our national interests demand. Logistic support provides assured delivery of the materiel required for US forces to remain on station, combat ready, for as long as necessary.

4. Planning

a. Naval operation planning focuses on delivering the maximum impact from naval force capabilities to achieve operational and strategic objectives in support of operational commanders. When a JTF is established, the JFC normally assigns the senior Navy commander as the maritime or maritime component commander. The JFC may choose to appoint a joint force maritime component commander (JFMCC) as a functional component

commander responsible for preparing naval operations plans and directing the actions of subordinate commanders. Subordinate naval commanders, down to the lowest unit commander, would then develop plans based on their own situational awareness and their superior's objectives. Familiarity with operational plans is essential to unit readiness, enabling deployed naval forces to adapt quickly from a ready force to a combatant force.

b.   Plans supporting the combatant commander are the basic tool for coordination of naval actions at the operational or tactical level. Like the governing operation order, the naval plan tests for adequacy, feasibility, and acceptability. These attributes are measured in the context of the Navy and Marine tactics and procedures. Naval staffs are best able to determine whether subordinate plans can accomplish the mission and be executed with available resources. Maritime component commanders may also advise the supported unified commander by evaluating the selected course of action. They may advise on the acceptability of the course of action in terms of estimated costs in human and equipment resources.

c.   At the component and numbered fleet/Marine expeditionary force levels, Navy and Marine Corps directives are similar to the directives issued by a unified commander, Chairman of the Joint Chiefs of Staff, the Secretary of Defense, or the President. These directives take the following forms: warning/alert/planning/execute orders, operation plans, concept plans, functional plans, campaign plans, outline plans, and letters of instruction. Naval forces worldwide use maritime tactical messages, a standardization of the general operating instructions known as operational general messages (OPGEN), operational tasks (OPTASKS), and operational status (OPSTAT) messages. These message formats are compatible with the Joint Operation Planning and Execution System (JOPES).

(1) Navy officers in tactical command (OTC) have the ability to integrate naval units rapidly into a synchronized battle force/battle group. The OTC requires that assigned units and subordinate commanders understand and use the same concept of operations and command and control practices. The delegation of warfare commander responsibilities has been simplified through the use of standard OPTASKS. The OTC may delegate responsibility within specific warfare disciplines to allow subordinate commanders to operate based on stated intent. The OTC retains the ability to modify directives by using supplemental directives or orders.

(2) The OPTASK system provides the same elements as the operation plan: situation/mission/execution/administration/command and control necessary for centralized planning and decentralized execution in the strategic and operational planning systems. If the commander's estimate of the situation requires changes to the operations order, OPGEN, or OPTASK, a fragmentary order (FRAGO) or supplement to the OPGEN is used.

5. Command and Control

The maritime component commander exercises operational control as designated by the JFC through the numbered fleet commanders and/or subordinate task forces. These forces are task-organized as battle forces, task forces, task groups, task units, and task elements composed of individual units necessary to accomplish specific operational missions. The officer in command of any of the task organizations is designated as the OTC and has primary responsibility for executing that force's mission. The maritime component commander may create as many task groupings as necessary, assigning OTC responsibilities as deemed appropriate. In doing this, the maritime component commander

retains a critical theater-level perspective on naval operations. To facilitate execution and combat responsibilities, the Navy uses a C2 arrangement referred to as the composite warfare commander (CWC) concept, integrating ships, submarines, aircraft and land-based forces.

a. CWC Concept. The Navy employs the CWC concept as the doctrinal cornerstone of its task force operational and tactical C2 system. The CWC concept enables the OTC of a naval force to wage combat operations aggressively against air, surface, and subsurface threats while contributing to the overall campaign plan of the JFC. The concept is designed to prevent an enemy from saturating a single command node with a large number of rapidly closing air, surface, and submarine threats.

(1) Principal warfare commanders are responsible to the CWC for the conduct of the tactical battle. Principal warfare commanders may include—

(a) Air defense commander (ADC).

(b) Surface warfare commander (SUWC).

(c) Antisubmarine warfare commander (ASWC).

(d) Strike warfare commander (STWC).

(e) Information warfare commander (IWC).

(2) Warfare commanders normally operate from the combat direction centers (CDCs) of the ships they actually command or in spaces specially equipped to accomplish their respective missions. All warfare commanders collect, evaluate, and disseminate tactical information; plan and coordinate with other warfare commanders; and, when authorized by the CWC, tactically control assigned resources and autonomously initiate action.

b. OTC. The OTC is responsible for successfully accomplishing missions assigned to the naval force. Offensive mission objectives are of overriding importance. The OTC may delegate planning and execution of offensive missions to a subordinate warfare commander. In most cases, the OTC and the CWC are the same individual; however, in large forces where overall mission direction and control demand the total attention of the OTC, tactical command may be delegated to a separate CWC, who will wage combat operations to counter threats against the force. The OTC/CWC—

(1) Promulgates plans and policies, orders degrees of readiness, and directs and monitors task force operations to accomplish the objectives.

(2) Promulgates force disposition, position, and movement and establishes a force surveillance area.

(3) Designates warfare commanders and coordinators, alternates, and sector authorities as appropriate, and maintains the force command and coordination structure. When assigning warfare commanders and coordinators, the CWC takes into consideration the nature, severity, and relative priorities for dealing with the expected threat; the size, composition, and distribution of the force; and the suitability of C2 equipment and living and working space available in the various platforms in the force. Under certain circumstances, the OTC/CWC may assign functional warfare commanders, such as a maritime interceptions operations commander, mine warfare commander, screen commander, operational deception group commander, and underway replenishment group commander. These commanders perform duties that are generally limited in scope and

duration. The specific duties and authority of all commanders and coordinators will be defined in the OPGENs—formatted messages by which the OTC/CWC promulgates the duties and responsibilities of subordinate commanders and coordinators.

(4) Specifies chain of command between OTC/CWC, the forces under their tactical control, the principal warfare commanders, and the supporting coordinators.

(5) Provides air, surface, and subsurface units, as available, to the appropriate warfare commanders; coordinates their respective efforts; and, when necessary, prioritizes their requirements in light of limited assets, force mission, and current threat.

(6) Arranges for coordination of air, surface, and subsurface operations with other friendly forces operating within or adjacent to the CWC's force.

(7) Designates sector CWCs, as required, for widely dispersed groups operating together for mutual support.

c. Coordinators. Coordinators assist the CWC and the subordinate warfare commanders. They differ from warfare commanders in that coordinators execute policy but do not control forces and do not initiate autonomous actions. Pertinent coordinators include—

(1) Air resource element coordinator (AREC)— responsible for managing and coordinating the allocation and distribution of carrier aircraft.

(2) Naval force airspace control authority (ACA)—responsible for coordinating and managing use of airspace by the naval force.

(3) Helicopter element coordinator (HEC)—responsible for managing naval helicopter assets.

(4) TLAM strike coordinator (TSC)—responsible for all TLAM strike planning, coordination, and reporting.

(5) TLAM launch area coordinator (LAC)—the TSC's principal deputy in the execution of TLAM strike operations.

d. Implementation. The CWC may use part of the concept or the entire concept, as required by the situation. At-sea C2 arrangements are promulgated by the CWC in operations general messages (OPGENs). A force's OPGEN will include instructions on dispositions, maneuvering, ROE, emissions control policy, readiness conditions, threat assessment, designation of warfare commanders and coordinators, and assignment of particular responsibilities. Periodically, the OTC/CWC will issue updates. Regardless of the amount of authority delegated, the CWC retains the option of control by command override.

e. Responsibilities of Principal Warfare Commanders. Although all warfare commanders have some interface with the TAGS, the primary operators are the STWC, ADC, and the AREC. Principal warfare commanders issue OPTASK and daily intentions messages to promulgate their intentions to the forces under their control. These messages are addressed to all concerned forces, both the naval forces and other service component forces performing missions for the OTC/CWC. Coordination with other service or functional component commanders outside the naval force by the OTC/CWC and warfare commanders is accomplished through the Navy component commander's staff.

(1) STWC. The STWC coordinates the strike capabilities of the force with respect to air and naval cruise missile assets and, as such, has the greatest interface with the TAGS. Normally, the commander of the carrier air wing is appointed the STWC; in multicarrier battle groups, one of the battle group commanders will normally be designated a STWC.

(a) The STWC appoints a strike planning team, headed by the mission commander, for each strike mission assigned to the air wing or force. The strike planning team does the detailed mission planning required to accomplish the strike and accomplishes all coordination required within the carrier air wing. The strike operations section of the AREC's (carrier commander's) staff accomplishes coordination outside of the wing.

(b) The STWC also coordinates with the SUWC, the SOCA, and the force over-the-horizon coordinator (FOTC), who maintains the locations of enemy forces for long-range strikes. The SOCA will also be involved in submarine-launched cruise missile strikes against land targets. Other service components tasked to participate in these operations will coordinate through the STWC.

(2) ADC. The ADC is responsible to the CWC for the protection of the force against air threats. The ADC is responsible for collecting, evaluating, and disseminating AD surveillance information to the CWC and the force, and also plans and manages the employment of AD resources.

(3) AREC. Normally the carrier commanding officer, the AREC, manages and coordinates sea-based, fixed wing air assets for the CWC. The AREC ensures that the CWC, warfare commanders, and other supporting coordinators are kept fully informed of fixed wing air operations, aircraft availability, assignment, and aircraft mission results when these results are not reported by the aircraft directly.

f.   Other Warfare Commanders.

(1) SUWC. The SUWC is responsible to the CWC for the protection of the force against hostile surface units. The SUWC is responsible for collecting, evaluating, and disseminating SUW surveillance information to the CWC, the force, and planning and managing the employment of SUW resources.

(2) IWC. The IWC is normally a member of the OTC/CWC staff who is responsible to the OTC/CWC for providing the full spectrum of IW support. This IW support includes maintaining secure force C2 while denying an adversary the same capability; disseminating tactically relevant information derived from IW sources; planning and employing IW systems and capabilities against hostile forces in coordination with other warfare commanders; assessing the combat readiness of the force to operate throughout the EM spectrum; and developing, coordinating, and executing integrated IW plans, utilizing all aspects of IW.

(3) ASWC. The ASWC is responsible to the CWC for the protection of the force against hostile submarines and is responsible for collecting, evaluating, and disseminating ASW surveillance information to the CWC and the force. The ASWC also plans and manages the employment of ASW resources to deny hostile sub-surface units the ability to use or contest maritime battlespace in which friendly forces are operating or may be tasked to operate. When ordered, the ASCW destroys or otherwise neutralizes all hostile submarines within a specified area.

(4) Sea Combat Commander (SCC). The duties of the SUWC and ASWC may be combined as an SCC. The SCC is then responsible for protecting the force from both surface and subsurface threats and for other offensive and defensive operations specified by the OTC/CWC. The SCC is responsible for collecting, evaluating, and disseminating SUW/ASW surveillance information to the CWC and the force. The SCC also plans and manages the employment of SC resources.

(5) E-2C Airborne Execution Node. On the tactical side of the CWC, the E-2C Hawkeye acts as an airborne extension of the ADC, STWC, and SUWC. The E-2C takes tactical control of aircraft in support of each warfare commander, as required. Due to a dynamic environment, geography, and system considerations, the E-2 may be able to perform one mission or a combination of missions. In the joint environment, the Hawkeye performs many of the same tasks as an AWACS, usually with a focus on a particular AOR, rather than an entire theater. Specific joint missions include strike/fighter direction for DCA and OCA missions, and CSAR/SAR airborne mission commander. The E-2C is also used as an airborne battlefield command and control platform, performing similar missions to the USAF JSTARS or USMC Direct Air Support Center (Airborne) (DASC (A)) type aircraft. Due to a limited radio suite and a smaller crew of five officers, the Hawkeye is typically focused on a specific area of operations within a theater for support of ground operations.

g. Sea-Based JFACC. When a US joint force is activated, the Navy Forces (NAVFOR) contribute substantially to the joint air operation. If a JFC designates a JFACC, the AREC and AREC staff normally serve as NAVFOR primary points of contact with the JFACC and JAOC on matters pertaining to air operations and planning.

(1) Command and Control (LCCs) ships provide the C4I infrastructure, connectivity, work and support areas (such as berthing and messing) to fully support sea-based JFACC operations. A sea-based JFACC with reachback could function similar to a land-based JFACC.

(2) The JFACC operating on the LCC may be the numbered fleet commander or JFACC assigned from another organization. The numbers of personnel assigned to the JFACC staff is dependent upon the operation. The limiting factors of space and communications do not apply as greatly to the LCC and a campaign of substantial size (including two to three CVBGs, two ARGS, one to two USAF composite wings, and one Marine Air Wing (MAW)) can easily be accommodated.

(3) The organization and processes associated with a sea-based JFACC do not differ significantly from a land-based JFACC. The functions accomplished by the sea-based JAOC are the same as a land-based JAOC; however, they are normally conducted on a reduced scale because of staff capacity restraints.

(4) In a possible scenario, a sea-based JFACC could be designated at the outbreak of a crisis, when the CVBG represents the preponderance of the air assets, with a small contingent of land-based aviation assets in theater. As the situation develops and more land-based air assets arrive in theater, the JFC may decide to transition the JFACC ashore. This transition should be accomplished so as to minimize disruption to air operations and to be as transparent as possible to the joint aviation assets tasked on the ATOs. As the crisis is resolved and land-based assets leave the theater, the naval component may again be transferred to the JFACC until the need for a JFACC no longer exists. (See Appendix C for more information on procedures for transferring JFACC responsibilities.)

h. Maritime Operations Support.

(1) Tactical Support Center (TSC). TSCs are located at principal P-3 deployment sites. The TSC provides for a permanent reliable C4I support system from airbases dedicated for MPA operations during peacetime contingencies or full mobilization. The TSC provides the maritime component commander (MCC) with the facilities and capabilities necessary to plan, direct, and control MPA operations in the assigned AOR.

(2) Mobile Operations Command Center (MOCC). MOCCs are located at remote locations where P-3 and allied MPA aircraft may be deployed. The MOCC provides command authorities, down to the air detachment level, with near-real-time continuous information and situational awareness (via C2 communications links) concerning friendly and opposing surface and subsurface forces and their movements, and performs supporting targeting functions. In addition, the MOCC has an inherent capability to provide C4I support to any theatre of action that requires rapid maritime air support. MOCCs meet the requirements for NATO transportable air operations center (TAOC).

(3) Joint Mobile Ashore Support Terminal (JMAST). JMAST supports the operational readiness and success of combatant commanders, JTF commanders, deployed components, and other military commanders from forward deployed bases or operational sites that are not equipped with C4I facilities. Commanders have automated data processing (ADP) interfaces to appropriate communications channels. JMAST provides JTF, Navy component, and other military commanders with the mobile ability to command, control and communicate with assigned forces through voice, video, and data media forms during all aspects of military operations, including joint, combined, and coalition operations.

i. Liaisons. The NALE represents the MCC and responds to the JAOC on matters pertaining to Navy and Marine amphibious operations. The NALE processes NAVFOR and Marine landing force requests for air support and monitors and interprets the maritime battle situation for the JAOC. The NALE provides the necessary interface for the exchange of current operational and intelligence data between components and the JAOC. The NALE also coordinates maritime requirements for air defense, long-range interdiction, and long-range requirements, and monitors Navy and Marine airspace and air traffic control requirements and changes. The NALE provides feedback to the JAOC and components on current and future joint air operations concerning integration of force requirements.

6. Amphibious Operations

a. An amphibious operation is a military operation launched from the sea by an amphibious force embarked on ships or craft with the primary purpose of introducing a landing force (LF) ashore to accomplish the assigned mission. Amphibious operations apply maneuver principles to expeditionary power projection in joint and multinational operations. The following summary is extracted from JP 3-02, Joint Doctrine for Amphibious Operations. For more detailed information concerning amphibious operations, refer to JP 3-02 and the Navy Warfare Publication 3-02 series.

(1) Types of Amphibious Operations. Amphibious operations include assaults, withdrawals, demonstrations, raids, and other operations in a permissive, uncertain, or hostile environment. An amphibious force conducts amphibious operations. An amphibious force is defined as an amphibious task force (ATF) and a landing force (LF) together with other forces that are trained, organized, and equipped for amphibious

operations. Amphibious operations seek to exploit the element of surprise and capitalize on enemy weakness by projecting and applying combat power precisely at the most advantageous location and time. Amphibious forces provide the JFC with a balanced, mobile force flexible enough to provide the required capability at the right time and place with sufficient endurance to accomplish the mission.

(2) Terms. The terms "commander, amphibious task force" (CATF) and "commander, landing force" (CLF) have been used doctrinally in the past to signify the commanders assigned to spearhead amphibious operations. This doctrine disassociates (from previous doctrine) any historical implications of the terms "CATF" and "CLF" from command relations. The terms "CATF" and "CLF" do not connote titles or command relationships. Rather, they refer to those commanders who are instrumental to the conduct of amphibious operations in a joint environment. According to JP 0-2, *Unified Action Armed Forces* (UNAAF), the establishing authority may choose from a variety of command relationship options between the CATF, CLF, and other designated commanders involved in amphibious operations.

(3) Purpose of Amphibious Operations. Conducted alone, or in conjunction with other military operations, amphibious operations can be designed for the following purposes:

(a) Achieve campaign objectives in one swift stroke by capitalizing on surprise and simultaneous execution of supporting operations to strike directly at enemy critical vulnerabilities and decisive points in order to defeat operational or tactical COGs.

(b) Comprise the initial phase of a campaign or major operation where the objective is to establish a military lodgment to support subsequent phases.

(c) Serve as a supporting operation in a campaign in order to deny use of an area or facility to the enemy, or to fix enemy forces and attention in support of other combat operations.

(d) Support military operations other than war in order to deter war, resolve conflict, promote peace and stability, and support civil authorities in response to domestic crises.

(4) Types of Amphibious Operations. Amphibious operations can generally be broken down into five major types:

(a) Amphibious Assault. The establishment of an LF on a hostile or potentially hostile shore.

(b) Amphibious Withdrawal. The extraction of forces by sea in ships or craft from a hostile or potentially hostile shore.

(c) Amphibious Demonstration. A show of force conducted to deceive with the expectation of deluding the enemy into a course of action unfavorable to it.

(d) Amphibious Raid. A swift incursion into, or a temporary occupation of, an objective, followed by a planned withdrawal.

(e) Other Amphibious Operations. The capabilities of amphibious forces may be especially suited to conduct other types of operations, such as noncombatant evacuation operations and foreign humanitarian assistance.

(5) Characteristics of Amphibious Operations. Amphibious operations have four major characteristics:

(a) Integration between the Navy and landing forces. The key characteristic of an amphibious operation is close coordination and cooperation between the ATF, LF, and other designated forces.

(b) Rapid buildup of combat power from the sea to shore. The salient requirement of an amphibious assault is the necessity for swift, uninterrupted buildup of sufficient combat power ashore from an initial zero capability to full coordinated striking power as the attack progresses toward amphibious force objectives.

(c) Task-organized forces. Amphibious forces are task-organized based on the mission, and are capable of multiple missions across the full range of military operations to enable joint, allied and coalition operations.

(d) Unity of effort and operational coherence. The complexity of amphibious operations and the vulnerability of forces engaged in amphibious operations require an exceptional degree of unity of effort and operational coherence.

b. Command and Control of Amphibious Operations.

The command relationships established within the amphibious force are in accordance with the concepts and principles delineated in JP 0-2. The JFC may establish unity of command over amphibious forces by retaining operational control (OPCON) over the Service or functional component commands executing the amphibious operation, or by delegating OPCON or tactical control (TACON) of the amphibious force to a Service or functional component commander. If organizing forces along Service components, the JFC may establish a support relationship between the Navy component commander and the Service component commander of the LF, or delegate OPCON or TACON of the assigned or attached amphibious forces to a Service component.

Amphibious operations are normally part of a joint operation. The JFC ensures unity of effort in achieving amphibious objectives by establishing unity of command over amphibious forces. The JFC will organize the amphibious force in such a way as to best accomplish the mission based on the concept of operations. If organizing the joint force with a combination of Service and functional component commands with operational responsibilities, the JFC may establish a support relationship between the functional components, Service components, or other appropriate commanders, or delegate OPCON or TACON of the assigned or attached amphibious forces to a functional component or Service component commander.

The command relationships established among the CATF, CLF, and other designated commanders of the amphibious force is important. Typically, a support relationship is established between the commanders and is based on the complementary rather than similar nature of the ATF and LF. The type of relationship chosen by the common superior commander (or establishing authority) for the amphibious force should be based on mission, nature, and duration of the operation, force capabilities, C2 capabilities, battlespace assigned, and recommendations from subordinate commanders.

The commanders designated in the order initiating the amphibious operation are coequal in planning matters and decisions. Regardless of the command relationships, when the order initiating the amphibious operation is received, unique relationships are observed

during the planning phase. All decisions must be reached on a basis of common understanding of the mission, objectives, and procedures and on a free exchange of information. Any differences between commanders that cannot be resolved are referred to the establishing authority.

The amphibious operational area must be of sufficient size to conduct necessary sea, land, and air operations required to execute the mission of the amphibious force. Amphibious operations normally encompass a three-dimensional geographic area, within which is located the amphibious objective(s). The operational areas that may be assigned to an amphibious force in an order initiating the amphibious operation are an amphibious objective area (AOA) or an area of operations normally in conjunction with a high density airspace control zone (HIDACZ).

c. Air Command and Control.

During maritime operations such as amphibious operations, the ACA will normally designate the maritime commander as the control authority for a specific airspace control area during the conduct of the operation (JP 3-52). The complexity and size of an amphibious operation directly affects the amount of airspace allocated.

The AADC bears overall responsibility for air defense activities of the joint force. The regional air defense commander (RADC) is normally established within the ATF organization and is responsible for the airspace allocated for amphibious operations, including but not limited to the AOA (if established). The CATF will coordinate active defense plans and procedures with the AADC and attack operations with the JFACC unless otherwise specified in the establishing directive or the order initiating the amphibious operation. The designated commander assigns an air warfare commander, normally on the most capable air defense platform, to actually carry out air defense operations.

For transfer of airspace control and counterair responsibilities ashore to occur, an appropriate agency must be established that is responsible for air operations planning, air control, and counterair. This agency is either tactical air command center (ashore) when the LF is Marine Corps, or an AOC with the LF is an Army task organization. It is phased ashore as part of the LF. To facilitate an orderly transfer of control, specific control functions may be incrementally passed as facilities ashore become operational.

d. Tenets of Amphibious Planning. The tenets of successful amphibious planning are top-down planning, unity of effort (within the designated operational area), and an integrated planning effort.

(1) Top-Down Planning. Planning is a fundamental responsibility of commanders. The complexity of amphibious operations requires amphibious force commanders to drive the planning process. Their guidance and intent are central to planning and must be translated into a design for action by subordinates.

(2) Unity of Effort. Unity of effort in the operational area allows the CATF and CLF to effectively focus the amphibious force on mission accomplishment. They must view their battlespace as an indivisibile entity, for operations or events in one area may have profound and often unintended effects on other areas and events.

(3) Integrated Planning. Integrated planning in amphibious operations has two parts. The first part is the assembly of the amphibious force commanders and their staffs in the same locality. When such arrangements are not practicable, the exchange or liaison

officers qualified to perform planning functions and the use of advanced technology, collaborative planning aids, and video teleconferencing are necessary. The second part of integrated planning occurs across functional areas. The use of functional areas, such as maneuver, supporting arms and fires, intelligence, C2, logistics, and force protection enable amphibious force planners to integrate the planning effort and supervise the plan. The use of functional areas helps the planners to consider all relevant factors and minimize omissions.

e. Fire Support During Amphibious Operations. Fire support planning and coordination in amphibious operations are continuous processes seeking timely and appropriate application of force to achieve the desired effects within the operational area. Fire support planning integrates and synchronizes the amphibious force organic fires with non-organic supporting fires to achieve the commander's intent. Maneuver and fires are complementary functions. Fires in support of amphibious operations (amphibious fire support) is the synergistic product of three subsystems: target acquisition (TA), C2, and attack resources. TA systems and equipment perform the key tasks of target detection, location, tracking, identification, and classification in sufficient detail to permit the effective attack of the target. C2 systems bring all information together for collation and decisionmaking. Vertical and horizontal coordination is essential, requiring a hierarchy of mutually supporting fire support coordinators and agencies. Attack systems include fires delivered from air, surface, land, and subsurface attack systems. Navy, Marine Corps, Army, and Air Force aircraft may perform air-to-surface attack and electronic warfare within the operational area. Land-based attack systems typically include Marine Corps and Army artillery, mortars, rockets, missiles, and electronic warfare systems. Sea-based attack systems include Navy guns, missiles, and electronic warfare systems. Effective fire support depends on planning for the successful performance of the following four basic tasks:

(1) Support forces in contact. The amphibious force provides responsive fire support that protects and ensures freedom of maneuver to forces in contact with the enemy throughout the operational area.

(2) Support the concept of operations. Shaping the battlespace and setting the conditions for decisive action are successfully accomplished by achieving the commander's stated effects and attacking high-payoff targets to exploit critical vulnerabilities, the destruction or neutralization of which significantly contributes to the success of the amphibious operation by defeating the enemy's COGs.

(3) Synchronize fire support. Fire support is synchronized through fire support coordination, beginning with the commander's estimate and concept of operations. Fire support must be planned for continuously and concurrently with the development of the scheme of maneuver.

(4) Sustain fire support operations. Fire support planners formulate realistic and achievable fire support plans to achieve the commander's stated effects by exploiting logistic capabilities to overcome logistic limitations.

f. Logistics Planning During Amphibious Operations. Logistics planning for an amphibious operation includes all facets of logistics. The amphibious force logistic systems must be responsive, simple, flexible, economical, attainable, sustainable, and survivable. The CATF is normally responsible for determining overall logistics requirements for the amphibious force. Those requirements that cannot be supported from resources available

within the ATF are directed to the applicable Service component through the chain of command as established in the order iniiating the amphibious operation. Development of effective logistics systems must take into account the planning considerations and factors listed below.

      (1) Orderly assembly and embarkation of personnel and materiel based on anticipated requirements of the LF scheme of maneuver ashore.

      (2) Establishment and maintenance of a logistic system in the operational area that will ensure adequate support to all elements of the amphibious force, and subsequent support of base development and garrison forces as directed.

      (3) Impetus of logistics support from sea, or the rear, and directed forward to the point of application at the using unit.

      (4) Preservation of tactical security during logistics planning. Nonsecure logistics planning can compromise tactical surprise and landing location.

7. Conclusion

Naval forces play a vital role in accomplishing the JFC's campaign plan. From naval doctrine to C2 systems, naval air power provides vital resources to the TAGS. Carrier and land-based aircraft are equipped and trained to perform all types of air-to-ground missions, including CAS and AI, as directed by the JFC. Naval forces also provide important capabilities outside of naval aviation, such as firing cruise missiles from surface and subsurface platforms in support of the JFC's mission objectives and other component commanders. Naval command authority trains to perform joint command and control functions such as JFACC afloat. Naval air and sea power is an important part of the TAGS.

Chapter V

MARINE CORPS COMPONENT

1. Background

As the landward extension of naval expeditionary forces, Marine Corps forces (MARFOR) can project significant combat power ashore and are central to the overall accomplishment of the littoral strategy. Their readiness, flexibility, and broad utility in times of crisis allow MARFOR to provide globally responsive assets for contingency missions in support of presidential or Secretary of Defense requirements. As a combined arms force—with integrated ground, aviation and logistics capabilities and an expeditionary focus—the Marine Corps offers a unique organization that provides the combatant commander or JFC with a *Total Force Package* ready for action.

2. Mission

The MARFOR's mission is to support the JFC's campaign. Assigned tasks may include—

a. Expeditionary warfare (landing force matters). Land operations contribute to a naval operation, including the seizure and defense of advanced naval bases, attack of enemy support facilities, seizure of areas blocking passage of enemy naval forces, and land-based air operations in support of the fleet.

b. Naval political reinforcement operations up to and including intervention.

c. Naval support, amphibious or otherwise, of continental campaigns.

d. Joint and multinational operations where the MARFOR operate as part of a joint/multinational task force, either as an inclusive element or as the principal framework.

e. Security support for certain naval bases and stations or areas.

3. Component Operations

The Marine Corps concept for conducting operations is maneuver warfare: a way of thinking about war that shapes every action. It is a state of mind born of bold will, intellect, initiative, and ruthless opportunism. The Marine Corps' organization for combat is the Marine air ground task force (MAGTF).   Maneuver warfare is a warfighting philosophy used by the MAGTF to shatter the enemy's cohesion through a series of rapid, violent, and unexpected actions. These actions create for the enemy a turbulent, rapidly deteriorating, and impossible situation. The MAGTF concentrates strength against enemy vulnerabilities, striking quickly and boldly where, when, and how it will cause the greatest harm to the enemy's warfighting ability. Because critical vulnerabilities are rarely obvious, the MAGTF seeks to exploit every opportunity to deal a decisive blow to the enemy. When the decisive opportunity arrives, the MAGTF exploits it fully and aggressively, committing all its combat power. The ability and willingness to exploit opportunities generates decisive results. Inherent in maneuver warfare is the need for relative speed to: seize the initiative, dictate terms of combat, and keep the enemy off balance. The key to relative speed is mobility. When combined with firepower, relative speed shocks the enemy, disrupts enemy morale, and expedites success.

a. Firepower and Mobility. Firepower and mobility are fundamental to the employment of military forces. They are complementary and mutually dependent. Firepower aids mobility, causing sufficient destruction or confusion so the enemy cannot block or oppose friendly movement. Mobility is used to position forces, including firepower assets, to gain positional advantage against the enemy.

b. Firepower. Besides the ground combat element's (GCEs) organic weapons systems, aviation is the MAGTF's greatest source of firepower. Aviation increases and complements the MAGTF's firepower and mobility. Aviation-delivered firepower damages, or threatens to damage, enemy personnel, facilities, and equipment, relieving some of the burden on ground combat units to move and carry large amounts of ordnance. With its ability to cover distances rapidly, aviation provides the MAGTF commander with overwhelming amounts of firepower on short notice.

c. Mobility. Mobility allows the MAGTF commander to focus firepower where it will most likely be decisive. Mobility is tied to the use or threatened use of firepower. Aviation provides the MAGTF tactical and operational mobility—the ability to move within an engagement or battle and to move between engagements or battles. Aviation allows the MAGTF to reposition forces rapidly to any location in the battlespace. With this ability, the MAGTF can conduct tactical and operational actions at a tempo higher than that of the enemy. This relative tempo advantage allows the MAGTF to shift quickly from one action to another. Aviation can also provide a tempo advantage to the MAGTF by stopping or slowing enemy movement.

d. Combined Arms. The Marine Corps organization is predicated on the combined arms concept. Combined arms is the integration of arms in such a manner that, to counteract one, the enemy must become more vulnerable to another. Whatever action the enemy takes to avoid one arm opens him to another. Combined arms actions are designed so any enemy reaction is equally disastrous.

(1) Marines can create combined arms effects using maneuver of forces, sustainment capability, deception, EW, psychological operations, command and control warfare, and SO. The MAGTF takes advantage of the asymmetrical and complementary characteristics of different types of arms to gain the leverage to destroy the enemy.

(2) The Marine Corps uses combined arms at the tactical and operational levels of war. Tactically, a commander can pin down (fix) an enemy force with direct fire weapons, making that force vulnerable to close air support (CAS) . If the enemy force chooses to move to escape the air attack, it risks coming under direct fire. Marines link the combined arms effects of smaller units to produce a larger combined arms effect. For example, operationally, the commander can use aviation to isolate an enemy force from reinforcements or supplies. The commander can then strike the isolated enemy force, forcing him to either fight and face irreplaceable losses or abandon the field and come under additional aviation and artillery attack.

e. Task Organization. The Marine Corps task organizes for combat by forming integrated, combined-arms MAGTFs, to include aviation. MAGTFs are specifically tailored for rapid deployment by air and/or sea. The MAGTF is self-sufficient and can be tailored based on the theater or JFC's operational requirement or task. MAGTFs are designed on a building block concept, drawing appropriate units into an air-ground-logistics team under one commander. The size of the MAGTF and its components varies depending on the mission. Notional task organizations include the special purpose MAGTF (SPMAGTF),

Marine expeditionary unit special operations capable (MEU(SOC)), Marine expeditionary brigade (MEB), and Marine expeditionary force (MEF). (Figure V-1 and Table V-1).
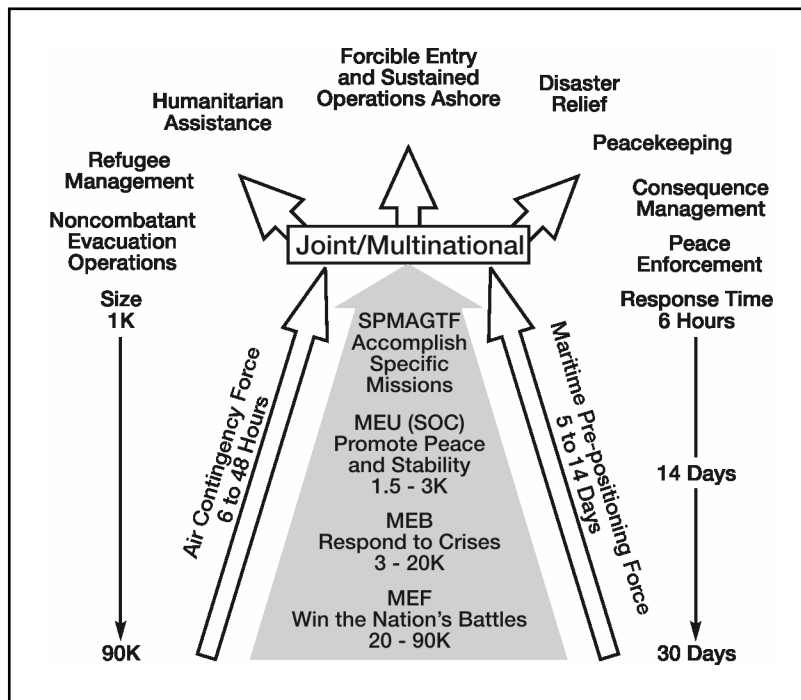
Figure V-1. Marine Air Ground Task Forces

Table V-1. Marine Task Organization

Echelon	Description
SPMAGTF	• A Marine air-ground task force organized, trained, and equipped with narrowly focused capabilities. • Designed to accomplish a specific mission, often of limited scope and duration. • May be any size, but normally a relatively small force (size of a Marine expeditionary unit or smaller).
MEU(SOC)	• The Marine expeditionary unit (special operations capable) augmented with selected personnel and equipment, trained and equipped with an enhanced capability to conduct amphibious operations and a variety of specialized missions of limited scope and duration. • Capabilities include demolition, clandestine reconnaissance and surveillance, raids, hostage recovery, and enabling operations. The standard, forward-deployed, sea-based expeditionary organization. • The MEU(SOC) is not a special operations force but, when directed, may conduct limited special operations in extremis when other forces are inappropriate or unavailable. (JP1-02)
MEB	• An air-ground task force constructed around a reinforced infantry regiment, a composite Marine aircraft group, and a brigade service support group. • Commanded by a general officer and task-organized to meet the requirements of a specific situation; may contain other service or foreign military forces assigned or attached. • Can function alone, as part of a JTF, or as lead echelon of the Marine expeditionary force (MEF); capable of conducting missions across the full range of military operations.

	• Varies in size and composition; larger than a MEU but smaller than a MEF.
MEF	• The largest air-ground task force (MAGTF) and the Marine Corps principal warfighting organization. • Task-organized around a permanent command element and normally contains one or more Marine divisions, Marine aircraft wings, and Marine force service support groups. • Capable across the range of military operations, including amphibious assault and sustained operations ashore in any environment. Can operate from a sea base, land base, or both.

(1) All MAGTFs, regardless of size, have the same elements: a command element (CE), a GCE, an aviation combat element (ACE), and a combat service support element (CSSE). The CE is the MAGTF headquarters and is task organized to provide command and control capabilities (including intelligence and communications) necessary for effective planning, direction, and execution of all operations. The GCE is task organized to conduct ground operations in support of the MAGTF mission and is formed around an infantry organization reinforced with requisite artillery, reconnaissance, armor, and engineer forces. The ACE is task organized to perform aviation functions, with Marine Corps aviation, as required to support the mission. The ACE is formed around an aviation headquarters with appropriate air control agencies, combat, combat support, and combat service support units. The CSSE is task organized to provide the full range of combat service support functions and capabilities necessary to support the continued readiness and sustainability of the MAGTF as a whole.

(2) The MAGTF can provide a cohesive combined arms team capable of fulfilling assigned missions with little or no outside support. MAGTFs present unique military capabilities, limitations, and organizational requirements. Using maneuver warfare, the MAGTF produces decisive results with forces of moderate size. When employed in joint operations, the MAGTF commander advises the JFC on MAGTF employment to ensure that its considerable and unique capabilities are maximized.

f.   Marine Corps Aviation. The primary mission of Marine Corps aviation is to participate as the MARFOR's supporting air component. Marine aviation supports the seizure and defense of advanced naval bases and conducts essential air operations in support of Marine, naval, and joint land operations. As a collateral mission, Marine Corps aviation participates as an integral component of naval aviation in the execution of other naval functions as the fleet commanders direct.

(1) The MAGTF commander delegates air operations authority to the ACE commander, who exercises authority through the Marine air command and control system (MACCS) to command, coordinate, and control MAGTF air operations effectively. The MACCS provides the ACE commander with the means to exercise centralized command and coordination, and decentralized control, allowing operational flexibility and rapid response to changing tactical situations.

(2) The MAGTF ACE, which fulfills expeditionary aviation requirements, is sized to the mission and may range from a small aircraft detachment to multiple Marine Corps aircraft wings. The ACE adds a dimension of flexibility, firepower, and mobility to the MAGTF that it would not have otherwise. Normally, one ACE supports a MAGTF, but this is not a permanent organization. The ACE is tailored to provide air support for the MAGTF's mission.

(a) The MAGTF commander, who receives advice from the ACE commander concerning effective ACE employment, makes the final decision concerning ACE missions, tasks, and priority of effort. Execution of the MAGTF operation relies on successful tactical air operations.

(3) Marine Corps aviation performs the following doctrinal functions: AAW, Offense Air Support (OAS), assault support, air reconnaissance, EW, and control of aircraft and missiles.

(a) Antiair Warfare (AAW). The MAGTF uses AAW to destroy or reduce enemy air and missile threats. The purpose of AAW is to gain and maintain the necessary air superiority for the MAGTF to conduct ground and air operations without prohibitive interference from enemy air action. AAW includes offensive operations conducted against enemy air resources before they can be employed or assume an attacking role, and air defense active and passive measures designed to reduce or nullify the effects of hostile air action.

(b) Offensive Air Support (OAS). OAS isolates the battlefield, projects firepower to shape events in time and space, and delivers firepower against enemy installations, facilities, and personnel. OAS destroys enemy resources and isolates the enemy's military force, allowing the MAGTF commander to influence the future battle. The MAGTF commander uses OAS to create a dilemma for the enemy. If the enemy moves to confront friendly forces, enemy forces are exposed to aviation assets. If the enemy cannot move or employ forces or is unable or unwilling to sustain losses, initiative and tempo are lost. OAS, which does not include air operations to reduce an enemy's air capability, is categorized as either CAS or deep air support (DAS).

• CAS, which is used against hostile targets located close to friendly forces, requires detailed integration with a friendly ground force's fire and maneuver. The supported ground unit commander requests or approves all CAS missions in the area of operations. CAS allows the MAGTF commander to concentrate aviation at the decisive place and time to achieve local combat superiority and take advantage of fleeting battlefield opportunities.

• Although DAS may require considerable coordination, it does not require detailed integration with a friendly ground force's fire and maneuver. It does require a complete understanding of the MAGTF commander's intent and scheme of maneuver to shape the battlefield properly. DAS also allows the MAGTF commander to destroy, neutralize, or delay enemy reinforcements, critical enemy functions or capabilities, and other enemy potential before it can be brought to bear effectively against friendly forces. DAS can attack enemy centers of gravity, enemy formations, lines of communication, and C2 centers. DAS missions are conducted on both sides of the fire support coordination line (FSCL).

• The two categories of DAS are air interdiction (AI) and armed reconnaissance. AI can deny the enemy use of a particular area, route, or facility; increase their consumption of supplies; increase their movement of troops and equipment; and apply heavy pressure on their lines of communication. All this activity increases the enemy's vulnerability to air attack and provides friendly forces with lucrative targets. Armed reconnaissance provides the MAGTF commander with an economy-of-force measure to cover and defend terrain not suited to other forces. Armed reconnaissance identifies enemy forces and engages them before they can threaten MAGTF forces.

(c) Assault Support. Assault support operations provide air movement of personnel, supplies, and equipment into or within the area of operations and ensure the rapid buildup of combat power. Assault support allows forces to bypass certain obstacles, avoid hostile areas, maneuver over the entire battlefield, and rapidly resupply combat forces. It requires detailed, coordinated, and concurrent planning at all levels. Categories of assault support include combat assault transport, air delivery, aerial refueling, air evacuation, and tactical recovery of aircraft and personnel (that is, combat rescue, air logistical support, and battlefield illumination).

(d) Air Reconnaissance. Air reconnaissance provides the MAGTF commander with information that can be used to influence operations. Air reconnaissance collects multisensor imagery of areas of interest; provides and maintains surveillance of areas of interest; provides rapid and current information on enemy composition, disposition, activity, installations, and terrain; and supports the direction and adjustment of artillery and naval surface fire support (NSFS).

(e) EW. EW provides timely information on the enemy, disrupts the enemy's use of the electromagnetic spectrum, and allows the MAGTF to use the electromagnetic spectrum despite enemy EW. EW also neutralizes enemy radars and provides the MAGTF commander with information to update the enemy's order of battle.

(f) Control of Aircraft and Missiles. Control of aircraft (fixed-wing, rotary-wing, and unmanned aerial vehicles (UAVs)) and missiles allows the MAGTF commander to employ ACE assets to influence combat operations. It includes the facilities, equipment, communications, procedures, and personnel to plan, direct, and control the ACE's effort. Collectively, these compromise the MACCS.

4. Planning

To conduct MAGTF air operations effectively, detailed planning must take place. The MAGTF commander and the MAGTF commander's staff must understand the planning required for integration of MARFOR as part of a joint or multinational force. The GCE and CSSE commanders and staffs must fully comprehend their planning roles relative to MAGTF air operations. The ACE commander, the ACE staff, subordinate units, and personnel manning the MACCS must firmly grasp planning factors relative to command and control of MAGTF air operations.

a. Amphibious Operations. Amphibious operations combine ships, aircraft, and landing forces into a united military effort against a hostile or potentially hostile shore. It is one of the most complex military operations. The MACCS must plan to provide the ACE commander with the ability to command and control MAGTF air operations during all phases of the amphibious operation. Integration of landing force aviation with the amphibious task force and host nation airspace and air defense networks must be considered. Chapter IV, paragraph 6 contains additional details concerning the MACCS during amphibious operations. For further information, refer to JP 3-02 or Marine Corps Doctrinal Publication 3.

b. Joint/Multinational Operations. During joint/multinational operations, the MAGTF must successfully integrate with the force as a whole and with the other components. The MACCS must conduct planning to integrate and coordinate with other service and joint airspace control and air defense agencies and staffs to allow the ACE commander to employ Marine aviation effectively in support of the MAGTF. An integral function of the MACCS

is to provide liaison to air command and control agencies external to the MAGTF. As with amphibious operations, consideration must be given to host nation airspace and air defense networks.

c. MAGTF Employment. The MAGTF is a task-organized fighting force. The task organization of the MAGTF is driven by the assigned or implied mission(s) for the MAGTF. As such, its organization will vary from operation to operation. When considering the organization of the MAGTF's ACE, the MAGTF commander must weigh the MAGTF's air command and control needs against available joint force assets and joint force interface requirements.

d. MACCS. The MACCS provides the MAGTF commander with the ability to plan and direct air operations within the MARFOR area of operations. The MACCS must plan to support MAGTF operations through the execution of the six functions of Marine aviation. Categories of MACCS planning include, but are not limited to, airspace control; airspace and air defense control measures; air control procedures; air direction; and communications connectivity with higher, adjacent, and subordinate air command and control agencies.

5. Command and Control

a. MACCS. The MACCS provides the ACE commander with the means to command, coordinate, and control air operations. The Marine air control group (MACG) provides the personnel and equipment to staff, operate, and maintain principal MACCS agencies. The MACCS provides a robust air command and control capability, which is fully capable of conducting air support, air defense, and airspace management functions within the framework of joint and multinational operations. The MACCS task organizes its organization and capabilities to meet the MAGTF's air command and control needs. It varies in size from small air support elements (ASEs) and Marine air traffic control detachment mobile teams (MMT) typically deployed with a MEU to a fully functional MACCS used in MEF-level operations. The principal command and control agencies of the MACCS are the tactical air control center (TACC)/tactical air direction center (TADC); sector air defense center (SADC); tactical air operations center (TAOC); direct air support center (DASC); Marine air traffic control detachment (MATCD); low altitude air defense battalion (LAAD); Marine wing communications squadron (MWCS); and the terminal control agencies (for direct air support).

(1) TACC. The TACC is the senior MACCS agency and the one MACCS agency that exercises command. It serves as the ACE commander's operational command post. The TACC provides the facility from which the ACE commander and the battlestaff plan, supervise, coordinate, and execute all current and future MAGTF air operations. The battle staff is divided into two sections: a future operations section and a current operations section.

(a) The future operations section is responsible for drafting, revising, and disseminating the MAGTF ATO. The future operations section of a joint ATO provides the JFC with information concerning MAGTF direct support sorties, sorties in excess of MAGTF direct support needs, or request for air support beyond the ACE's ability to provide for inclusion into the joint air tasking cycle/order.

(b) The current operations section is responsible for the execution of the ATO, including both MAGTF and joint aviation assets in support of the MAGTF. Using the principle of centralized command and decentralized control, the TACC's current operations

section supervises subordinate MACCS agencies and activities in the subordinate MACCS agencies' execution of the ATO. The TACC provides the MAGTF's aviation arm with critical guidance, direction, and supervision regarding the employment and execution of the six functions of Marine aviation. In turn, the TACC integrates Marine aviation's six functions into the MAGTF scheme of maneuver through its linkage with the MEF's force fires coordination center (FFCC) or the MAGTF's combat operations center (COC). The TACC also provides the functional interface and coordination for employment of MAGTF aviation in joint/multinational and naval expeditionary operations. In joint/multinational operations, the TACC is often referred to as the Marine TACC to avoid confusion with the Navy tactical air control center (Navy TACC) or the USAF tanker airlift control center (TACC). The TACC can interface with other air command and control agencies via tactical digital information links (TADILs) A, B, and J, and North Atlantic Treaty Organization (NATO) Link 1. All links are handled by the joint interface coordination officer (JICO).

(2) TADC. The TADC is task organized to perform all or most of the TACC's tasks. It is employed in a subordinate role to a senior air C2 agency, most notably during expeditionary operations where the Marine TADC is subordinate to the Navy TACC before the transfer of control ashore (see Chapter IV, paragraph 6). When the MAGTF assumes control of all air operations within an amphibious objective area, the TADC becomes the TACC. A TADC site subordinate to a Marine TACC may also be established within a MAGTF's area of operations to provide the ACE commander with an additional capability to coordinate support for a specific area or time.

(3) SADC. The SADC serves as an extension of the TACC and focuses on air defense planning and management of air defense resources within its sector. The SADC operates from the sector air defense facility (SADF), a system of workstations with various software applications including, but not limited to: commander's tactical terminal (CTT), theater battle management core system (TBMCS) intelligence operations workstation (IOW), and others. The SADF is usually collocated with the TAOC, but does not have to be. This is due to the SADF's reliance on the TAOC's database. Air situation information and communications capabilities are provided to the SADF by the TAOC via interfaces with the TAOC's digital data and communications buses. The SADC will manage one or more TAOCs within its sector.

(4) TAOC. The TAOC is the MACCS's principal air defense agency that conducts airspace control and management. It provides real-time surveillance of assigned airspace, positive control, and navigational assistance for friendly aircraft. It performs real-time direction and control of air defense operations involving aircraft and surface-to-air weapons. By collecting and displaying information from its own sensors, other MAGTF sources, and external sources (other Services and nations), the TAOC controls assigned airspace and directs and controls the fires of assigned air defense assets. The TAOC's primary air surveillance radar, the AN/TPS-59(V)3, can provide theater ballistic missile cueing directly to theater ballistic missile defense units when directly attached to the TAOC or as a Theater Missile Defense Detachment (TMD Det). The TAOC can perform limited functions as an alternate TADC/TACC current operations section for limited periods if the need arises. The TAOC can deploy from within itself an early warning/control (EW/C) site from its main site to improve early warning, fill gaps in surveillance coverage, and enhance weapons control and coordination. The TAOC and EW/C can provide data link interfaces via TADILs A, B, C (one or two way) and J, ATDL-1, and NATO Link 1.

(a) EW/C have no set standards but are task organized and must contain at least one radar and one Tactical Air Operations Module.

(b) A TMD detachment provides the AADC an enhanced surveillance picture and is normally comprised of an AN/TPS 59(V)3 radar to cue TBM active defense shooters. It also contains an air defense communications platform (ADCP) to pass information via TADIL J or Point to Point Data Link (PPDL) to those shooters.

(5) DASC. The DASC is the principal MACCS agency responsible for the control and direction of air operations directly supporting ground forces. It functions in a decentralized mode of operations but is directly supervised by the TACC. Normally the first major air control agency ashore, it lands with the GCE's senior FSCC.

(a) The DASC, which is normally collocated with the GCE's senior FSCC, processes and coordinates requests for immediate air support and procedurally controls aircraft transiting its AOR. It coordinates air missions requiring integration with ground forces, including CAS, assault support, and designated air reconnaissance missions. The DASC uses procedural control to route direct air support and assault support aircraft through its designated AOR.

(b) The DASC, like all Marine units, will task organize and tailor its response to the mission. Its air support liaison teams (ASLTs) are used to maintain liaison between the DASC and the GCE's senior FSCC, especially in cases where the DASC cannot be physically collocated with the FSCC. The ASE operates primarily with the FSCC and TACPs to assist in the control of direct air support aircraft, normally during MEU-level operations. An airborne DASC may be employed to extend communication capabilities or to provide DASC functions when the ground DASC is not operable because of the need to displace or as a result of battle damage or equipment degradation.

(6) MATCD. MATCDs provide all-weather air traffic control services to forward operating bases. They are task organized based on volume and type of air traffic, expected duration of deployment, and external support availability. They are capable of performing initial, transition, and sustainment phases of air traffic control as defined in MCRP 3-25A. They have a control tower, surveillance and precision radars, and navigational aid capabilities. Surveillance radars allow MATCD personnel to provide aircraft navigational and separation services and early warning and detection information to other MACCS agencies. Each MATCD can provide all-weather air traffic control services at one forward operating base; the MATCD fields a MATCD mobile team (MMT) capable of providing air traffic control services from temporary landing zones or fields. The MATCD ties its air surveillance picture into the MAGTF's integrated air defense system (IADS) through a TADIL-B data link.

(7) Low-Altitude Air Defense (LAAD) Battalion. LAAD provides close-in, low-altitude, surface-to-air weapons fires in defense of the MAGTF, forward combat areas, maneuver forces, vital areas, installations, and/or units engaged in special or independent operations. LAAD can be in direct or general support of each of the above. They usually receive control and surveillance from the TAOC via ATDL-1 translated into ground based data link (GBDL), but can generate their own organic picture from their tactical defense alert radar (TDAR).

(a) Base Defense Zones (BDZ). The Marine Corps typically establishes BDZs around airfields with a MATCD and LAAD firing units. BDZs have three main requirements.

- First, they must have a weapons system.

- Second, they must have a radar.

- Lastly, there must be a controlling agency.

(b) MWCS. The MWCS installs, operates, and maintains expeditionary communications for the ACE of a MAGTF, including the phased deployment of task-organized elements. It does this by providing the connectivity backbone that links the MACCS together and to other higher and adjacent agencies. Its headquarters element usually resides with the TACC and can provide TRC, MUX, and single channel support.

(8) Terminal Control Agencies. Terminal control agencies perform air control functions. That is, they manage the final delivery of ordnance, cargo, or personnel and accomplish other specialized tasks not performed by other air controllers. Some terminal control agencies are not organic to the ACE but integrated into the MACCS through communications, doctrine, and procedures.

(a) TACP. A TACP plays an integral role in the MACCS but is responsible to the supported commander for employment and coordination of assigned supporting aircraft. TACPs, organic to the GCE, establish and maintain liaison and communications between parent units, airspace control agencies, and supporting aircraft. A TACP participates in fire support coordination and advises the ground unit commander concerning the employment of supporting aircraft.

(b) FAC. The FAC controls aircraft in support of ground troops from a forward ground position. This control aids target identification and greatly reduces the potential for fratricide.

(c) FAC(A). The FAC(A) is a specifically trained and qualified aviation officer who exercises control from the air of aircraft engaged in CAS of ground troops. The FAC(A) is normally an airborne extension of the TACP.

(d) TAC(A). The TAC(A) is an experienced naval aviator operating from an aircraft who coordinates the action of combat aircraft engaged in close support of ground or sea forces. The TAC(A) is an airborne extension of the DASC and/or TACC. TAC(A) assignment depends on mission requirements and aircraft availability. All TAC(A)s provide airspace coordination and coordinate the employment of aircraft with other supporting arms. To fulfill these responsibilities, the TAC(A) coordinates with the assault support coordinator (airborne) (ASC(A)), TACPs, FSCC/SACC, subordinate TAC(A)s, and artillery and NSFS units. The TAC(A) requires in-depth knowledge of the MACCS airspace management, fire support coordination, and fixed- and rotary-wing operations and capabilities. A TAC(A) conducts air reconnaissance/surveillance and provides terminal control of OAS missions and artillery and NSFS spotting. TAC(A)s are an airborne extension of the TACP and can provide radio relay for ground TACs as well as BDA. Navy TAC(A) aircrew train routinely with Army and Marine Corps attack helicopters in JAAT operations.

(e) Assault Support Coordinator (Airborne) ASC(A). The ACE commander provides an ASC(A) to provide air coordination and control during helicopter operations.

The ASC(A) serves as an extension of the DASC in support of the air mission commander. An ASC(A) provides information concerning enemy operations and weather along approach and retirement routes and in landing zones (LZs), route alterations, and supporting arms employment. The ASC(A) coordinates with TAC(A)s for employment of CAS. The DASC establishes support relationships between the ASC(A) and the TAC(A). ASC(A)s and TAC(A)s require the same type of in-depth knowledge and experience.

(f) Helicopter Support Team (HST). The HST task organizes and equips to establish and operate helicopter pickup zones and/or LZs. The supported helicopter-borne force and supporting helicopter unit provide personnel and equipment to establish a HST. Normally employed in each pickup zone/LZ, the HST assists in the pickup, movement, and landing of helicopter-borne forces, equipment, and supplies and in evacuation of casualties and enemy prisoners of war.

(g) Fire Support Coordination System. The fire support coordination system is the means by which the MAGTF commander focuses all fire support elements, including air, to accomplish the mission.

- Roles. Each MAGTF element plays a part in fire support coordination.

- CE. The MAGTF CE implements the MAGTF commander's intent, focused on the deep operation. The MAGTF's fire support coordination center (FSCC) plans and coordinates fire support for deep operations, tasking elements to attack targets of MAGTF interest, establishing the FSCL, coordinating with joint/allied forces, and disseminating information. At the MEF level, these functions are carried out within the combat operations center and the force fires coordination center (FFCC) under cognizance of the G-3. Within other MAGTF CEs (SPMAGTF, MEU, and so forth), these functions are carried out in the COC under the cognizance of the operations officer.

- GCE. The size of the MAGTF involved largely determines the role of the GCE in fire support coordination. Higher echelons of command have greater capacity to conduct planning due to their larger staffs. Regardless of its size, the GCE has critical fire support functions. The GCE provides pertinent information, such as the location of friendly artillery units, fire support coordination measures, and enemy antiaircraft weapons, to other elements of the MAGTF directly or to the MAGTF CE for further dissemination, as required.

- ACE. The ACE provides the MAGTF air support. In addition to the Marine Corps aviation functions described above, the ACE disseminates target data, status of requested air support, and locations of friendly surface-to-air weapons to other elements of the MAGTF or to the MAGTF CE for further dissemination. The ACE receives targeting information, target guidance, and the fire support plan from the MAGTF. It also conducts detailed aviation planning to support the MAGTF commander's concept of operations, recommends objectives and target priorities to the MAGTF commander, and develops requirements for SEAD.

- CSSE. The CSSE commander is normally assigned responsibility for rear operations. Since no formal supporting arms coordination agency exists within the CSSE's rear area operations center (RAOC), the CSSE may be augmented with fire support representatives. These ad hoc FSCCs perform their tasks through coordination with the MAGTF FSCC and the GCE FSCC for fire support requests. As the battlefield extends, the RAOC may have to interface with the TACC.

- **FSCC.** FSCCs provide cohesion to the fire support process. An FSCC is a single location where communication facilities and personnel incident to the coordination of all forms of fire support are centralized. FSCCs are established at MAGTF level and at each GCE echelon down to battalion level. Under the staff cognizance of the G-3/S3, the fire support coordinator (FSC) organizes and supervises the FSCC, which is collocated with the COC. Normally, each FSCC will have an artillery liaison element, a TACP, an NSFS element, and other liaison/operating fire support teams as required. Higher-level FSCCs generally have a target intelligence element. The headquarters to which the FSCC belongs provides facilities, equipment, and materiel. Supporting arms units provide representatives and equipment necessary for conducting coordination, targeting, and communications functions for their respective arms.

b. MAGTF Fire Support.

(1) The MAGTF FSCC

(a) Conducts targeting functions to meet the MAGTF commander's intent and may form a targeting committee. In joint operations, targeting is conducted in conjunction with the JFC's targeting effort.

(b) Represents MAGTF at the JTF fire support meetings/conferences or JTCB and arranges for fire support liaison to other Services as required.

(c) Disseminates pertinent information to other elements of the MAGTF and to forces outside the MAGTF.

(d) Performs those functions required to coordinate/integrate supporting arms.

(e) Establishes reporting requirements, fire support coordination measures (including the FSCL), and procedures.

(f) Resolves fire support conflicts between other MAGTF elements when they cannot be resolved at lower levels.

(g) Provides inputs on the allocation of aviation and NSFS efforts.

(h) Requests and coordinates external fire support or target acquisition support with higher, adjacent, and joint/allied forces.

(i) Coordinates with the GCE's senior FSCC, MACCS, and the rear area operations center (RAOC) to achieve air-ground integration. In amphibious operations involving naval (that is, MAGTF and Navy) forces, the MAGTF FSCC is the landing force FSCC and provides the landing force representation to the CATF's supporting arms coordination center (SACC).

(2) MAGTF Air Officer (AO). Although not a part of the MAGTF FSCC, the MAGTF AO has several fire support duties. These include providing expertise and advice on aviation matters to the MAGTF commander and the FSCC; establishing liaison with the ACE, GCE air officer, and the air officers of higher and adjacent headquarters on aviation support and airspace management matters; determining MAGTF air support capabilities; preparing an aviation estimate of supportability; consolidating air support requirements; and preparing the air fire plan in the MAGTF operations order. In amphibious operations, the MAGTF air officer operates landing force stations in the SACC, works closely with the supporting arms coordinator, and maintains liaison with the air support controller (ASC) in the Navy TACC.

(3) MAGTF Target Information Officer (TIO). A member of the MAGTF FSCC normally performs the functions of TIO, which is needed on the MAGTF CE. When designated, the TIO heads the target information section (TIS) of the FSCC and, in amphibious operations, serves as the landing force TIO. The TIO uses information provided by the target intelligence officer (TGTINTELO), a member of the G-2 section, to perform targeting functions. During operations ashore, the MAGTF CE supports the GCE targeting effort and ACE mission planning by rapidly responding to their requests for target data.

c. GCE Fire Support.

(1) The GCE FSCC. The GCE's FSCC plans and integrates fire support within the GCE's area of influence. The FSCC conducts targeting; plans and coordinates the delivery of its organic fire support and the delivery of fire support provided by other means, such as NSFS, air, or EW; and integrates fires with maneuver in close operations. The FSCC coordinates with the other elements of the MAGTF and with adjacent external forces on fire support matters.

(2) The Targeting Committee. Because numerous and complex factors must be considered in the targeting process, the GCE commander needs advice from experts in several areas. The establishment and use of a targeting committee brings these specialists together as a matter of standard procedure.

(3) The TIS. The TIS serves as the primary source of target information in the FSCC. It is oriented to the tactical support requirements of the command and the target information requirements of the FSCC for planning fires. Specific functions of the TIS include maintaining target data and target/situation maps; maintaining current target lists, including countermortar, counterbattery, and SEAD information; publishing target bulletins; consolidating, evaluating, and displaying target information, along with recommending target classification and attack priorities to the FSC; collecting information pertaining to the results of attack on targets; and coordinating with the MAGTF TGTINTELO and artillery unit S2.

(4) The FSCC/DASC. The DASC collocates with the GCE's senior FSCC. In cases where the DASC cannot physically collocate with the FSCC, an air support liaison team from the DASC is typically used in the FSCC to facilitate information exchange and coordination between the DASC and FSCC. The FSCC/DASC organization is capable of planning and integrating supporting arms within the GCE's area of influence. The FSCC and the DASC require extensive information exchange.

(a) The FSCC provides the DASC with the commander's objectives and intent, friendly unit locations, positions of indirect fire weapons, scheme of maneuver, boundaries, fire support coordination measures, maneuver checkpoints, and the schedule of fires. The DASC also receives pertinent intelligence data, particularly data regarding antiair threats, air targets requiring terminal control that exceeds the GCE's organic TACP capability, and the status of terminal controllers within the GCE.

(b) The DASC provides the FSCC with aircraft to perform missions, aircraft routing plans, status of outstanding requests, changes to the ATO, UAV operations, MACCS operational status, and forward arming and refueling point status. The DASC also provides intelligence data (via IOW), including BDA and air defense warning conditions, to

the FSCC. Finally, the DASC also makes recommendations on air allocations and fire support control measures.

　　d. Division Fire Support.

　　　　(1) Division FSCC. The Marine Corps division may, in large-scale operations, be used as an operational headquarters and perform the role of the GCE, or it may be used as a sub-element of the GCE. When used as such, the division FSCC has a key role in targeting due to its much greater capability to collect and analyze target information. Division FSCC supporting arms representatives identify requirements, make estimates, and recommend the allocation of fire support means within the division. The commanding officer of the artillery regiment is the FSCC (division artillery officer is the division FSC) and is supported by the fire support coordination section, which provides liaison to division forces for artillery control and coordination. This section coordinates all supporting arms to support the scheme of maneuver or defensive plan.

　　　　(2) TIS. The TIS is normally formed upon activation of the FSCC during the initial planning phase. Its duties include target acquisition, dissemination of data, and attack recommendation and evaluation. The TIS is supervised by the TIO under the staff cognizance of the FSC and works closely with the TGTINTELO from the division G2 section.

　　　　(3) Division TACP. In the division TACP, one of the officers is a FAC-qualified naval aviator/flight officer. Additionally, there is an air support control officer. The division TACP is primarily concerned with executing air support and—

　　　　　　(a) Establishing and maintaining liaison and communications with appropriate control agencies.

　　　　　　(b) Informing and advising the ground unit commander on employment of aviation support, including antiair warfare and low-altitude air defense (LAAD).

　　　　　　(c) Preparing, forwarding, and coordinating air requests.

　　　　　　(d) Providing air support estimates.

　　　　　　(e) Prioritizing and resolving duplication and conflicting air support requests.

　　　　　　(f) Disseminating target information received through air support channels.

　　　　　　(g) Recommending fire support coordination measures as they relate to air support.

　　　　　　(h) Maintaining an air situation map.

　　　　(4) Naval Gunfire Section. The naval gunfire section establishes and maintains facilities for liaison and communications between supported units and appropriate control agencies. The section informs and advises the ground commander on the employment of NSFS, requests and controls NSFS, and controls radar beacon teams.

　　　　(5) Division Air Section. The division air section in the G-3 consists of the division air officer, assistant air officer, and two air controllers. The air section is not a part of the division TACP or the FSCC but works closely with both. The division air section—

　　　　　　(a) Advises the division commander and commanders of elements not having TACPs on matters concerning air support.

(b) Participates in development of operation plans and orders on matters pertaining to air employment.

(c) Participates with the FSC in targeting and determining type of support.

(d) Prioritizes and resolves conflicts in air support requests.

(e) Prepares, forwards, and coordinates air support requests.

(f) Relays pertinent information to other tactical air control agencies.

(g) Maintains close liaison with the DASC to assist in coordination of air support.

e. Regimental Fires Support. The regimental FSCC plays a key role in planning and using fire support. They assist the battalions in coordinating and granting clearances for fires delivered in the regiment's zone of action beyond the battalion's zone. They also coordinate ingress and egress routes for CAS missions when aircraft routes run through the zone of action of units adjacent to the unit requesting the mission. Fire support planning at the regiment attempts to influence future operations, normally 24 to 48 hours in advance of the current battle, and is significantly larger in scope than at battalion level. The regiment is normally the lowest level where commanders are allotted means to influence the battle significantly with fire support. The regimental commander selects as the FSC an officer having the requisite knowledge of fire support, usually the direct support artillery battalion liaison officer. Organization of the FSCC is similar to battalions, except that no forward observers or TACs are assigned.

f. Battalion Fire Support. Most fire support coordination in operations is done at battalion level. In battalion FSCCs, calls for fire and air requests from the companies are monitored/received and acted upon by appropriate supporting arms representatives. Requests are checked to ensure that supporting arms are integrated with the scheme of maneuver and that friendly forces are not needlessly endangered. The battalion FSC is the weapons company commander. A liaison section from a supporting artillery battery, an organic battalion TACP, a shore fire control party from the headquarters battery of the supporting artillery battalion, and a mortar liaison party from the battalion mortar platoon provide assistance. The senior air officer of the TACP acts in several capacities: as a special staff officer to the battalion commander in regard to all aviation matters, as the officer in charge of the battalion TACP, and as the air representative in the battalion FSCC. Separate battalions operating as maneuver elements establish an FSCC that functions in the same manner as an equivalent-level infantry unit FSCC.

g. Company Fire Support. A company does not have an FSCC, as such. The company commander, assisted by the artillery forward observer, mortar forward observer, and, if assigned, a TAC and NSFS spotter, performs the fire support coordination necessary at company level. Coordination between companies is essential for effective battalion-level fire support coordination. Such coordination reduces the frequency with which FSCC personnel must intervene to cancel or modify requests for supporting arms and frees them for tasks the companies cannot accomplish.

h. Liaisons. The MAGTF must ensure proper coordination and integration of Marine forces with joint and multinational forces. Representation on joint staffs and within joint agencies, to include liaison personnel, is essential to ensure proper employment of forces. The ACE commander, in exercising authority to command, control, and coordinate MAGTF

air operations through the Marine TACC, should ensure joint staff/agency and liaison representation to the joint force, the joint air operations center, and staffs of the joint force air component commander, area air defense commander, and the ACA. The MARLO to the JAOC is one example.

Example: Joint and multinational liaisons are extremely useful in enhancing MAGTF support to other Services and nations. It is normally desirable to exchange air command and control liaison personnel with multinational users of the ACE and/or the MACCS. The exchange of liaisons greatly facilitates coordination and control of aircraft and missiles within the MARFOR area of operations. Marine air traffic control liaisons are examples of liaisons typically used in joint and multinational operations.

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6. Joint Force Functional Capabilities

The Marine TACC, equipped with TBMCS equipment and having access to the communications systems necessary to coordinate and distribute the joint ATO, is capable of hosting JAOC functions. The TACC's ability to perform this function can be described as an enabling or transitional capability. The TACC can host JAOC functions as the joint force's first principal air command and control system in theater with the intention of passing JAOC functions to another air command and control agency as the tempo of air operations increases. The TACC could also serve as a pass-through agency in situations where JAOC functions are being passed from afloat to ashore or vice versa. As is the case with all JAOCs, service liaisons and subject matter expert representatives that reflect the makeup of the joint force are necessary to staff a TACC-hosted JAOC. Similar considerations should be applied to the TACC when performing ACA or AADC functions.

A typical theater air defense organization includes an AADC whose duties include: coordinating the employment of theater air defense systems to optimize joint force air defense assets; building a seamless air defense architecture; recommending ROE to the JFC on air defense matters; and developing the joint force's air defense plan. Factors often used to determine whether to subdivide the joint force's air defense area into regions are: the geography of the joint operations area (including size and terrain), number and capabilities of air defense resources, and tempo of joint air operations. If air defense regions are established, the AADC typically designates regional air defense commanders (RADC) to oversee the implementation and supervise execution of the air defense plan. In turn, the regions may be further subdivided into sectors, with each sector under the supervision of a SADC responsible to an RADC. Like the AADC, RADC and SADC functions are supervisory in nature. These individuals exercise oversight and direction of all air defense operations within their assigned region/sector and coordinate air defense operations between regions and sectors to ensure seamless air defense operations throughout the joint operations area. Within the MACCS, the SADC or TAOC will provide the JFC with the capabilities to function as a RADC or SADC. The TAOC provides the SADF with the voice and data communications connectivity necessary to effect the necessary interfaces to coordinate and supervise regional and sector air defense activities. The considerations addressed for joint/allied representatives and liaisons for a Marine JAOC apply equally to RADC and SADC functions.

7. Air Command and Control in Amphibious Operations

In situations where an amphibious objective area is established, a phased passage of air command and control functions from afloat to ashore may occur. The phasing of the control ashore process, where NTACS functions are incrementally phased to MACCS agencies as they establish ashore, is discussed in detail in Appendix C.

8. Warfighting Doctrine

The Marine Corps' warfighting doctrine is based on rapid, flexible, and opportunistic maneuvers. Maneuver forces seek to shatter the enemy's cohesion through a series of rapid, violent, and unexpected actions. Marine Corps aviation operations support MAGTF operations. The combined arms concept integrates various combat arms to maximize combat power. This power presents the enemy with a no-win situation. To reduce vulnerability to one arm of the combined power, the enemy must become vulnerable to another. The organization employed to accomplish this is the MAGTF, with C2 of air-ground tasks supplied by the MACCS and the fire support coordination system. The Marine Corps' unique organization allows forces to operate as a TAGS within a TAGS.

Chapter VI

THEATER AIR-GROUND SYSTEM OPERATIONS

1. Background

The preceding chapters describe how the JFC organizes and controls the joint force and how the various components contribute to the TAGS. This chapter describes how the TAGS supports air-ground planning, targeting, tasking, execution, and combat assessment. It concludes with a discussion of TAGS air defense operations.

2. Joint Force Commander Influence

The JFC influences the structure and the direction of TAGS in several ways, to include designating a JFACC, ACA, and AADC, by assigning missions and apportioning forces.

a. The basic duties and responsibilities of the JFACC, ACA, and AADC remain the same regardless of whether the MARFOR, NAVFOR, or AFFOR performs the function. However, as explained in previous chapters, the MARFOR and NAVFOR JAOC capacity is limited, and this has a direct bearing on the size of liaison elements. Table VI-1 indicates functional equivalency (equivalent capacity not implied) of TAGS agencies across the Services. This, along with information in Chapters 2-5, can be helpful in understanding where and how assets interface with various JFACC options.

Table VI-1. Functional Equivalents of TAGS Elements

NAVY	MARINE	AIR FORCE	ARMY
	TACC	AFAOC	
ADC	TAOC	CRC	
SADC	EW/C	CRC	
CG/DDG	LAAM		ADA
SACC	FSCC		FSE
ASCS	DASC	ASOC	
	TACP	TACP	FIST
	TAC(A)	TAC(A)	FO
HAWKEYE		AWACS JSTARS	

b. The JFC directs the weight of the joint air effort by providing guidance, objectives, targeting priorities, joint target list (JTL) planning guidance, procedures, appropriate command and movement control, joint fire support coordinating measures, ROE, and what defines component direct support sorties. This guidance will also include the JFC's apportionment support.

c. Apportionment (air) is the determination and assignment of the total expected effort by percentage and/or priority that should be devoted to the various air operations (for example, strategic attack, air interdiction, counterair/antiair, maritime support, and CAS) for a given period of time. Apportionment impacts all aspects of TAGS operations. The JFACC, in consultation with other component commanders, is responsible for the air apportionment recommendation to the JFC. Each component commander may be tasked to support other components and/or to provide support to the joint force as a whole. The JFC's

guidance and objectives, with the accompanying apportionment decision, are disseminated to all components.

3. Planning and Execution

Component C2 elements are combined to form the TAGS. Joint force components must work together in planning and executing joint air operations that accomplish JFC-assigned objectives, comply with JFC guidance, and satisfy various component commanders' requirements. The challenge to personnel working within TAGS is to operate a system responsive to all components and supported echelons to accomplish the JFC's campaign objectives.

a. Figure VI-1 overlays varying methodologies affecting the TAGS and the conduct of joint air operations. To be effective, the joint targeting process and the Joint ATO cycles must be synchronized.

(1) Targeting is the process of selecting targets and matching the appropriate response to them. The objective of the joint targeting process is to ensure an effective and efficient joint attack against the enemy with all available assets maximized to achieve the overall objective. Targeting is complicated by the requirement to deconflict duplicative targeting by different forces or different echelons within the same force and to synchronize the attack of those targets with other components of the joint force.   The six steps of the joint targeting process are depicted in Figure VI-1.

(2) Decide-Detect-Deliver-Assess (D3A). D3A is the targeting methodology used by the Army and Marine Corps. D3A follows the same logic as the joint targeting process but in four steps instead of six. The arrows surrounding the joint targeting process in Figure VI-1 represent D3A.

(3) The joint ATO cycle and the joint targeting process are not synonymous. The joint ATO cycle is used to provide efficient and effective employment of all joint air assets for all air missions to include AI and CAS. Because AI and CAS are inextricably tied to the joint targeting process, the ATO cycle and targeting processes must correlate. The six steps of the joint ATO cycle are also shown in Figure VI-1.

b. Each component is involved in this methodology. Components determine support requirements and make sorties not needed by the service component available to the JFC for tasking by the JFACC.   In addition to generating air support requirements, all components participate in operational planning and mission execution. The JFACC performs a key role in this process as the functional component commander responsible for planning, coordinating, deconflicting, and directing joint air operations.
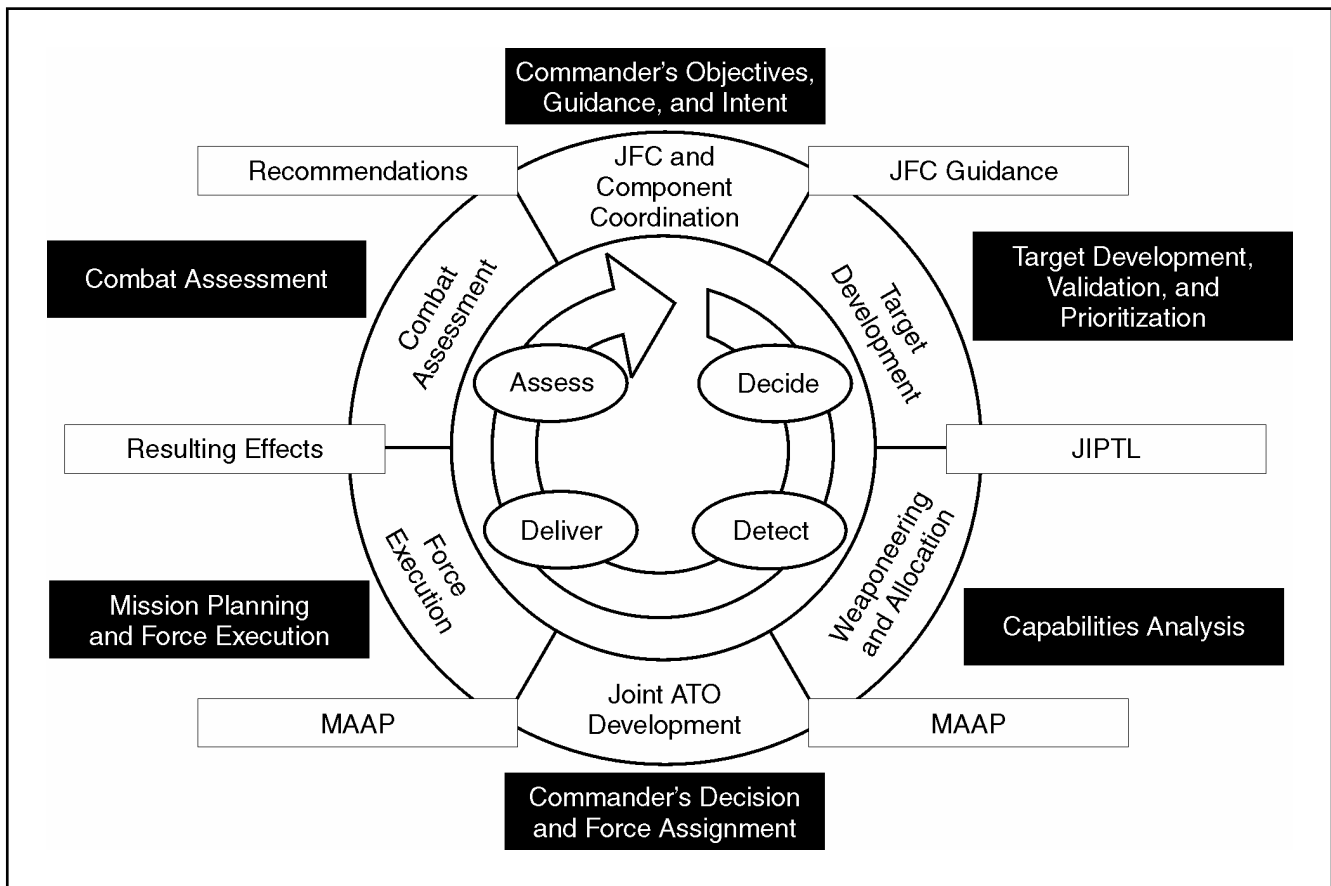
Figure VI-1. ATO Cycle Overlaid on Targeting Cycles

4. Component Considerations

The following considerations pertain to the JFC's determination of sorties available for joint tasking:

a. **Army Considerations.** Rotary-wing aircraft have unique characteristics that often make it difficult to integrate them into an ATO. They can conduct multiple takeoffs and landings in a single fuel load and often shut down on the ground for a period of time before resuming their mission. They are critical to the execution and success of the land commander's operations and often provide the decisive edge during fluid, volatile, and changing situations. It is important to integrate all Army aviation missions into the TAGS and ATO processes for situational awareness, when possible.

b. **Maritime Component Considerations.** When an amphibious operations area (AOA) is established, the CATF maintains overall authority for operations within the AOA and exercises command authority over the entire amphibious force (AF). The CATF will consolidate Marine Corps air requests within ATF resources and will internally obtain Navy air support from the supporting CVBG. The CVBG will inform the CATF if there is a problem in supporting the CATF's requirements. The CATF will then submit the unfulfilled air support requirements to the JFACC. Once control is passed ashore, the

MAGTF/commander will request air support in excess of the MAGTF's direct air support capabilities from the JFACC, as required.

c. Air Force Component Considerations. All Air Force component assets, with the exception of intertheater airlift assets, will normally be available for JFC/JFACC tasking. Intratheater airlift will remain an Air Force component responsibility and will be requested through the Joint Movement Center (JMC) and tasked through the COMAFFOR. The AFAOC and AME will coordinate planned airlift operations with the JFACC/ACA/AADC. Initial CSAR is currently a service responsibility. The JFACC will coordinate with the joint search and rescue center (JSRC) and component rescue coordination center as appropriate for the conduct of CSAR air operations.

d. SOF Considerations. Normally, all SOF operations are planned, controlled, and executed by the JSOTF. SOF will not normally be tasked to conduct joint air operations. However, because SOF operate deep, planners must consider the ongoing and future operations of all components to take advantage of operational synergies. All sorties flown by SOF should appear on the ATO for deconfliction and coordination purposes.

5. ATO Cycle

A joint ATO cycle provides for the effective and efficient employment of available joint air capabilities/forces. The cycle (Figure VI-2) provides a repetitive process for planning, coordinating, allocating, tasking, and assessing joint air missions/sorties within the guidance of the JFC. The cycle accommodates changing tactical situations or JFC guidance as well as requests for support from other component commanders. The joint ATO cycle is an analytical, systematic process that matches available capabilities/forces with missions to achieve operational objectives. The joint ATO cycle begins with the JFC's air apportionment process and culminates with the combat assessment of previous missions/sorties.

a. While an ATO itself covers a specific period, the ATO planning process is continuous. At any given time, an air operations center and liaison elements will be working with several ATOs: assessing previous days' operations, executing the current day's operation; planning for tomorrow's operation; and forecasting, coordinating, and planning the follow-on days' operations. The long-range planners, working on the third day out, develop apportionment and targeting recommendations for the JFC. Figure VI-2 depicts how the ATO cycles overlap. The fact that three or more ATOs may be in different stages of development at any given time means communications pertaining to the ATO must be precise. The timing of the JFC's apportionment decision and ATO cycle allows the supported component commander to inform subordinates of their respective priorities for the air effort. The ATO phases are: JFC/Component Coordination, Target Development, Weaponeering/Allocation, ATO Production, Force Execution, and Combat Assessment (JP 3-30).
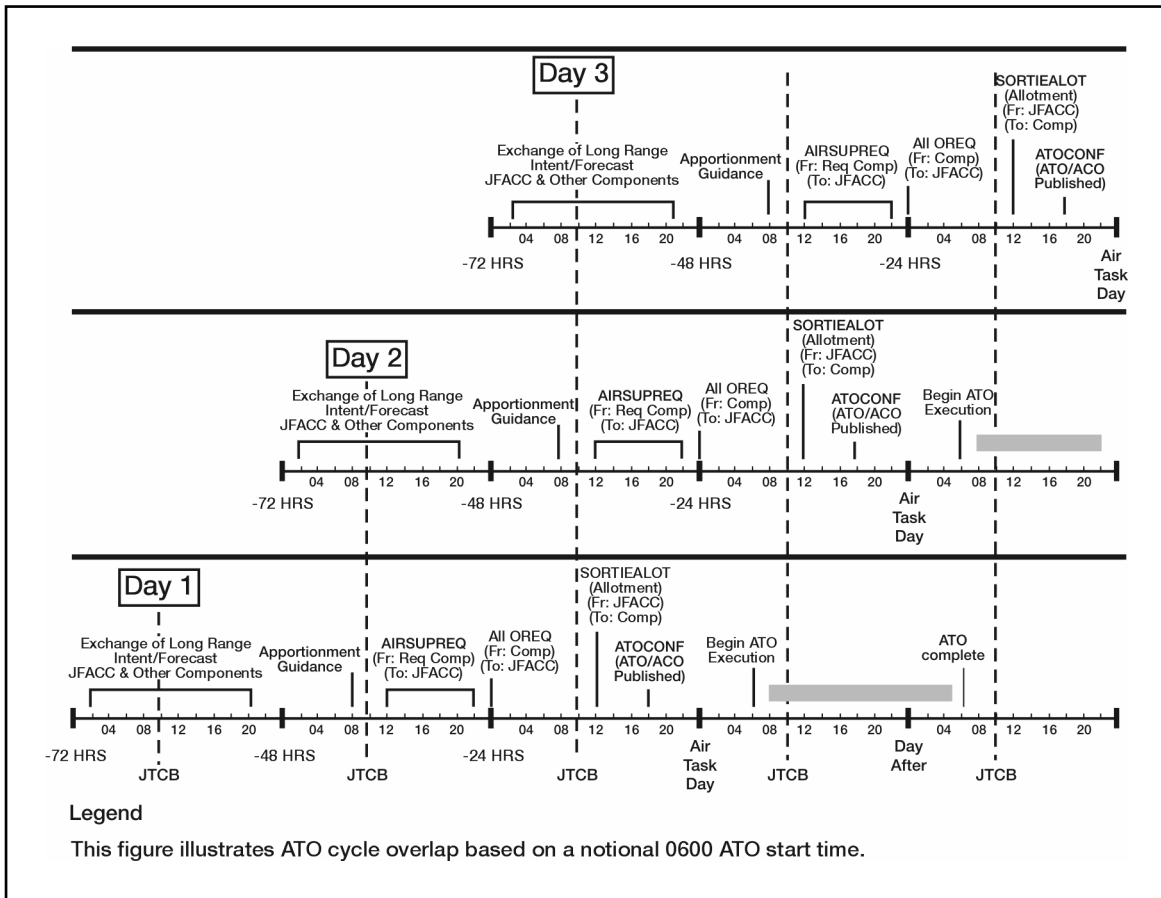
Figure VI-2. ATO Notional Timeline

b.   JFC/Component Coordination. The JFC/component coordination phase starts with receipt of the JFC's guidance and objectives that are normally received 36-48 hours before the beginning of the air tasking day. The JFC normally informs the components of his apportionment decision through a guidance and intentions message. Based on the daily air operations directive (AOD), the units respond with allocation request messages (ALLOREQs) to tell the JFACC just what they will be able to support.

c.   Target Development. Target Development produces a draft prioritized list of targets—the draft JIPTL—that supports the objectives and conforms to guidance. This is normally accomplished by the Guidance, Apportionment, and Targeting (GAT) team. This phase culminates when specific targets are approved and included in the joint ATO and assigned to forces available for joint air operations. Components may use the Target Information Report (TGTINFOREP) to nominate targets, submit post strike assessment information, and report data changes to existing targets. Components also use this message to recommend no-strike targets and to cancel or renew targets.   Supported components of the joint force prepare preplanned target requests for the next air tasking day with the air support request (AIRSUPREQ) message. These are transmitted to the air operations center no later than 24 hours before the air tasking day (0600L) or earlier as directed by theater OPLAN or by the JFC.

d. Weaponeering /Allocation. Weaponeering/allocation involves quantifying the expected results of lethal and nonlethal weapons employment against targets on the JIPTL. This means detailing, on "weaponeering" worksheets, recommended aim points or desired mean points of impact (DMPI), recommended number/type of aircraft and weapons, fusing, target identification and description, target attack objectives, target area threats, and probability of destruction. The final prioritized targets are then included in the MAAP. The resulting MAAP is the plan of employment that forms the foundation of the joint ATO. As additional information regarding the requested target becomes available, the requesting component will forward the information to the tasked component. Requesters must be able to differentiate between the terms "preplanned," "immediate," "scheduled" and "on-call."

(1) The terms "preplanned" and "immediate" refer to the requests themselves. Preplanned requests are those submitted in time to be published in the joint ATO. Immediate requests fulfilling operational requirements are submitted too late to be published in the daily joint ATO.

(2) Scheduled missions refer to those missions in the ATO with specific set targets, time-on-target (TOT) or mission times, target descriptions, target coordinates, and weapons standard conventional load (SCL) identifiers.

(3) On-call missions require the exact time and place to be coordinated as the battle develops. On-call CAS or AI, for instance, allow the requesting commander to indicate a time frame, probable target type, and place where the need for CAS or AI is most likely. Aircraft are placed on an appropriate alert status (on the ground or airborne) and then employed when requested by the supported unit. Aircraft used to fill immediate requests normally come from on-call missions established for this purpose. Supported commanders are advised to submit preplanned requests for on-call missions to ensure availability of sufficient sorties with appropriate ordnance to respond to subordinate units' immediate requests.

(4) The allocation portion occurs following the JFC's air apportionment decision. The JFACC translates that decision into total numbers of sorties by aircraft or weapon type available for each operation/task they support. The allocation process is not complete until the Master Air Attack Plan (MAAP) is complete. The allocation process is accomplished through exchange of allocation request (ALLOREQ) messages between components. These messages address three areas:

(a) On the basis of the JFC's air apportionment decision, internal requirements, and AIRSUPREQ messages, each air capable component prepares an allocation request (ALLOREQ) message for transmission to the JFACC/JFC staff (normally not less than 24 hours prior to the air tasking day). ALLOREQ messages report the number of sorties to be flown during the air tasking day by assigned mission and type of aircraft.

(b) Sorties not needed by the service component and available to the JFC for tasking by the JFACC.

(c) Requests for additional air support beyond the capability of the air components.

(5) The JFACC reviews each service component's ALLOREQ message and transmits a sortie allotment (SORTIEALOT) message for transmission 12-18 hours before the air tasking day (1200L) or as prescribed by theater plans. This message informs all commands

which mission requests will be fulfilled and which will be delayed during this cycle. The SORTIEALOT message addresses three issues:

(a) Revisions to a service component's planned allocation of sorties due to unforeseen joint force requirements.

(b) Approval/disapproval of component requests and allotment of other components' excess sorties to fill the approved air support requests or other requirements for the joint force. (Note: The sorties provided to the JFACC for tasking are considered returned to the parent service component if the JFACC does not allot them in a SORTIEALOT message.)

(c) Revisions to mission data for component requests such as a changed mission priority or TOT which usually result from coordination between the components and the JAOC staff.

(6) CAS Sortie Distribution. The JFACC allocates total numbers of sorties to a given mission based on the JFC's apportionment decision. Sorties assigned as CAS missions are then provided to the LCC who makes the distribution decision. This is a further subdivision of the allocation process in which sorties allocated to CAS are distributed among the various ground combat units.

e. ATO Production. The joint ATO is used to monitor and assist in the execution of missions, to monitor supporting missions and activities, to manage unforeseen problems caused by the fog of war, and to respond to approved immediate support requests. The joint ATO helps to focus the intelligence collection management process for theater and component intelligence assets. It is valid for a specified effective period, normally a 24-hour period (for example, 0600 local (L) hours to 0600L hours). The joint ATO conveys C2 instructions, coordination guidance, deconfliction instructions, and specific mission information. Mission information includes primary and backup targets, TOT or alert windows, refueling data, radio frequencies, and weapons load guidelines.

(1) ATO production is a complex process in which JFC and JFACC guidance, including the air operations directive, target worksheets, the MAAP, and component requirements are used to finalize the ATO/SPINS/ACO. Airspace control and air defense instruction must be provided in sufficient detail to allow components to plan and execute all missions listed in the ACO. Twelve hours before the air tasking day begins (1800L), the JFACC transmits the entire plan for the tasked day's operation. This may be accomplished using either an ATO/confirmation (ATOCONF) message or the request confirmation message (REQCONF).

(2) The ACO, discussed in Appendix A, is often transmitted with an ATO. Daily planning for air employment is a complex process involving land, sea, and air operations personnel in the JAOC, ASOC, DASC, and other C2 facilities. (See Appendix A for information on how to "break out" an ATO; see JP 3-30 for more information on ATO development.)

f. Force Execution. The JFACC directs the execution and/or deconflicts all air capabilities/forces made available for a given joint ATO. The JAOC must be responsive to required changes during the execution of the joint ATO. In-flight reports and initial BDA may cause a redirection of joint air capabilities/forces before launch or a redirection once airborne. During execution, the JAOC is the central agency for revising the tasking of joint air capabilities/forces and coordinating and deconflicting those changes with the

appropriate control agencies or components. When a need arises that cannot be met with assigned scheduled or on-call missions, supported commanders may make an immediate request, which may be satisfied at the expense of other scheduled or on-call assets. Priority is determined by the JFC's campaign plan and overall concept of operations. The JFACC will notify the affected component commanders, as appropriate, in the event changes are made to the planned joint air operations during execution.

g. Combat Assessment. CA is accomplished at all levels. The JFACC or JFC staff continuously evaluates the results of joint air operations and provides the results to the JFC for consolidation and overall evaluation of the campaign. These results provide the inputs for process reinitiation through updated guidance from the JFC and JFACC, subsequent target development, weaponeering/allocation, force execution, and CA until the desired end state is achieved.

(1) Normally, the JTF's J-2 directs the actual dissemination guidelines for all reports. Whenever feasible, reports should be provided directly to the JFACC, JFC, and the initial requester to assist in air operations planning. The introduction of reconnaissance pod systems into the service component inventories and the retirement of dedicated reconnaissance aircraft produce competition for the same airframes for CA missions or for the delivery of ordnance. Changes to the joint ATO must be closely coordinated with intelligence data collection to ensure that changes to targets and TOTs are incorporated into the CA plan.

(2) CA collection requirements must be determined during target prioritization. Component commanders should recommend priorities for the CA efforts and/or areas for which they have responsibility. The CA effort should be a joint program designed to determine if the required target effects are being achieved for each of the components, consistent with the JFC's overall concept. Mission results obtained through the multitude of CA sources are analyzed and provide the JFC, JFACC, and other senior commanders feedback on the success of the JFC's campaign.

6. Defensive Counterair

a. Air defense includes all defensive measures designed to destroy attacking enemy aircraft or missiles in the earth's envelope of atmosphere, or to nullify or reduce the effects of such attack. The desired end state of an effective air defense effort is to allow friendly forces freedom of action by gaining air superiority at the desired time and place of the commander's choosing. An effective theater air defense system includes those resources and procedures necessary to provide the JFC with the ability to detect, identify, and destroy enemy air threats, whether by manned or unmanned aircraft or by theater missiles. Unity of effort and the tenet of centralized control and decentralized execution are necessary to meet this end. Air defense can be either passive or active in nature.

(1) Passive air defense provides individual and collective protection for friendly forces and critical assets. Passive air defense is the responsibility of every commander in the joint force. Elements of passive air defense include early warning; camouflage, concealment, and deception; hardening; dispersion; reconstitution; and redundancy. Passive air defense measures do not involve the employment of lethal weapons, but do improve survivability.

(2) Active air defense is direct defensive action taken to destroy, nullify, or reduce the effectiveness of hostile air and missile threats against friendly forces and assets.

Integrated employment of air-to-air and surface-to-air weapon systems is necessary to counter enemy attacks through coordinated detection, identification, assessment, interception, and engagement of air and missile threats. A rapid, reliable, and secure means of identification within the airspace control area is necessary to the survival of friendly forces.

b. Command Relationships. The JFC uses air defense operations to protect friendly forces from attack by manned/unmanned aircraft and missiles. The JFC will provide guidance and objectives, including apportionment decisions; establish ROE; and designate air defense priorities for the joint force.

(1) JFC Staff. Within the function of AAD, the joint force staff will assist the JFC by: coordinating with the AADC (if designated) and joint force command, control, communications, computers and intelligence (C4I) systems planning for the acquisition and dissemination of defense warning information; deconflicting AAD with other operations; providing logistical support for AAD; and preparing long-range plans for AAD.

(2) AADC. The JFC normally designates an AADC with the authority to plan, coordinate, and integrate overall joint force DCA operations. Normally, the AADC is the component commander with the preponderance of air defense capability and the command, control, communications, computers, and intelligence (C4I) capability to plan, coordinate, and execute integrated air defense operations. When a JFACC is designated, the JFACC will normally be assigned to function as AADC since these two functions are interrelated. The JFC will also define the support relationship between the AADC and supporting commanders. Components will provide representatives, as appropriate, to the AADC's headquarters to provide specific weapon systems expertise as well as broader mission expertise. The responsibilities of the JFACC, AADC, and ACA are interrelated and are normally assigned to one individual, but they may be assigned to two or more individuals when the situation dictates. Based on the situation, if the JFC decides not to assign the JFACC, AADC, or ACA as one individual, then close coordination between all three positions is essential.

(3) Component Commanders. Appropriate component commanders provide the AADC with surface, air, and sea-based active air defense capabilities and forces to implement the air defense plan. Component commanders generally retain OPCON of their forces and capabilities and will employ them in accordance with the air defense plan and the weapons control procedures and measures established by the AADC.

c. Air Defense Plan. The AADC, with the support and coordination of the service and functional commanders, develops, integrates, and distributes a JFC-approved joint air defense plan. The air defense plan integrates the active air defense capabilities of the joint force's components to provide a responsive air defense system that will achieve both operational and tactical objectives. The air defense plan reflects the priorities established by the JFC. Because air defense and airspace control and management are inherently related areas, the air defense plan and the airspace control plan should be developed in tandem to avoid conflicts. Among the items addressed in the air defense plan are (this list is not exhaustive):

(1) Sensor employment.

(2) Identification procedures.

(3) Engagement procedures.

(4) Airspace control measures.

(5) Weapons control procedures.

(6) Weapons system employment.

(7) Tactical interface (for example, TADIL) design.

(8) Dissemination of early warning.

d. Air Defense Operations. The depth and breadth of AAD and the inherent ability for air defense targets to cross component areas of operations make air defense operations a joint endeavor. The AADC, in coordination with component commanders, recommends establishment of air defense regions to the JFC. The number of regions and RADCs may vary depending upon geographical, political, and operational factors such as friendly forces, geography, threat, and the concept of operations. For example, the AADC may recommend that an Aegis cruiser perform RADC duties for the maritime region of the joint operations area. Air defense regions may be further subdivided into sectors, with sector air defense commanders (SADCs) coordinating activities within their sector. See Figure VI-3 for an example of region and sector air defense assignments.
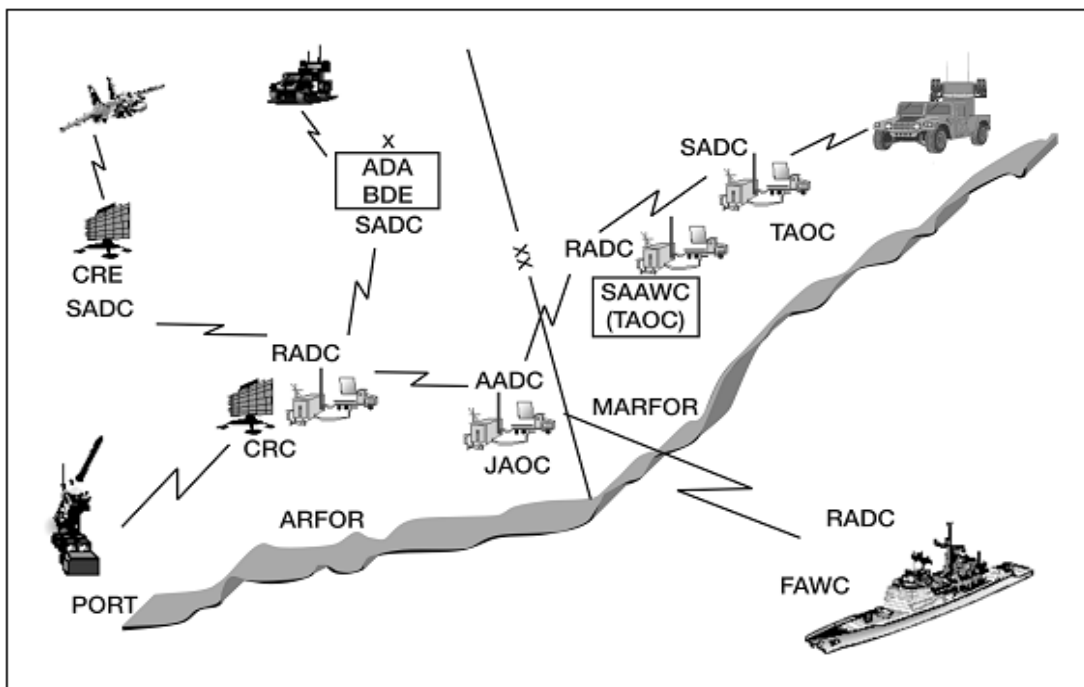
Figure VI-3. Notional Area Air Defense Organization

(1) Tactical Operational Data. In conjunction with the air defense plan, the AADC periodically publishes a tactical operational data (TACOPDAT) message to establish air defense responsibilities in a tactical area or to provide supplementary air defense orders to an AOR, to include air defense procedures. Among the information included in the TACOPDAT are unit designations for RADCs and SADCs; methods of control; identification

authority and procedures; and updates to fighter, missile, and/or joint engagement zones. The latter procedures should be coordinated with the ACA and included in the ACO and SPINS portions of the ATO.

(2) Execution.

(a) The AADC, RADC, and SADC have the ability to coordinate active air defense operations at the lowest level necessary. The concept of the AADC delegating authority to the RADC/SADC to execute operations promotes coordinated operations and economy of force, while allowing decisions to be made at the lowest possible level. This reduces the reaction time to threats and the likelihood of friendly losses.

(b) Based on the JFC's air defense priorities, and other factors including available resources, the AADC builds an air defense plan designed to optimize the joint force's air defense capabilities against enemy air attack. When employing the various resources, the AADC considers factors such as the mutual support that support units provide each other against the threat, and destruction in depth (the ability to engage the enemy as far from its target as possible and to continue to engage the enemy threat with various weapons until the target is destroyed). The JFACC allocates aircraft to perform defensive counterair missions based on the JFC's apportionment decision. The AADC typically allocates missions to each RADC to perform defensive counterair functions. RADCs in turn distribute missions to subordinate SADCs, depending on expected threat actions within their sector. SADCs may further distribute defensive counterair missions to air defense control agencies within their sector. It is the responsibility of the controlling agency to execute the air defense mission through the coordination, control, and integration of aircraft and surface-to-air weapon systems under their direction.

(c) RADCs and SADCs coordinate air defense actions between regions and sectors; evaluate the results of engagements within their sector or region and forward observations and results of engagements to the AADC; request from the AADC or direct (when authorized) changes to air defense alert and weapons release conditions commensurate to the threat; and when required, request additional air defense assets from the AADC. In turn, the AADC provides RADCs with guidance and direction for air defense warning conditions, weapons release conditions, and changes to the ROE; and allocates additional resources (as necessary) or requests additional airborne air defense coverage from the JFACC.

(3) Common Operational Picture. Air defense actions, although designed to prevent enemy air attacks on friendly forces, should also prevent fratricide. Many positive and procedural methods exist to minimize the chances of friend-on-friend engagements including airspace control measures; identification, friend or foe (IFF); and positive hostile identification devices. A common frame of reference is an absolute necessity for air defense units to integrate actions and minimize the chances of fratricide. The common frame of reference is provided through two media: the air tasking order and the common operational picture. The ATO provides all users with a plan for air operations, delineating IFF modes and codes, routes of flight, and mission/target areas. The common operational picture combines information from various sensors and reporting devices to build a comprehensive air, ground, and sea picture of the battlespace. Air defense units contribute to the common operational picture through the theater's data link architecture.

(4) A coordinated, comprehensive data link picture is necessary to minimize chances of fratricide while enhancing early warning and engagement control and coordination. The

AADC periodically publishes the Operational Tasking Data Links (OPTASKLINK) message to establish relationships, configurations, coordination procedures, and other information necessary to conduct data link operations.

7. Interdiction

a.   The purpose of interdiction is to attack the enemy's ability to fight primarily by targeting their tactical and operational infrastructure. Appropriate interdiction targets may include, but are not limited to, surface forces, C4I systems, installations and facilities, transportation and supply systems, lines of communications (LOCs), and other vital resources and infrastructure. The objectives of interdiction are diversion, disruption, delay, and destruction of enemy surface military potential by either lethal or nonlethal means before it can be used effectively against friendly forces.

b.   AI operations are air operations conducted to destroy, neutralize, or delay the enemy's military potential before it can be brought to bear effectively against friendly forces. AI generally occurs at such distance from friendly forces that detailed integration of each air mission with the fire and movement of those forces is not required.

c.   The JFC ultimately approves the integration of joint interdiction operations with execution of other joint force operations. To ensure unity of command and effort throughout a theater and/or JOA, the JFC normally delegates the planning and execution of theater- and/or JOA-wide interdiction operations to the component commander with the preponderance of interdiction assets within range and with the ability to control them. For a more detailed discussion on interdiction operations see JP 3-03.

8. Conclusion

The preceding chapters and paragraphs have described the joint force, service component, and functional component procedures and systems for air-ground operations. The TAGS is not a formal system in itself but the sum of various component air-ground systems. The TAGS enables the delivery of the maximum amount of combat power to the desired place at the right time. To accomplish this, everyone working within the TAGS must understand each component's capabilities, limitations, and contributions to the overall system as well as competing and overlapping mission requirements. Everyone must strive to make the TAGS work by knowing what is required to make the system work, including system requirements and who to contact when coordination is necessary. This document should assist TAGS practitioners in this process.

Appendix A

JOINT AIRSPACE CONTROL PROCEDURES

1. Basic Airspace/Weapon Systems Control Principles

a. The airspace of the combat zone is a crucial dimension of the battlespace and is used by all components of the joint and combined forces. A high concentration of friendly surface, subsurface, and air-launched weapon systems must share airspace. The primary goal of airspace control is to enhance air, land, maritime, and special operations force effectiveness in accomplishing the JFC's objectives.

b. Common combat zone airspace control procedures within the joint force AOR/JOA enhance the effectiveness of air operations. These procedures need to allow maximum flexibility through an effective mix of positive and procedural control measures. The control structure needs to permit close coordination between air, land, maritime, and special operations forces (SOF) and allow rapid concentration of combat power in a specific portion of airspace in minimum time.

c. Procedural control needs to be uncomplicated and readily accessible to all aircrews, air traffic controllers, air defense weapons controllers, and airspace controllers. Airspace control procedures must prevent mutual interference from all users of the airspace, facilitate air defense identification, and safely accommodate and expedite the flow of all air traffic in the theater of operations.

2. Deconfliction of Joint Air Operations and Joint Weapon System Engagements

a. Close coordination is required to deconflict airspace use with regard to joint weapon system engagements. All airspace control agencies involved in the area of joint fires should work together as a network to deconflict airspace use and avoid fratricide. Effective planning of joint fires is crucial to ensure that control agencies are informed of preplanned joint fires. The joint targeting coordination board (JTCB) conducts a key step in planning airspace deconfliction of joint fires. The JTCB approves the joint fires plan, ensuring that all air operations are deconflicted. However, real-time coordination with airspace control agencies and C2 nodes is often necessary in fluid situations to ensure deconfliction.

b. Airspace deconfliction methods range from positive control of all air assets in an airspace control area to procedural control of all such assets, with any effective combination of positive and procedural control measures between the two extremes. Airspace control plans and systems need to accommodate these methods based on component, joint, and national capabilities and requirements. Full positive control relies on radars and other sensors; identification, friend or foe (IFF)/selective identification feature (SIF); digital data links; and other elements of the air defense network C4 system to positively identify, track, and direct air assets. Full procedural control would rely on previously agreed to and promulgated airspace control measures such as comprehensive air defense identification procedures and rules of engagement, low-level transit routes (LLTR), minimum-risk routes (MRR), minimum-risk levels, aircraft identification maneuvers, fire support coordinating measures, and coordinating altitudes. In any case, all missions remain subject to the ACO. A list of procedural airspace control measures with an accompanying description, discussion

of uses, and considerations is contained in JP 3-52, Appendix B, "Procedural Airspace Control Measures."

3. Integration of Combat Zone Airspace Control and Air Defense, Command and Control, and Air Battle Management Operations

a.   Integration of combat zone airspace control and air defense, command and control, and air battle management (also referred to as tactical-level command and control) is also vital to successful joint/multinational air operations. Because combat zone airspace control and air defense activities would conflict and interfere with each other if operating independently, prioritization and integration of each mission is essential. Ultimately, the airspace control function must be performed in close conformity with air defense operations. Airspace control procedures assist in aircraft identification, facilitate engagement of enemy aircraft, and provide safe passage of friendly aircraft. While the ACP provides general guidance on the airspace control function, the ACO implements airspace control procedures for specified time periods and is distributed as part of the ATO or as a separate document. Normally, the ACO is published and distributed daily and contains modifications to guidance and/or procedures in the ACP. The ACP activates and deactivates procedural control measures and updates positive control procedures, including management of all transponder modes/codes.

b.   Procedures for developing the ACO are included in the ACP. Component commanders consolidate, deconflict, and forward their airspace requests to the ACA by a specified time for further consolidation with other theater-wide inputs. The ACA then integrates all input, resolves any conflicts among the components, and prepares the ACO for distribution.

4. Airspace Control Order

a.   The ACO defines and establishes special purpose airspace for military operations as deemed necessary by the appropriate military authority. It notifies all agencies of the effective time of activation and the composite structure of the airspace to be used. The ACO may include air routes, base defense zones, coordinating measures/lines, drop zones, pickup points, restricted areas, etc. If a new area is established or an existing area deleted, a new message should be sent.

b.   Highly flexible airspace control procedures need to be devised to anticipate the perceived threat. The procedures should allow coordinated employment of air and land or maritime air defense systems against the threat and use the inherent flexibility of air defense airborne platforms to mass forces to meet the enemy attackers. However, the problem of separating friendly and enemy aircraft during the heat of battle and employing land- or maritime-based air defenses against these enemy elements is a highly complex task.

c.   Therefore, combat zone airspace control should be fully integrated with air defense, command and control, and air battle management activities to avoid confusion. Close coordination between all air control agencies is essential to ensure mission success and to minimize the potential for fratricide.

5. Examples of Airspace Control Measures

a. **Coordinating Altitude.** The coordinating altitude is the altitude below which fixed-wing aircraft normally will not fly and above which rotary-wing aircraft normally will not fly. It may include a buffer zone for small altitude deviations, and extends from the forward edge of the communications zone to the forward line of own troops (FLOT). Fixed- or rotary- winged aircraft planning extended penetration of this altitude will notify the appropriate airspace control facility. However, approval acknowledgment is not required prior to fixed-wing aircraft operating below the coordinating altitude or rotary-wing aircraft operating above the coordinating altitude (see Figure A-1).

b. **Restricted Operations Area (ROA)/Restricted Operations Zone (ROZ).** ROZs and ROAs are synonymous terms for defining a volume of airspace set aside for a specific operational mission or requirement. This procedure restricts some or all airspace users from this area until termination of the mission. It is normally used for drop or landing zone activity, search and rescue operations, SEMA, etc. Controlling authority requirements for the ROA/ROZ are similar to those required for a high density airspace control zone (HIDACZ) (see Figure A-2).
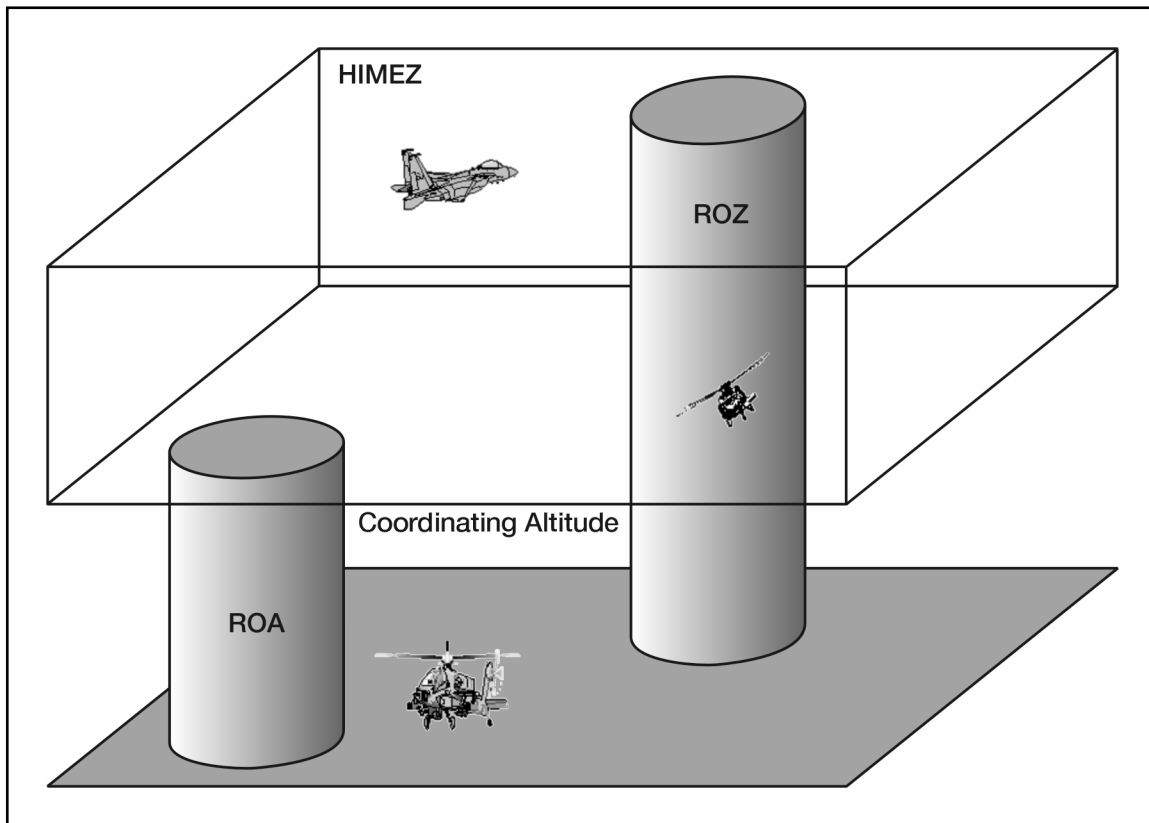
Figure A-1. Coordinating Altitude, HIMEZ, ROA, and ROZ

c. **HIDACZ.** HIDACZ is a defined area of airspace with a concentrated employment of weapons and airspace users. The zone has defined dimensions that usually coincide with geographical features/navigational aids. Access to an air defense weapon control status within a HIDACZ is normally controlled by the requesting authority (see Figure A-2).

d. Standard Use Army Aircraft Flight Routes (SAAFRs). SAAFRs are routes established below the coordinating altitude to allow the Army commander to safely route movement of his aviation assets performing combat support and combat service support missions. Although jointly recognized, these routes do not need airspace control authority approval. SAAFRs normally are located in the corps through brigade rear areas but may be extended to support logistics missions (see Figure A-2).
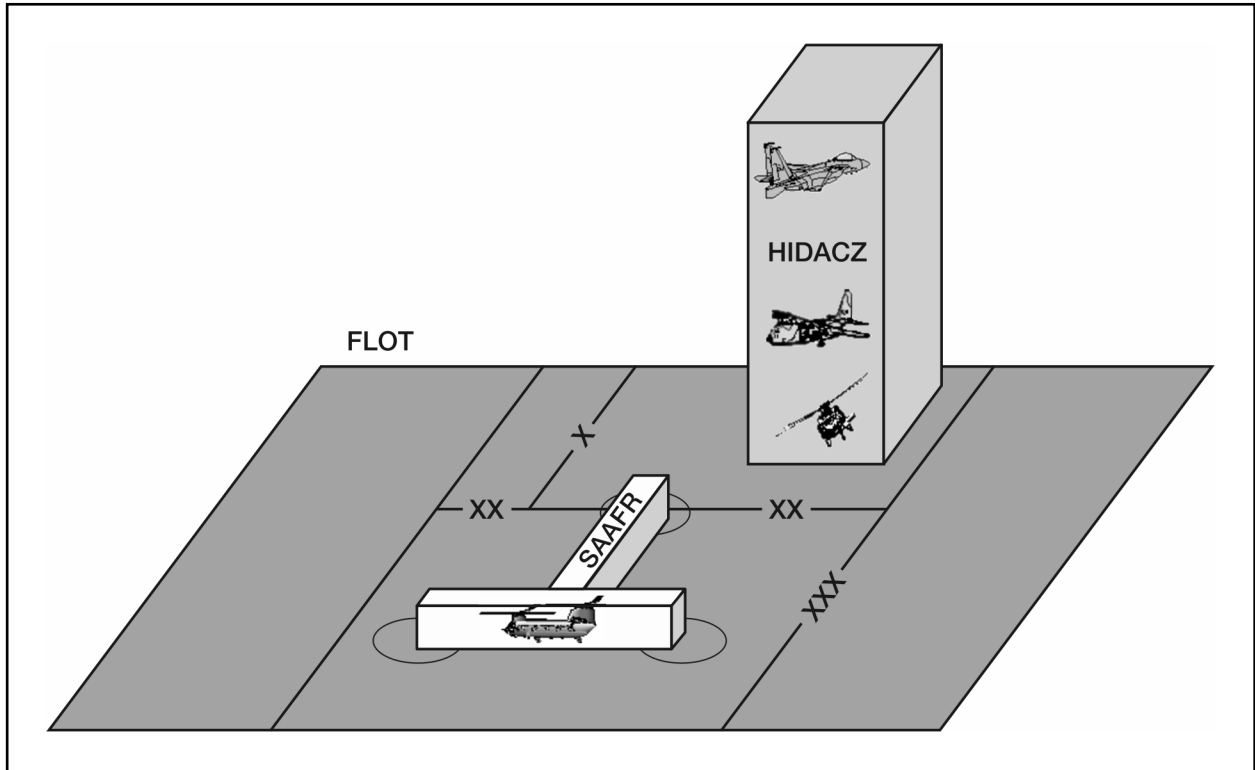
Figure A-2. SAAFR and HIDACZ
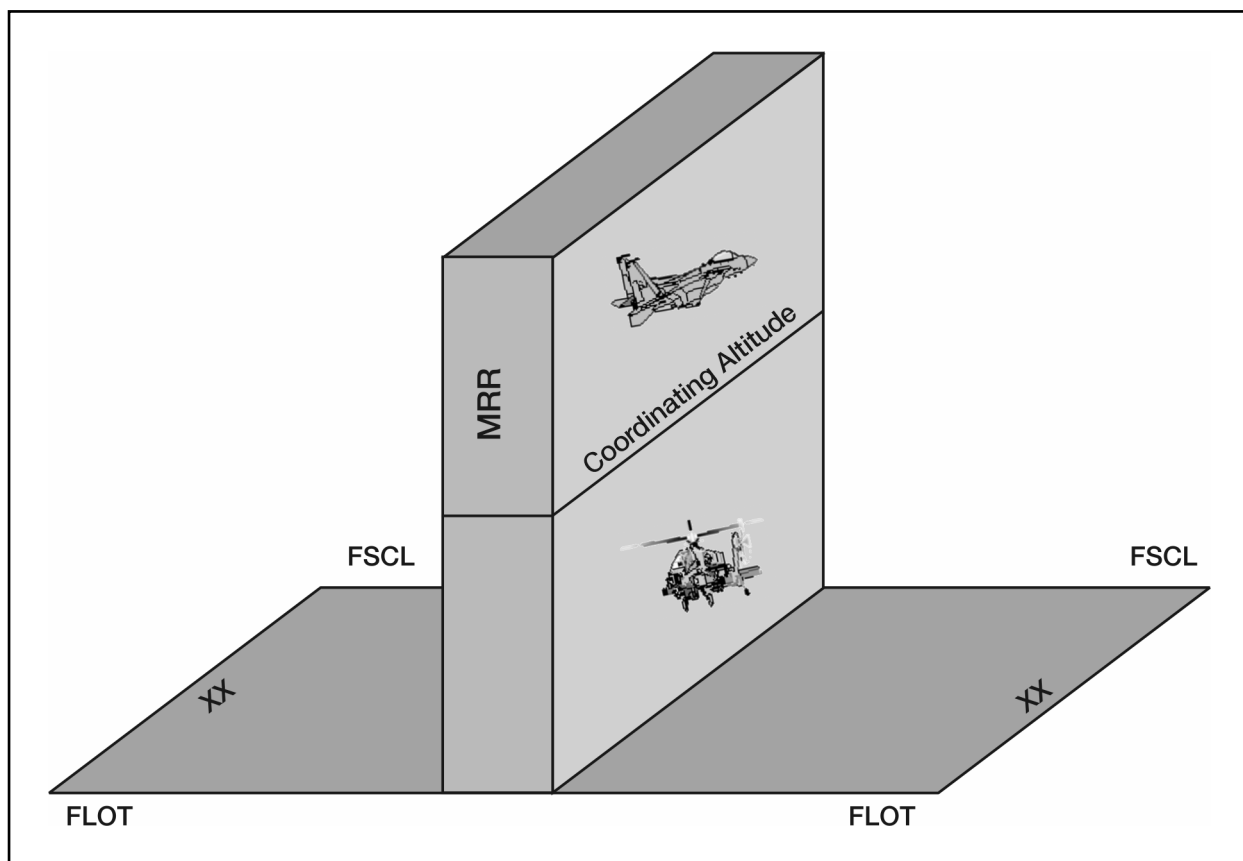
Figure A-3. Minimum Risk Routes

e.   Minimum Risk Routes (MRRs). MRRs are temporary corridors of defined dimensions recommended for use by high-speed, fixed-wing aircraft that presents minimum known hazards to low flying aircraft transiting the theater airspace. MRRs normally extend from the corps rear boundary to the FSCL. Low level transit routes (LLTRs) are employed in a similar fashion in NATO (see Figure A-3).

6. Examples of Fire Support/Airspace Coordination Measures

a.   Formal Fire Support/Airspace Coordination. Established by the FSCOORD with inputs from the ALO at the appropriate level of command and control. Formal measures are included in the fire support plan and passed to the BCD, who then coordinates with the JAOC for inclusion in the ACO. Coordination is achieved using boundaries and permissive or restrictive measures.

(1) Boundary. A line that defines areas of responsibility between adjacent units/formations.

(2) Permissive Measures.

(a) Coordinated Fire Line (CFL). A line beyond which conventional or improved conventional indirect fire means (that is, mortars, field artillery, and naval gunfire) may fire at any time within the zone of the establishing headquarters without additional coordination.

(b) FSCLs are permissive fire support coordinating measures. They are established and adjusted by appropriate land or amphibious force commanders within their boundaries in consultation with superior, subordinate, supporting, and affected commanders. Forces attacking targets beyond an FSCL must inform all affected commanders in sufficient time to allow necessary reaction to avoid fratricide, in the air and on the ground. FSCLs facilitate the expeditious attack of targets of opportunity beyond the coordinating measure. Supporting elements may attack targets beyond the FSCL, provided the attack will not produce adverse effects on, or to the rear of, the line. The FSCL is not a boundary—the synchronization of operations on either side of the FSCL is the responsibility of the establishing commander out to the limits of the land or amphibious force boundary.

(c) Free Fire Area (FFA). A designated area in which any weapon system can fire conventional or improved munitions without additional coordination, and which is normally established on identifiable terrain.

(3) Restrictive Measures.

(a) No-Fire Area (NFA). An area where no fires or the effects of fires are allowed without prior clearance from the establishing headquarters, except if the commander's force must defend against an engaging enemy force within the NFA.

(b) Restrictive Fire Area (RFA). An area where specific restrictions are imposed and into which fires that exceed those restrictions are prohibited without prior coordination from the establishing headquarters.

(c) Restrictive Fire Line (RFL). A line established between converging forces that prohibits fires or the effects of fires across the line without coordination from the establishing headquarters.

(d) Airspace Coordination Area. A three-dimensional block of airspace where friendly aircraft are reasonably safe from friendly surface fires.

b. Informal Fire Support/Airspace Coordination. Informal fire support/airspace coordination consists of procedures to deconflict aircraft from other fire support assets, primarily artillery. Informal measures are established by the terminal attack controller in response to the FSCOORD's fire support plan, and are implemented for a short period of time to permit CAS operations. Informal measures are heavily dependent upon good FSCOORD-ALO interface.

(1) Heading Offset. Terminal attack controller selects an initial point (IP) and specifies the lateral offset from the IP to the target run-in to deconflict fighters from other supporting aircraft.

(2) Heading Direct. Terminal attack controller selects an IP so that the IP to the target run-in is deconflicted from other supporting fires by at least two nautical miles either side of the centerline. The use of the word "direct" after giving the magnetic heading denotes the heading is a restriction.

(3) Informal airspace coordination area. Terminal attack controller establishes a three-dimensional area for a specific time period where fighters can operate reasonably safe from friendly surface fires. While it should be established along easily identifiable terrain features, it can be established using grid lines.

(4) Maximum or Minimum Ordinate (MAX or MIN ORD). Terminal attack controller obtains the MAX or MIN ORD of supporting fires. MAX ORD will be used to fly above low angle artillery and MIN ORD will be used to fly under high-angle artillery. Summit will be used when operating with NSFS.

(5) Target-to-Gun Line (TGL). Terminal attack controllers provide the fighters with the artillery impact area and the TGL for the fighter to avoid.

(6) Gun-to-Target Line (GTL). Terminal attack controllers provide the fighters with the artillery location and the GTL for the fighters to avoid.

(7) Shift/Check Fire. Terminal attack controllers work with the FSCOORD to shift supporting fires for a short time to another area so CAS operations can occur reasonably safe from friendly fires. While uncommon, supporting fires can also be checked in order to permit cyclical operations between artillery and CAS assets.

7. Examples of Air Defense Measures

a.   Air Defense Action Area. An area of airspace where friendly aircraft or surface-to-air weapons are given preference in operations except under specific conditions.

b.   Air Defense Area. A specifically defined airspace for air defense.

c.   Air Defense Identification Zone (ADIZ). Airspace of defined dimensions that requires the ready identification, location, and control of airborne vehicles. This zone is normally the transition between procedural control (outside) and positive control (inside) in an area of operations.

d.   Air Defense Operations Area. An area of airspace where mutual interference between air defense and other operations is minimized. It may include designation of one or more of the following: air defense action area, ADIZ, and/or firepower umbrella.

e.   Weapons Engagement Zone (WEZ). Airspace of defined dimensions where the responsibility for engagement rests with a particular weapon system. Some examples of WEZs are:

(1) Fighter Engagement Zone (FEZ). Airspace of defined dimensions where the responsibility for engagement rests with fighter aircraft.

(2) High Altitude Missile Engagement Zone (HIMEZ). Airspace of defined dimensions where responsibility for engagement rests with high altitude air defense SAMs.

(3) Joint Engagement Zone (JEZ). Airspace of specific dimensions where friendly SAMs and fighters are simultaneously employed.

(4) Low Altitude Missile Engagement Zone (LOMEZ). In air defense, that airspace of defined dimensions where the responsibility for engagement rests with low to medium SAMs.

(5) Short Range Air Defense Engagement Zone (SHORADEZ). In air defense, that airspace of defined dimensions where the responsibility for engagement rests with short-range air defense weapons. It may be established within a LOMEZ or a HIMEZ.

f.   Weapons Free Zone (WFZ). An air defense zone established for the protection of key assets where weapons systems may be fired at any target not positively identified as friendly.

Appendix B

TOMAHAWK LAND ATTACK MISSILE OPERATIONS (TLAM)

1. C2 Relationships

A joint force operation requires TLAM integration into the unified commander's C2 architecture. Figure B-1 illustrates the normal integration for TLAM campaign C2.
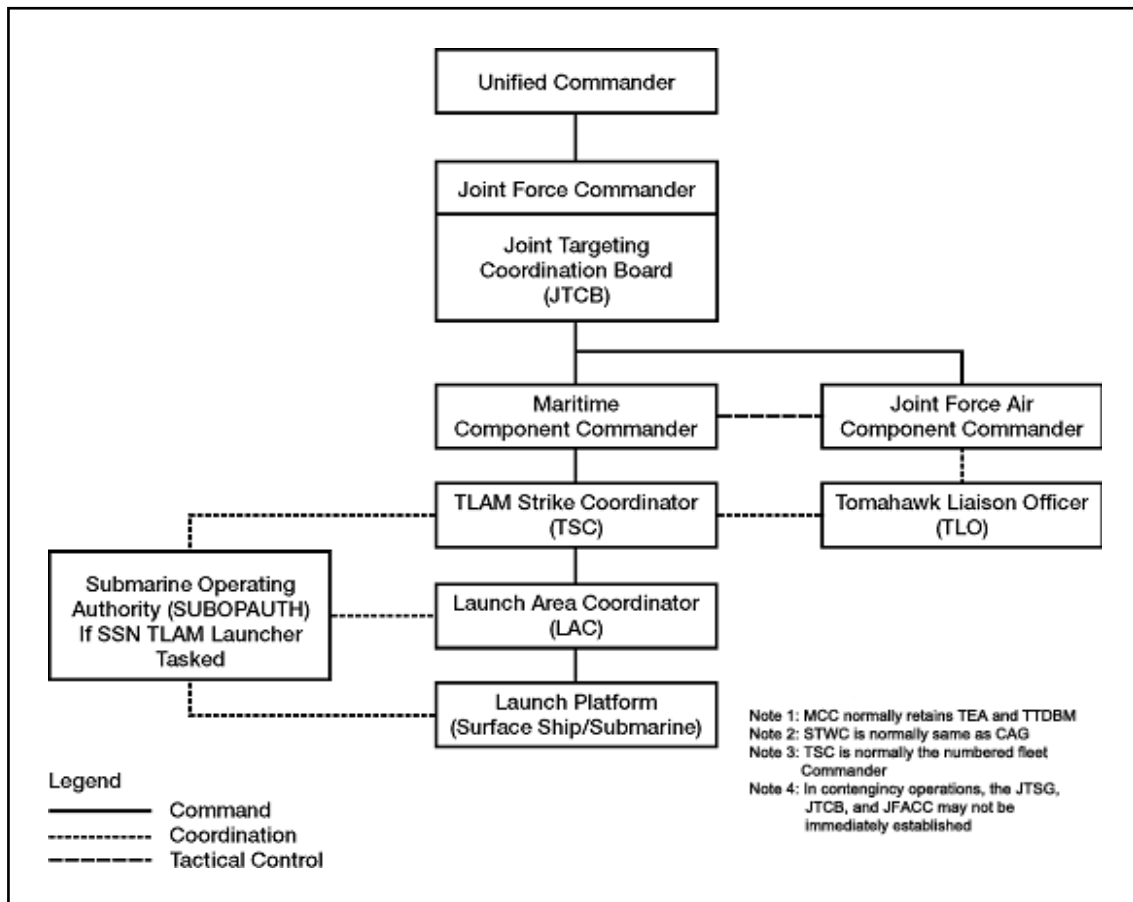
Figure B-1. Tomahawk Campaign Command and Control

2. Staff Elements and Coordination Functions.

a. Staff Elements. The following paragraphs explain a series of staff elements and coordination functions to ensure the successful completion of a TLAM operation, from the identification of the initial target list to the actual missile launch.

(1) Maritime Component Commander (MCC). The MCC is the principal naval advisor to the JFC and is responsible for all naval activity in a joint force operation. During TLAM contingency operations, the MCC acts as the direct conduit from the President,

Secretary of Defense, or unified commander through the TLAM strike coordinator (TSC) and launch area coordinator (LAC) to the TLAM launch platform. The MCC provides liaison officers to the JFACC and other coordination agencies to synchronize naval contributions to the JTF mission. The unified commander normally appoints the MCC to act as the Tomahawk executive agent (TEA) responsible for all aspects of theater Tomahawk operations. The battle group commander is responsible for tasking in-theater afloat planning system (APS) detachments. This tasking is coordinated with the cruise missile support activity via the MCC.

(2) TEA. The TEA has overarching responsibility for Tomahawk logistics, strike planning, mission data distribution, and all supporting functions. The TEA may delegate all, some, or none of the duties and authority for these functions, including the duties of managing the master mission library (MML) of Tomahawk missions, Tomahawk command information (TCI), and asset management data to a Tomahawk tactical data base manager (TTDBM). In normal practice, the MCC retains these duties. The TTDBM is not a separate commander or coordinator; it is a duty assigned for continuity to an agent who is always in the theater. It is possible that the TEA could appoint one or more subordinates as TSCs, responsible for Tomahawk operations in different parts of the same theater of operations.

(3) CVBG Commander. The CVBG commander ensures effective execution of naval missions including TLAM missions tasked by higher authority. The MCC could designate the CVBG commander to perform the duties of the TSC. Subordinate warfare commanders support the TSC in executing TLAM strike duties. The APS detachment reports directly to the CVBG commander, unless the CVBG commander delegates authority for the APS to a subordinate commander. The CVBG commander is responsible for prioritizing mission planning requests (MPRs) tasked to attached APS detachments. The CVBG commander has approval authority for APS missions planned in response to MPRs. For APS missions planned in response to MCC or combatant commander tasking, the CVBG commander reviews and forwards the missions for approval by the tasking commander prior to distribution.

(4) TSC. The TSC is the designated agent (appointed by the MCC/TEA) responsible for all TLAM strike planning, coordination, and reporting in a strike or series of strikes. The actual designation and location of the TSC is determined on a case-by-case basis, based on the following factors:

(a) Specific scenario requirements.

(b) Commands involved and their relative levels of expertise in Tomahawk strike planning.

(c) Degree of TLAM involvement in the operation.

(d) Availability of, and access to, required communications and TLAM planning support system.

(e) Proximity and access to JFACC TLAM strike planners.

NOTE: There may be multiple TSCs in the same theater. For example, Commander, Sixth Fleet, could assign the responsibilities of the TSC to a subordinate unit, if operating as a separate JTF in the Gulf of Sidra, while retaining the responsibilities of the TSC for a task group operating in the Adriatic Sea.

(5) Depending on the frequency and complexity of TLAM operations, face-to-face meetings with TSC, JFACC, and strike warfare commander (STWC) may be required. At a minimum, the TSC must be located at a site with a mission distribution system (MDS) node. Robust, viable communications must be available between the TSC and the MCC, JFACC, warfare commanders, LACs, and firing units. In a joint force operation, TSC liaisons are placed with the JFACC, MCC, battle group (BG) and AF commanders, subordinate warfare commanders, and appropriate ground force commanders to ensure that the TLAMs are effectively integrated into daily operations. In a contingency operation, the TSC carries out the strike guidance provided in the unified commander's alert and execute orders. A major concern in this effort is deconfliction of missile fly-out routes. For TLAM missions in support of an AOA or whose launch position, flight route, or target area is located within the AOA, the TSC must obtain BG commander concurrence before executing the missions. The LAC, as the TSC's single point of contact (POC) for TLAM matters, usually conducts necessary liaison with the CATF.

(6) Tomahawk Liaison Officer (TLO). The TLO integrates TLAM planning and operations with the JFACC. The TLO is trained and provided by the theater MCC and/or TSC. The TLO interacts with both combat plans and combat operations in a manner similar to other component liaison elements. The TLO is the central liaison POC for all aspects of TLAM employment at the JFACC and works for the MCC. Integration begins during the earliest strategic planning and continues through master air attack plan (MAAP) development, ATO production, and strike execution. Integration concludes with battle damage assessment analysis and restrikes. TLOs support TLAM operations, including strike and mission planning, database management, and familiarity with MCC organization and procedures. In addition to manning, the MCC provides TLAM-unique support requirements such as MDS, electronic Tomahawk planning package (ETPP), computer, and TCI net.

(7) LAC. The LAC is the TSC's principal agent, responsible for leading the execution of TLAM strike operations. Candidates for LAC should have access to ETPP or MDS, and sufficient communications capability with the TSC and all Tomahawk platforms. The LAC coordinates on-scene requirements and has the authority to control launch platform maneuvers and stationing in TLAM launch areas. If large distances, e.g., Eastern Mediterranean, Red Sea, and Arabian Gulf, separate launch areas, a LAC may be assigned to each geographic area to ensure effective execution of TLAM launch operations. After determining which command(s) is best situated to direct execution of the strike plan, the TSC makes the assignment.

NOTE: Submarines should only serve as LACs for strikes restricted to submarine-only launches. Submarines do not have the communications and surveillance capabilities available on a flagship or a surface Tomahawk ship and may not hold all of the TCI required for coordination.

(a) The LAC should know support (submarine) operations coordinating authority (SOCA), submarine operating authority (SUBOPAUTH) procedures, and concerns. The LAC should promptly contact the SOCA for guidance and assistance in contacting and directing submarines to their launch areas. For TLAM operations in an AOA, the LAC should provide the CATF specific TLAM mission information. This information should include TLAM AOA entry points, flight corridors and altitudes, waypoints within the AOA, first preplanned waypoint coordinates and outbound heading, target locations (if within the AOA), and timeframes in which missiles will be in the AOA. In the LAC intentions message, firing units should be advised of the composition of the AOA, including dimensions and altitudes, forces assigned to support the amphibious objectives, and deconfliction actions necessary in the area. This information should be provided to the LAC from the CATF. When possible, the LAC should station firing units to minimize TLAM flights through the AOA. If TLAM targets are located within the AOA, the LAC and the CATF inform the TSC of any deconfliction issues. The TSC and LAC must deconflict overwater routes prior to first preplanned way point for surface and subsurface units. The TSC and LAC must provide notice to ships in applicable Tomahawk maneuver areas.

(8) STWC. The STWC is responsible to the BG commander for executing strikes tasked by higher authority. In joint operations, emphasis shifts from responsibility for developing Navy-executed strike operations to coordinating joint strike operations prepared by the JFACC. The STWC liaises with the TSC to facilitate coordination, deconfliction, and execution of TLAM and tactical air strikes. Table B-1 depicts Tomahawk C2 responsibilities.

Table B-1. Tomahawk Functional Responsibilities		
Title	*Function(s)*	*Command*
JTSG	Strategic target list Apportionment guidance	Unified combatant command staff element
JTCB	JIPTL ROE compliance Apportionment guidance	JFC staff element
JFACC	ATO ACO	Air component commander
TEA	Designate TSC Promulgate CONOPS Designate TTDBM Implement Forward Pass procedures through TTDBM	Maritime component commander

Table B-1. Tomahawk Functional Responsibilities		
Title	*Function(s)*	*Command*
TSC	TLAM campaign with JFACC LSP Mission planning requests INDIGO TLAM strike cell oversight Advance deconfliction	Maritime component commander or BF/BG commander
TLO	Liaison between MCC and JFACC for TLAM employment issues	Maritime component commander or BF/BG commander
LAC	Launch coordination/preparation/execution oversight Over-water airspace deconfliction of the immediate area Consolidated reports	BF/BG commander Destroyer squadron commander Launch platform commander

b. Coordination Functions.

(1) Launch Sequence Plan/INDIGO/Firing Report Messages. A launch sequence plan assigns targets, numbers of missiles, and time on target so firing units can execute the launch. INDIGO messages authorize/direct firing units to launch their missiles. Firing reports indicate the number of missiles each firing unit successfully launched.

NOTE: For Tomahawk, the ATO is authority for the release and employment of TLAM by the TSC, but the firing units must still receive the launch sequence plan and INDIGO messages, which direct them to launch.

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(2) Missile and Mission Management. Staff planners use TCI in preparing for Tomahawk strike operations. TCI includes missile and mission data furnished by mission planning sites through MDS tapes, ETPP disks, and hard copy messages. TCI provides the C2 information required to employ the TLAM missions written on the data transport devices (DTDs) held by firing units. MDUs can update TCI and DTDs from MDS nodes, which electronically relay new information to firing units and staffs. The TEA using the mission verification index, which is a listing of missions, may promulgate theater requirements for TCI and mission data and TCI required for support of theater strike plans.

(3) Communications. TCI data is required for staff planning, strike planning, and firing unit engagements planning. Voice circuits designated for use as TLAM strike coordination nets accomplish tactical coordination. These nets need not be dedicated to TLAM strike planners, but must be readily accessible to the TSC, LAC, and firing units. Hard copy record message traffic is employed to issue the TSC's launch sequence plan, warning orders, INDIGO mission orders, and post-firing reports. Tomahawk in-flight position reporting system missiles use UHF fleet satellite communications channels to relay position and status information to firing units.

Appendix C

TRANSITION SEA-BASED & LAND-BASED JFACC

1. Overview

In the course of conducting exercise or contingency air operations, it may become necessary to transfer JFACC responsibility for planning and executing the ATO. This appendix provides the basic requirements for conducting that transfer. Specifically, it identifies the different scenarios under which a transfer would occur, the data required to ensure that the new JFACC can immediately assume planning activities, the methods and timeline in which to conduct the transfer, and special considerations affecting the transfer. The theater combatant commanders and their respective CONOPS should specify theater-specific JFACC transfer procedures. The methods for conducting JFACC transition described in this appendix assume reader familiarity with TBMCS terminology.

2. Scenarios

Since we cannot dictate the conditions for all contingency operations, it is impossible to predict which service may initially assume JFACC responsibility in a given situation. Once the operation is underway, conditions/objectives may require a transfer of JFACC responsibility from the initial unit/service. A transfer of JFACC responsibilities from one service or command center to another may be required in any theater of operations at any time. Operationally, seven transfer scenarios are possible: (1) USAF to USN, (2) USN to USAF, (3) USAF to USMC, (4) USMC to USAF, (5) USN to USMC, (6) USMC to USN, (7) same service transfer.

3. Data Requirements

All JAOCs should use this information to plan for such transfer operations and tailor the procedures as the environment changes. This will ensure that the gaining JFACC will be able to assume responsibility for ATO production and execution with minimum disruption to air operations.   Timing of file transfers is situation dependent, but where possible, should follow the ATO planning cycle. These procedures assume that the gaining JFACC will already have a mature intelligence database for the theater and that the JFACC will manually synchronize the database with the intelligence data transferred from the relinquishing JFACC. The general data elements required to transfer JFACC responsibility are as follows:

a. Planning data (Advanced Planning System [APS]).

b. Airspace data (Airspace Deconfliction System [ADS]).

c. Operations data (Computer-Assisted Force Management System-X Windows [CAFMS-X]).

d. Targeting data (Joint Targeting Toolbox [JTT]).

e. Order of battle (OB) data (SAA/TBMCS; NIPS/JMCIS).

f. Configuration/security data.

4. Method of Transfer

Transfer of the nonintelligence databases (APS, ADS, CAFMS-X, configuration/security) occurs primarily through a simple backup and recovery file procedure, although a master system backup and recovery procedure can also be used. Both functions are compatible among all systems/scenarios. This is not true, however, for the transfer of intelligence data. Due to the incompatibility of the intelligence systems used, special procedures are required to transfer the necessary intelligence tables between systems.

5. Notional JFACC Transfer Timeline

a. Transfer of data occurs along the ATO timeline. This process can be summarized as follows:

    (1) JFC guidance.

    (2) RECCE inputs.

    (3) Component target nominations (Candidate Target Lists [CTL]).

    (4) Target nomination list (TNL).

    (5) Airspace deconfliction (ACO).

    (6) Planning Stage (air battle plan—[ABP]).

        (a) JFACC Guidance.

        (b) MAAP.

        (c) Support sortie development (AETACS, alert).

        (d) ATO production/component direct sorties.

        (e) Airspace adjustments to support MAAP.

        (f) Transmit ATO/ACO (assumes JFACC approval).

        (g) Transfer ATO to operations.

        (h) Execute ATO (CAFMS-X).

b. Procedures are based on the notional JFACC data transfer plan based on a 24-hour planning cycle. Based on this example, the JFACCs would:

Table C-1. Sample JFACC Transfer Plan	
DAY 0	Gaining JFACC receives JFC guidance Relinquishing JFACC transfers intelligence collection management plan (nonautomated) and current intelligence and planning data to new JFACC
DAY 1	Gaining JFACC builds the TNL for ATO K (Table 2)
DAY 2	Gaining JFACC combat plans uses the TNL and transferred planning data to build the ABP and produce ATO K (Table 2)
DAY 2-3	Between Day 2 and 3, execution authority is transferred from the relinquishing JFACC to the gaining JFACC.
DAY 3	Gaining JFACC executes ATO K

c. There are numerous variations to this plan (Table C-1). In an emergency JFACC transfer, all data could be sent simultaneously. To facilitate unplanned JFACC transfers, it

may be necessary to perform daily backup, storage, and/or transfer of data to possible gaining JFACC locations.   Table C-2 reflects a sample data transfer schedule:

Table C-2. Sample JFACC Data Transfer Schedule					
	DAY 0	*DAY 1*	*DAY 2*	*DAY 3*	*DAY 4*
CJTF Guidance	**K**	L			
RECCE	J	**K**	L		
CTL	J	**K**	L		
TNL	J	**K**	L		
ACO	I	J	**K**	L	
ABP	I	J	**K**	L	
Execute	H	I	J	K	L
Data Required (Para 3. Above)	(E), (D), (B), (A), (F)	(C), (B)	(C), (B)		

6. Transfer of Intelligence Database

The military intelligence integrated database (MIDB) is the standard database for General Military Intelligence, Orders of Battle, and some target intelligence. The gaining JFACC should also receive local files from the relinquishing JFACC's JTT. If planned correctly, the MIDB permissions to read-write to the targeting fields through JTT will already be established as well as other appropriate MIDB fields. MIDB replication will ensure that national, theater, and component databases are the same.

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GLOSSARY

ABBREVIATIONS AND ACRONYMS

A

A2C2	Army airspace command and control
A/A	air to air
AAA	antiaircraft artillery
AAD	area air defense
AADC	area air defense commander
AAGS	Army air-ground system
AAMDC	Army Air and Missile Defense Command
AAW	antiair warfare
ABP	air battle plan
AC	air corridor
A/C	aircraft
ACA	airspace control authority; airspace coordination area
ACC	Air Combat Command
ACE	aviation combat element (MAGTF)
ACO	airspace control order
ACP	air control point; airspace control plan
ADA	air defense artillery
ADAFCO	air defense artillery fire coordination officer
ADC	air defense commander
ADIZ	air defense identification zone
ADP	air defense plan
ADS	air defense sector
AECT	aeromedical evacuation control team
AF	Air Force
AFAOC	Air Force air and space operations center
AFARN	Air Force air request net
AFATDS	Advanced Field Artillery Tactical Data System
AFDC	Air Force Doctrine Center
AFFOR	Air Force forces
AFLE	Air Force liaison element
AFSOC	Air Force Special Operations Command
AFSOF	Air Force special operations forces
AI	air interdiction
AIRSUPREQ	air support request

AIRTASK	air tasking
ALCT	airlift control team
ALLOREQ	allocation request
ALO	air liaison officer
ALSA	Air Land Sea Application center
ALT	altitude
AMC	Air Mobility Command
AMCT	air mobility control team
AMDWS	Air and Missile Defense Warning System
AME	air mobility element
AMLS	airspace management liaison section
AMOCC	air mobility operations control center
AMPN	amplification
AO	area of operations
AOA	amphibious objective area
AOC	air operations center
AOD	air operations directive
AOR	area of responsibility
APS	afloat planning system
ARCT	aerial refueling control team
AREC	air resource element coordinator
ARFOR	Army forces
ARG	amphibious ready group
ARSOC	Army special operations component
ARSOF	Army special operations forces
ASC	air support controller
ASC(A)	assault support coordinator (airborne)
ASCS	air support control section
ASE	air support element
ASLT	air support liaison team
ASOC	air support operations center
ATACMS	Army tactical missile system
ATACS	amphibious tactical air control system (USMC)
ATCS	air traffic control section
ATDL-1	Army Tactical Data Link-1
ATF	amphibious task force
ATO	air tasking order
ATOCONF	air tasking order confirmation
ATS	Air Traffic Services
AW	air warfare

AWACS	airborne warning and control system
AWC	air warfare commander
AWS	air warfare section

B

BALO	battalion air liaison officer
BBS	bulletin board system
BCD	battlefield coordination detachment
BCL	battlefield coordination line (Marine only)
BDA	battle damage assessment
BDE	brigade
BGIC	battle group intelligence center (Navy)
BGO	battle group Orestes
BN	battalion
BOS	battlefield operating systems
BP	battle position (Army)
BWC	battle watch captain

C

C2	command and control
C2W	command and control warfare
C2WC	command and control warfare commander
C3	command, control, and communications
C4	command, control, communications, and computers
C4CM	command, control, communications, and computers countermeasures
C4I	command, control, communications, computers, and intelligence
CA	combat assessment
CAP	combat air patrol
CAS	close air support
CATF	commander, amphibious task force
CBT	combating terrorism
CDC	combat direction center
CE	command element (MAGTF)
CFL	coordinated fire line
CG	guided missile cruiser
CIA	Central Intelligence Agency
CIS	combat intelligence system

CISR	chief of intelligence, surveillance, and reconnaissance division
CLF	commander, landing force
CMO	central MASINT office
CO	company
COC	combat operations center
COG	center of gravity
COCOM	combatant command (command authority)
COMAFFOR	Commander, Air Force Forces
COMAFSPACE	Commander, Air Force Space Command
COMCARGRU	Commander, Carrier Group
COMCVW	Commander, Carrier Air Wing
COMMO	communications
Comp	component
CONUS	Continental United States
Coord	coordination
COP	common operational picture
CP	command post; contact point; counter proliferation (special operations)
CRC	control and reporting center
CSAR	combat search and rescue
CS	combat support
CSS	combat service support
CSSE	combat service support element (MAGTF)
CTAPS	contingency theater automated planning system
CTF	commander, task force; combined task force
CTL	consolidated target list
CTT	commanders tactical terminal
CV	aircraft carrier
CVBG	carrier battle group
CVBGLC	CVBG logistics coordinator (Navy)
CVW	carrier air wing
CWC	composite warfare commander

D

D3A	decide, detect, deliver, assess
DA	direct action
DAADC	deputy area air defense commander
DAS	direct air support
DASC	direct air support center

DASC(A)	direct air support center (airborne)
DCA	defensive counterair
DCI	defensive counterinformation
DDG	destroyer guided missile cruiser
DETS	detachments
DIA	Defense Intelligence Agency
DIRMOBFOR	director of mobility forces
DIV	division
DIVARTY	division artillery
DMPI	desired mean point of impact
DOCC	deep operations coordination cell
DR	deployable radar
DS	direct support
DTG	date-time group

E

E&E	evasion and escape
E2C AWCS	E2C airborne warning and control system—Navy
EA	engagement area
EAC	echelon above corps
EFAT	essential field artillery task
EFF	effective
EFST	essential fire support task
EST	establishing
ETAC	enlisted terminal attack controller
EW	electronic warfare
EW	early warning
EW/C	early warning/control
EXER	exercise

F

FA	field artillery
FAAD C3I	forward area air defense command, control, communications, and intelligence
FAC	forward air controller
FAC(A)	forward air controller (airborne)
FEZ	fighter engagement zone
FFA	free-fire area
FFCC	force fires coordination center
FID	foreign internal defense

FIST	fire support team
FLOT	forward line of own troops
FMFRP	fleet Marine force reference publication
FO	forward observer
FOB	forward operating base
FOTC	force over-the-horizon track coordinator (Navy)
FRAGO	fragmentary order
FS	fire support
FSC	fire support coordinator
FSCC	fire support coordination center
FSCL	fire support coordination line
FSCM	fire support coordinating measure
FSCOORD	fire support coordinator
FSE	fire support element
FSEM	fire support execution matrix
FSO	fire support officer
FSST	forward space support in theater

G

G2	Army or Marine Corps component intelligence staff officer (Army division or higher staff, Marine Corps brigade or higher staff)
G3	Army or Marine Corps component operations staff officer (Army division or higher staff, Marine Corps brigade or higher staff)
G4	Army or Marine Corps component logistics staff officer (Army division or higher staff, Marine Corps brigade or higher staff)
GAT	guidance, apportionment, and targeting
GBDL	ground based data link
GCE	ground combat element (MAGTF)
GLO	ground liaison officer
GS	general support
GSM	ground station module
GTL	gun target line

H

HCS	helicopter coordination section
HEC	helicopter element coordinator
HELO	helicopter
HF	high frequency

HIDACZ	high density airspace control zone
HIMAD	high-medium altitude air defense
HIMEZ	high altitude missile engagement zone
HPT	high-payoff target
HPTL	high-payoff target list
HQ	headquarters
HST	helicopter support team
HVT	high-value target

I

I&W	indication and warning
IADS	integrated air defense system
ID	identification
IFF	identification, friend or foe
INFOSEC	information security
INTSUM	intelligence summary
IOW	intelligence operations workstation
IP	initial point
IPB	intelligence preparation of the battlespace
ISR	intelligence, surveillance, and reconnaissance
ITG	initial terminal guidance
IW	information warfare

J

J2	Intelligence directorate of a joint staff; Intelligence Directorate, Joint Staff, Defense Intelligence Agency
J3	operations directorate of a joint staff
J5	plans directorate of a joint staff
J6	command, control, communications, and computer systems directorate of a joint staff
JAAT	joint air attack team
JAOC	joint air operations center
JASOP	joint air and space operation plan
JEZ	joint engagement zone
JFACC	joint force air component commander
JFC	joint force commander
JFMCC	joint force maritime component commander
JFSOC	joint force special operations command
JFSOCC	joint force special operations component commander
JIC	Joint Intelligence Center

JISE	joint intelligence support element
JIPCL	joint integrated prioritized collection list
JIPTL	joint integrated prioritized target list
JISE	joint intelligence support element
JMCIS	joint maritime command information strategy
JOA	joint operations area
JOC	joint operations center
JOPES	joint operation planning and execution system
JRC	joint reconnaissance center
J-SEAD	joint suppression of enemy air defenses
JSOA	joint special operations areas
JSOACC	joint special operations air component commander
JSOTF	joint special operations task force
JSRC	joint search and rescue center
JSST	joint space support team
JSTARS	joint surveillance target attack radar system
JTCB	joint targeting coordination board
JTF	joint task force
JTL	joint target list
JTO	joint tasking order
JUH-MTF	joint users handbook—message text formats

L

L	local
LAAD	low-altitude air defense (USMC)
LAC	TLAM launch area coordinator
LAI	light armored infantry (USMC)
LANTIRN	low-altitude navigation and targeting infrared for night
LAWC	local air warfare commander
LCC	land component commander
LF	landing force
LFFSC	landing force fire support coordinator
LLTR	low-level transit route
LMST	lightweight multi-band satellite terminals
LNO	liaison officer
LOC	line of communications
LOMEZ	low-altitude missile engagement zone
LRP	long-range plans
LZ	landing zone

M

MAAP	master air attack plan
MACCS	Marine Corps air command and control system
MACG	Marine air control group
MAGTF	Marine air-ground task force
MARFOR	Marine Corps forces
MARLO	Marine liaison officer
MASINT	measurement and signature intelligence
MATC	Marine air traffic control
MATCD	Marine air traffic control detachment
MAW	Marine air wing
MAX	maximum
MCC	maritime component commander
MCCDC	Marine Corps Combat Development Command
MEB	Marine expeditionary brigade
MEDEVAC	aeromedical evacuation
MEF	Marine expeditionary force
MEU (SOC)	Marine expeditionary unit (special operations capable)
MIN	minimum
MML	Tomahawk master mission library
MMT	MATCD mobile team
MOOTW	military operations other than war
MPA	mission planning agent
MPR	mission planning request
MRR	minimum risk route
MSN	mission

N

NALE	naval and amphibious liaison element
NAO	naval aviation observer
NARR	narrative
NATO	North Atlantic Treaty Organization
NAVFOR	Navy forces
NAVSOC	naval special warfare special operations component
NAVSOF	naval special operations forces
NDC	Naval Doctrine Command
NFA	no-fire area
NGFS	naval gunfire support
NGFS REP	naval gunfire support representative

NRO	National Reconnaissance Office
NSA	National Security Agency
NSFS	naval surface fire support
NSFSLO	naval surface fire support liaison officer
NTACS	Navy tactical air control system
NTDS	Navy tactical data system
NWDC	Naval Warfare Development Command

O

OAS	offensive air support (USMC)
OB	order of battle
OCA	offensive counterair
OCI	offensive counterinformation
ODA	operational detachment—Alpha
OOTW	operations other than war
OPCON	operational control
OPGEN	operational general message
OPLAN	operation plan
OPORD	operation order
OPR	office of primary responsibility
OPSEC	operations security
OPS	operations
OPSTAT	operational status messages
OPTASK	operational tasking
OPTASKLINK	operational tasking data link
OTC	officer in tactical command (Navy)

P

PACAF	Pacific Air Forces
PIR	priority intelligence requirement
PIRAZ	positive identification radar advisory zone
PMRC	patient movement requirements center
POL	petroleum, oils, and lubricants
PSS	plans and support section
PSYOP	psychological operations
PZ	pickup zone

R

RAAP	rapid application of airpower
RADC	regional air defense commander

RAOC	rear area operations center
RECCE	reconnaissance
REGT	regiment
REQCONF	request confirmation
RFA	restrictive fire area
RFI	request for information
RFL	restrictive fire line
RMKS	remarks
ROA	restricted operations area
ROE	rules of engagement
ROZ	restricted operations zone
RP	release point
RSTA	reconnaissance, surveillance, and target acquisition
RTF	return to force

S

S2	battalion or brigade intelligence staff officer (Army); Marine Corps battalion or regiment
S3	battalion or brigade operations staff officer (Army); Marine Corps battalion or regiment
S4	battalion or brigade logistics staff officer (Army); Marine Corps battalion or regiment
SAAFR	standard use Army aircraft flight route
SAC	supporting arms coordinator
SACC	supporting arms coordination center
SADC	sector air defense commander
SADF	sector air defense facility
SALT	supporting arms liaison team (USMC)
SAM	surface-to-air missiles
SAR	search and rescue
SATCOM	satellite communications
SCC	surface component commander; sea combat commander
SCL	standard conventional load
SEAD	suppression of enemy air defenses
SEAL	sea-air-land team
SEMA	special electronic mission aircraft
SF	special forces
SFOD A/B/C	special forces operational detachment—A/B/C
SHORAD	short-range air defense
SHORADEZ	short-range air defense engagement zone

SIF	selective identification feature
SLO	space liaison officer
SO	special operations
SOA	special operations aviation
SOC	special operations command
SOCA	submarine operations coordinating authority
SOCCE	special operations command and control element
SOE	schedule of events (Navy)
SOF	special operations forces
SOLE	special operations liaison element
SOO	space operations officer
SORTIEALOT	sortie allotment message
SOTAC	special operations terminal attack controller
SPINS	special instructions
SPMAGTF	special purpose Marine air-ground task force
SQDNS	squadrons
SQFT	square foot
SR	special reconnaissance
SST	space support team
STRATLAT	strategic liaison team
STT	special tactics team
STWC	strike warfare commander
SUWC	surface warfare commander
SWC	space warfare center

T

TAADCOM	theater army air defense command
TAAMDCOORD	theater army air and missile defense coordinator
TAC	terminal attack controller
TAC(A)	tactical air coordinator (airborne)
TACAIR	tactical air
TACC	tactical air command center (USMC); tanker airlift control center (USAF)
TACC	tactical air control center (Navy)
TAC CP	tactical command post
TACNOTE	tactical note
TACON	tactical control
TACOPDAT	tactical operations data
TACP	tactical air control party
TACRON	tactical air control squadron (Navy)

TACS	theater air control system
TAD	tactical air direction
TADC	tactical air direction center
TADIL	tactical digital information link
TAGS	theater air-ground system
TALCE	tanker airlift control element
TALO	theater airlift liaison officer
TAOC	tactical air operations center (USMC)
TARBUL	target bulletin
TBM	theater ballistic missile
TBMCS	theater battle management core system
TCI	Tomahawk command information
TDC	theater deployable communications
TEA	Tomahawk executive agent
TFCC	tactical flag command center
TGL	target-to-gun line
TGO	terminal guidance operations
TGTINFOREP	target information report
TGTINTELO	target intelligence officer
TIO	target information officer
TIS	target information section
TLAM	Tomahawk land attack missile
TLO	Tomahawk liaison officer
TMD	theater missile defense
TMD Det	theater missile defense detachment
TNL	target nomination list
TOC	tactical operations center
TOT	time on target
TRADOC	United States Army Training and Doctrine Command
TSC	TLAM strike coordinator
TSM	target synchronization matrix
TTDBM	Tomahawk tactical data base manager
TTP	tactics, techniques, and procedures
TVA	target value analysis

U

UAV	unmanned aerial vehicle
UHF	ultra high frequency
UNAAF	Unified Action Armed Forces
USA	United States Army

USAF	United States Air Force
USAFAGOS	United States Air Force Air-Ground Operations School
USAFE	United States Air Forces Europe
USCINCSPACE	United States Commander-in-Chief, Space Command
USMTF	United States message text format
USMC	United States Marine Corps
USN	United States Navy
USSOCOM	United States Special Operations Command
USTRANSCOM	United States Transportation Command
USWC	undersea warfare command
UTC	unit-type code
UW	unconventional warfare

V

VHF	very high frequency

W

WCB	warfare commander board
WEZ	weapons engagement zone
WFZ	weapons free zone
WG	wing
WICP	wing initial communications package
WMD	weapons of mass destruction
WOC	wing operations center

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