ARMY, MARINE CORPS, NAVY, AIR FORCE

TAGS

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

ATP 3-52.2
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MULTI-SERVICE TACTICS, TECHNIQUES, AND PROCEDURES

FOREWORD

This multi-Service tactics, techniques, and procedures (MTTP) publication is a product of the Air Land Sea Application (ALSA) Center in accordance with the memorandum of agreement between the Headquarters of the United States (US) Army, Marine Corps, Navy, and Air Force doctrine commanders directing ALSA to develop MTTP publications to meet the immediate needs of the warfighter.

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

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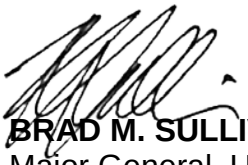

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PREFACE

1. Purpose

The theater air-ground system (TAGS) is a conglomeration of systems. For the purpose of this publication, TAGS refers to organizations, personnel, equipment, and procedures that participate in planning and executing all air-ground operations. Understanding the chain of command and systems comprising TAGS allows it to be maximized, providing the ability to create quick and decisive combat results. The objective of this publication is to describe how each of the Service component's systems operate within the TAGS.

2. Scope

This publication provides a generic concept and procedures for TAGS operations. It is a framework for all planners to facilitate the integration of air and ground operations.

3. Applicability

This MTTP publication applies to all commanders and their staffs. This publication is approved for public release with Distribution Statement A, in accordance with Department of Defense Directive Instruction 5230.24, *Distribution Statements on Technical Documents*.

4. Implementation Plan

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

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5. User Information

a. US Army Combined Arms Center; USMC, TECOM; NWDC; Curtis E. LeMay Center for Doctrine Development and Education; and Air Land Sea Application

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(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 be incorporated in revisions to this document.

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SUMMARY OF CHANGES

ATP 3-52.2/MCRP 3-20.1/NTTP 3-56.2/AFTTP 3-2.17, *Multi-Service Tactics, Techniques, and Procedures for the Theater Air-Ground System (TAGS)*.

This revision:

Updates:

- Information in all of the chapters and appendices.
- Appendices B “Joint Air Tasking Cycle” and D “Army Processing of Air Support Requests” by merging them into Appendix B “Component Inputs to the Joint Air Tasking Cycle”.
- Appendix C “The Theater Air-Ground System” and moves it to the Appendix A position.

Removes:

- Appendix A “TAGS in the Targeting Process”.

Adds:

Appendix C “Battle Management Areas”.

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TAGS

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

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EXECUTIVE SUMMARY

TAGS

Multi-Service Tactics, Techniques, and Procedures (MTTP) for the theater air-ground system establishes tactics, techniques, and procedures for theater air-ground system (TAGS) operations and addresses integrating air and ground operations.

Chapter I Theater Air-Ground System Overview

Chapter I provides an overview of the planning considerations for establishing the TAGS in an evolving theater. It discusses establishing the joint force commander, joint force air component commander, joint force land component commander, joint force maritime component commander, joint force special operations component commander, and joint liaison requirements.

Chapter II Army Air-Ground System

Chapter II provides an overview of Army operations and planning and the Army air-ground system.

Chapter III Air Force Theater Air Control System

Chapter III provides an overview of Air Force operations and planning and the theater air control system.

Chapter IV Navy Tactical Air Control System and Composite Warfare Commander

Chapter IV provides an overview of Navy operations and planning, command and control (C2), and the Navy tactical air control system.

Chapter V Marine Air Command and Control System

Chapter V provides an overview of Marine Corps operations and planning and the Marine air command and control system.

Chapter VI Special Operations Air Ground System

Chapter VI provides an overview of special operations forces operations and planning and the special operations air-ground system.

Appendix A Theater Air-Ground System

Appendix A depicts a complete TAGS under a joint task force commander.

Appendix B Component Inputs to the Joint Air Tasking Cycle

Appendix B describes the integrated relationship among the TAGS air-ground systems' C2 nodes and liaison elements.

Appendix C Battle Management Area Construction

Appendix C explains constructing battle management areas and shows notional illustrations.

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Chapter I
THEATER AIR-GROUND SYSTEM (TAGS) OVERVIEW

1. Background

a. TAGS combines each Service's command and control (C2) and airspace control system into a multi-domain framework, allowing each Service to operate as part of a unified effort in support of the joint force commander (JFC).

b. TAGS incorporates the Army air-ground system (AAGS), Marine air command and control system (MACCS), Navy tactical air control system (NTACS), special operations air-ground system (SOAGS), and the theater air control system (TACS) into one system. Each Service component's air-ground system is designed to facilitate C2 of its operations and interface with the TAGS. The roles, responsibilities, and authorities of each TAGS element is spelled out in theater-wide documents, such as the area air defense plan (AADP), airspace control plan (ACP), and operational task link (OPTASKLINK). When delegated tasks and authorities exceed the component commander's scope of operations, the responsibilities and authorities are included in the special instructions (SPINS).

c. The decentralized execution authorities of components' TAGS elements are documented in operation plans (OPLANs), operation orders, and SPINS. The airspace control authority (ACA) and area air defense commander (AADC) must define responsibilities, authorities, and tasks for supporting agencies in the ACP, AADP, and OPTASKLINK.

(1) This publication describes the structure of TAGS under a single JFC in a joint operations area (JOA) or area of responsibility (AOR). Regardless of how the TAGS architecture and organization are structured, the responsibilities of each TAGS element do not change.

(2) The JFC, through the staff or a designated component, establishes requirements for the TAGS including the combatant commander's (CCDR's) guidance, perspective, and strategy for the AOR. The TAGS implementation directly affects the JFC's ability to integrate, synchronize, and direct joint operations. See joint publication (JP) 3-0, *Joint Operations*, for more information.

(3) A Service component commander also can be a functional component commander (i.e., the joint force air component commander (JFACC)) may be the commander, Air Force forces (COMAFFOR). Functional component commanders execute tactical control (TACON) of component forces made available to them as delegated by the JFC, through a control system designed for that purpose, which may be separate from the Service component staff. See figure 1 for an example of a joint force structure.

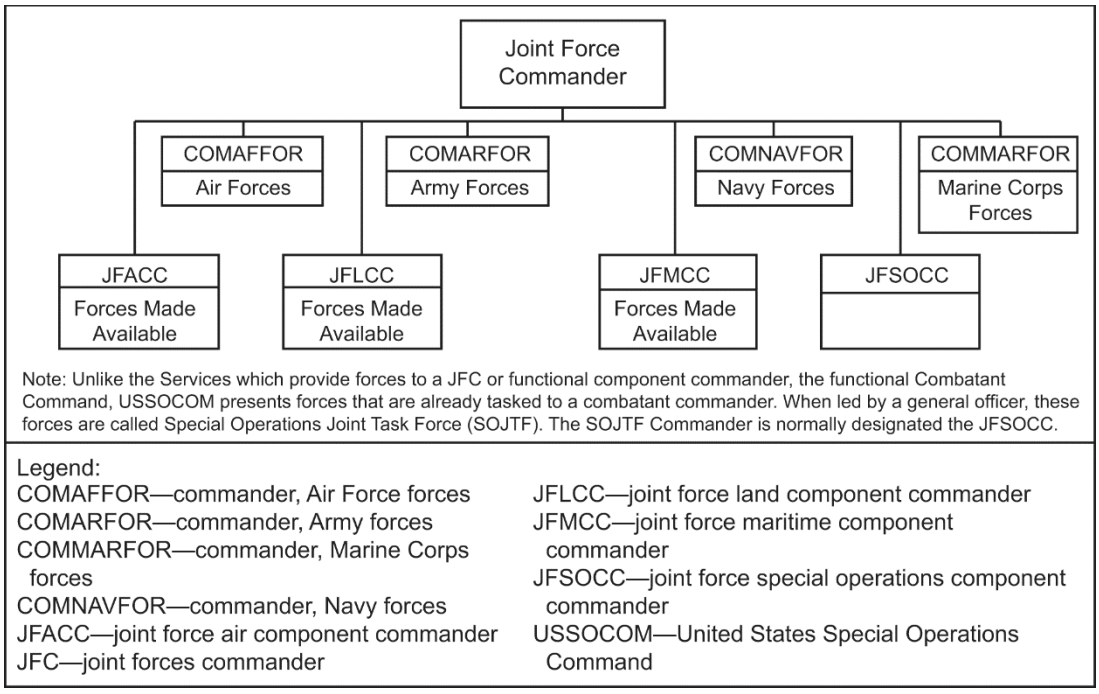

Figure 1. Joint Force Organization along Service Lines

(4) For the purpose of this publication, the Service component commanders are designated as the joint component level operational commander unless stated otherwise. While joint doctrine states one individual can be a Service component commander and a joint functional component commander, the two responsibilities are different and should be executed through different staffs.

(5) The following is a summary of the Service component systems in JP 3-30, *Joint Air Operations*.

(a) AAGS. This is the interface between Army and air support agencies of other Services in planning, processing, and coordinating air support requirements, air-ground operations, and airspace control.

(b) TACS. This is the COMAFFOR mechanism for commanding and controlling component air and cyberspace power. It consists of airborne and ground elements conducting tailored C2 of air and cyberspace operations, including air defense and airspace control.

(c) NTACS. This is the Navy's system for controlling and coordinating all air operations within an amphibious objective area (AOA) or area of operations (AO) during amphibious operations.

(d) MACCS. This is the Marine Corps aviation combat element (ACE) commander's system to provide centralized command and decentralized control to aviation assets in support of the Marine air-ground task force (MAGTF).

(e) SOAGS. This is the special operations force's (SOF's) C2 system for special operations aviation assets. It integrates, synchronizes, and deconflicts supporting joint fires and intelligence, surveillance, and reconnaissance (ISR) assets.

2. JFC

a. In this publication, the term JFC refers to either a geographic combatant commander (GCC) or a JFC subordinate to the GCC. The JFC has the authority to organize assigned or attached forces to accomplish the assigned mission. See JP 1, *Doctrine for the Armed Forces of the United States*, for more information.

b. The JFC provides guidance for the joint air effort during planning and execution.

c. The JFACC, is responsible for the air apportionment recommendation to the JFC. Air apportionment is the JFC's determination and assignment of the total expected air effort (by percentage or priority) devoted to the air operations for a given period. Apportionment affects all aspects of TAGS during operations. See JP 3-30 for more information.

3. JFACC

a. The JFC designates the COMAFFOR as the JFACC to establish unity of command and unity of effort for joint air operations. The JFC also has the option to designate the commander, Navy forces (COMNAVFOR) or commander, Marine Corps forces (COMMARFOR) as the JFACC, depending on the mission. The JFC establishes the JFACC's authority, command relationships, and responsibilities, which include TACON over forces made available for tasking. All supporting commands must ensure liaison elements of the TAGS are in place before beginning operations. The JFACC plans and tasks joint air operations through the joint air operations plan (JAOP), air operations directive (AOD), air tasking order (ATO), and other guidance within a responsive and integrated control system.

b. The JFC designates the JFACC as the AADC and ACA. Specific JFACC responsibilities are described in JP 3-30. The joint air operations center (JAOC) is the C2 organization through which the JFACC plans, coordinates, allocates, controls, and tasks joint air operations. Chapter III discusses the Air Force's JAOC in detail. JFACC responsibilities include the following:

(1) Develop a JAOP to support the JFC's concept of operations (CONOPS) or OPLAN. The JAOP contains the commander's intent for each phase of the operation.

(2) Recommend air apportionment priorities to the JFC, after considering objective, priority, or other criteria and consulting with other component commanders.

(3) Allocate and task air capabilities and forces made available through the JFC's air apportionment decision.

(4) Develop daily anticipatory guidance for constructing the AOD. The AOD contains the JFACC's intent for specific ATO periods.

(5) Provide oversight and guidance during execution of joint air operations and making timely adjustments to taskings. The JFACC coordinates with the JFC and affected component commanders, as appropriate, when the situation requires changes to planned joint air operations.

(6) Assess the results of joint air operations and forward the assessments to the JFC in support of the overall assessment effort.

(7) Perform the duties of the ACA, if designated. See JP 3-52, *Joint Airspace Control*, for more information on ACA responsibilities.

(8) Perform the duties of the AADC, if designated. See JP 3-01, *Countering Air and Missile Threats*, for more information on AADC responsibilities.

(9) Perform the duties of the space coordinating authority (SCA), if designated. The SCA is responsible for coordinating and integrating space capabilities in the operational area and has primary responsibility for joint space operations, planning, and requirements within the joint force. See JP 3-14, *Space Operations*, for more information on SCA responsibilities.

(10) Coordinate cyberspace operations through the combatant command (CCMD) joint cyberspace center (JCC) and with the applicable cyberspace coordination authority. The cyberspace coordination authority has the ability to request and prioritize cyberspace capabilities and cyberspace planning for the JFACC mission, in support of the CCMD mission. Cyberspace effects will not follow the typical air operations center (AOC) ATO processes given differences in authorities, planning, targeting and weaponeering. Coordination requirements shared among the authorities for cyberspace effects and AOC lethal/non-lethal effects must be resolved due to deconfliction and synchronization of joint operations responsibilities. In most cases, the JCC will use portions of the AOC ATO processes to solve the deconfliction and synchronization problem.

(11) Perform joint personnel recovery coordinator (JPRC) duties. See JP 3-50, *Personnel Recovery*, for a detailed discussion of personnel recovery (PR).

(12) Perform tasks within various mission areas, including:

(a) Counterair (defensive counterair (DCA) and offensive counterair (OCA)).

(b) Close air support (CAS).

(c) Airborne ISR and incident awareness and assessment.

(d) Air mobility operations.

(e) Strategic attack.

(f) Air interdiction (AI).

c. The JFACC is the supported commander for the JFC's overall AI effort, while the joint force land component commander (JFLCC) and joint force maritime component commander (JFMCC) are the supported commanders for interdiction within their AOs.

d. The JFC designates the JFACC as the ACA. The ACA must integrate and coordinate the airspace requirements with host nation countries, all components, and coalition forces on behalf of the JFC. ACA responsibilities include:

(1) Developing broad policies and procedures for airspace control and coordination required of all users of airspace within the airspace control area.

(2) Establishing an airspace control system (ACS) that integrates host and other affected nations' constraints and requirements.

(3) Coordinating and deconflicting airspace requests based on operational usage requirements.

(4) Promulgating ACS policies and procedures via the JFC-approved ACP. Centralized direction by the ACA does not imply assumption of operational control (OPCON) or TACON over any air assets.

e. The JFC designates the JFACC as the AADC. The AADC produces the AADP with other components. Specific responsibilities include:

(1) Integrating joint air defense effort.

(2) Developing and promulgating the AADP.

(3) Developing and executing the air and missile warning plan.

(4) Developing and implementing identification and engagement procedures.

4. JFLCC

The JFLCC plans, coordinates, and employs forces and capabilities made available for tasking in support of the JFC. See JP 3-31, *Joint Land Operations,* for more detailed information. The responsibilities of the JFLCC include:

a. Making recommendations to the JFC for employing assigned and attached forces.

b. Developing OPLANs and operational orders to support the JFC's CONOPS to maximize land combat power throughout the JOA.

c. Directing land forces in the assigned AO, enabling synergy of capabilities in accomplishing the mission.

5. JFMCC

a. The JFMCC recommends proper employment of assigned, attached, or made-available-for-tasking maritime forces and assets; and plans and coordinates maritime operations to accomplish operational missions as assigned.

b. The Navy forces (NAVFOR) component of a JFMCC has a robust, integrated, organic air and missile defense (AMD) system. The NAVFOR provides:

(1) AMD along the littorals and seaward across the maritime AO.

(2) Aircraft sorties for DCA and offensive counterair (OCA) tasking under TACON of the JFACC or AADC.

(3) Sector air defense commanders (SADC) or regional air defense commanders (RADC) based on Aegis system equipped ships.

c. The Marine forces (MARFOR) may be part of the JFMCC for certain maritime-centric operations such as an amphibious operation. Once established as a land force, the MARFOR may remain a Service component force or become subordinate to the JFLCC.

6. Joint Force Special Operations Component Commander (JFSOCC)

The JFSOCC exercises C2 of assigned or attached SOF and is responsible for making recommendations on the proper employment of assigned, attached, or made-available-for-tasking SOF assets; planning, coordinating, and synchronizing special operations with other components; or accomplishing operational missions as assigned. The GCC designates the special operations joint task force (SOJTF) commander as the JFSOCC when a JFSOCC is required. The GCC exercises combatant command (command authority) of assigned SOF and OPCON of attached SOF through the JFSOCC.

7. Operational Liaisons

Commanders exchange liaison teams or individuals between higher, supporting, supported, and subordinate commands to promote understanding of the commanders' intent at all headquarters (HQ). Liaison officers (LNOs) between supporting and supported commanders are essential in determining needs and coordinating supporting actions. The liaisons help integrate their component's participation in joint operations. They coordinate and deconflict direct support air operations with joint air operations.

a. Liaisons to the JTF. A joint air component coordination element (JACCE) liaison may be assigned to the JTF by the theater JFACC. The JACCE provides direct communication and facilitates coordination between the JTF and the theater JFACC. The JACCE possesses the authority to represent the theater JFACC on critical issues and assists the JTF in air support planning functions.

b. Liaisons to the JFACC. The component commanders have access to the JFACC and the JAOC staff through their liaisons. The liaisons work for their component commanders and work with the JFACC and JAOC staff. Senior component LNOs serve as conduits for direct coordination between the JFACC and the component commanders. The LNOs should possess the authority to represent their component commander on critical issues. (The joint force liaison structure to the JFACC is shown in figure 2).

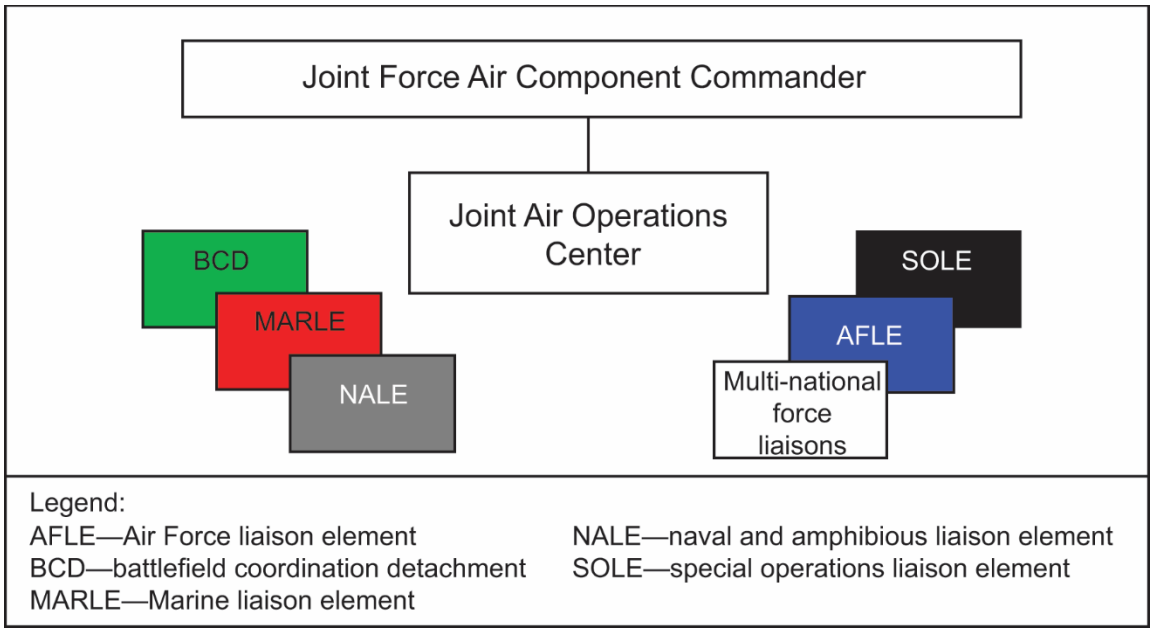

Figure 2. Liaisons to the JFACC

(1) Battlefield Coordination Detachment (BCD). The BCD is the primary liaison from the commander, Army forces (COMARFOR) to the JAOC. It is a standing organization, assigned to an Army Service component command (ASCC) and located with the Air Force AOC supporting a GCC. The BCD coordinates the ground maneuver commander's plan and supporting air operations. The BCD integrates with the JAOC and participates in joint C2 processes (i.e., the joint air tasking cycle). See Army techniques publication (ATP) 3-09.13, *The Battlefield Coordination Detachment*, for more information.

(2) Marine Liaison Element (MARLE). The MARLE provides feedback to organizations in the JAOC on all matters pertaining to MAGTF aviation operations.

(3) Special Operations Liaison Element (SOLE). The SOLE is the JFSOCC's liaison to the JFACC and is located in the JAOC. The SOLE deconflicts all SOF air, surface, and subsurface activities with operations involving JFACC assets.

(4) Naval and Amphibious Liaison Element (NALE). The NALE is the primary liaison from the NAVFOR commander to the JAOC. The NALE processes NAVFOR requests for air support and monitors and interprets the maritime battle situation for the JAOC. The NALE serves as the interface for exchanging operational and intelligence data, coordinates maritime requirements for air defense support, provides interdiction, and monitors Navy-controlled airspace and air traffic control (ATC) requirements.

(5) Air Force Liaison Element (AFLE). When the JFACC is not the COMAFFOR, the COMAFFOR provides an AFLE from the Air Force forces (AFFOR) staff as an interface to the JAOC for coordinating and synchronizing

Air Force units in support of joint air operations. The AFLE is not a standing AFFOR element and is established only when required.

c. Liaisons to the JFLCC. The JFACC has access to the JFLCC and the joint operations center (JOC) staff through the JACCE. The JACCE works for the JFACC and works with the JFLCC and JOC staff. The JACCE provides direct communication and facilitates coordination between the JFLCC and the JFACC. The JACCE possesses the authority to represent the JFACC on time sensitive and critical issues and assists the JFLCC in air support planning functions. Other components may provide the JFLCC liaisons.

d. Liaisons to the JFMCC and JFSOCC. Other component commanders may require access to the JFMCC and the JFSOCC. The JFACC may establish one or more JACCE with other components (e.g., JFMCC or JFSOCC) or supported joint task force (JTF) HQ to integrate air component operations with their operations. Other components may provide the JFMCC and JFSOCC liaisons. Figure 3 shows an example of the interface between the JFACC and the JFMCC.

e. Additional Coordination. Additional support occurs to and from supporting geographical, functional, and subordinate component commands. The worldwide reach of C2 systems provides the JFC support from other GCCs, functional component commanders, and subordinate commands outside their direct chain of command. Some of these commands may deploy specialized organizations supporting the JFC's mission (e.g., cyberspace support teams that plan and coordinate cyberspace operations). They can also provide support by common related function or mission (e.g., ballistic missile launch detection capabilities from United States Strategic Command). These types of supporting organizations may possess the authority to represent their component commander on time sensitive and critical issues.

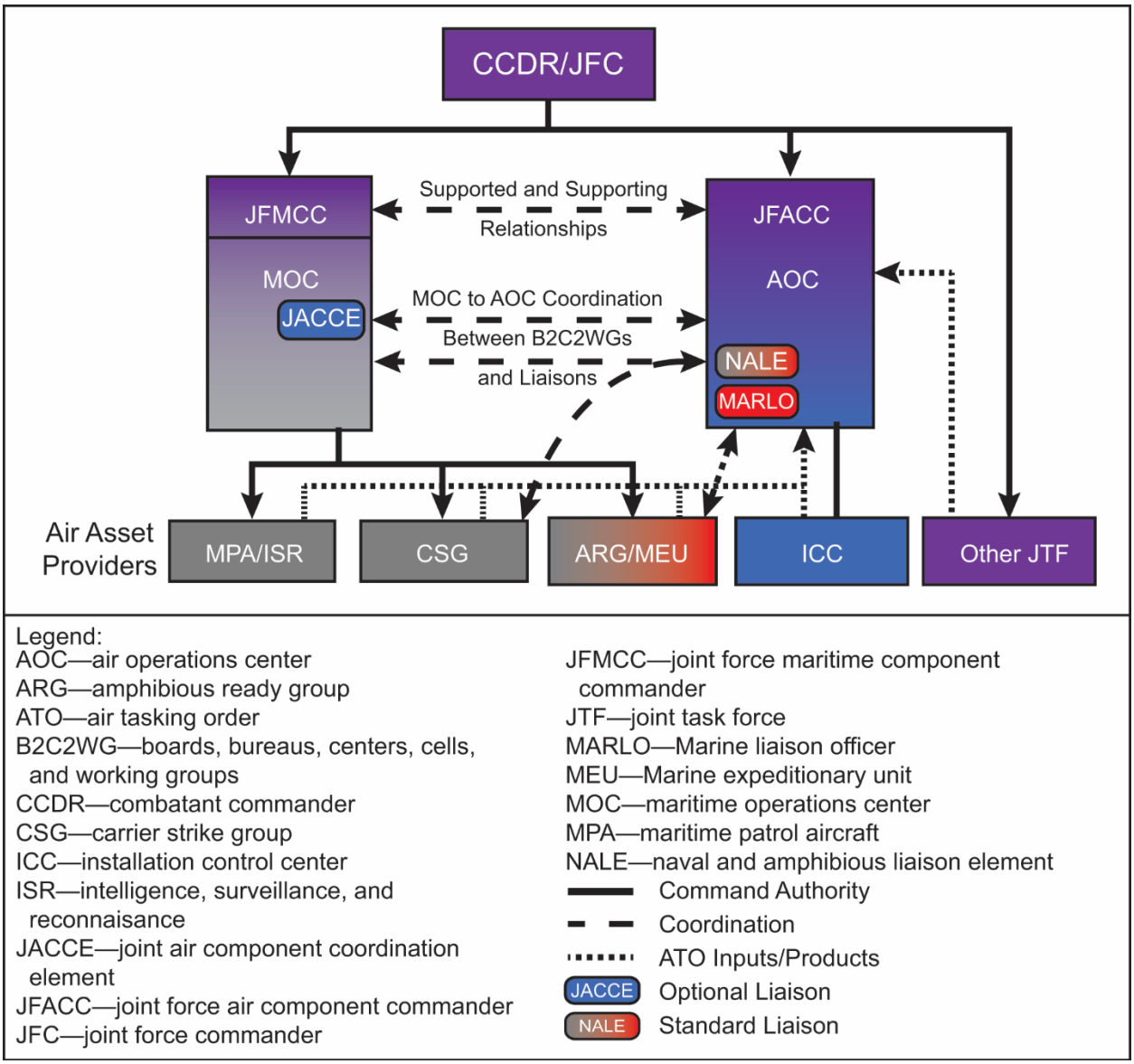

Figure 3. JFACC to JFMCC Interface

8. TAGS Planning Considerations

Elements of the TAGS may be unreliable or unavailable when conducting operations in contested or degraded operational environments, therefore, commanders must plan for potentially reduced effectiveness of TAGS elements. Although the system may function at a reduced capacity, planners must assess how to mitigate degraded nodes. It is important to develop alternate C2 architectures to maintain TAGS' effectiveness. Commanders can tailor the TAGS for a wide range of military operations as in the following list:

a. Early-entry Operations. TAGS ground-based elements may not move forward until ground forces secure the area. In this environment, some functions and elements work via reachback while others are replaced or bypassed. Commanders should evaluate all TAGS functions and replace or bypass them only after careful

consideration. While elements may not be available, their functions are still required and commanders must replicate them, when possible.

b. Major Operations and Campaigns. When most or all of the TAGS nodes are available, the competition for airspace, communications, and the timing and priority of missions present challenges. The TAGS enables all components to participate in the decision-making process, synchronizing efforts to meet the JFC's guidance.

c. Stability Operations. Stability operations create airspace management and fires integration challenges as host nation stability conditions are established. The static and repetitive nature of stability operations allow the commander to tailor the TAGS to become more efficient.

d. Humanitarian Assistance. Integrating TAGS with civil, military, foreign governments, or nongovernmental organizations during humanitarian assistance or disaster relief missions may be necessary. In these instances, some TAGS elements may not be available for tasking and planners should identify measures to address shortfalls (e.g., cell phones may replace standard communication links in TAGS nodes).

9. TAGS Execution

a. The JFC organizes the joint force to maximize component capabilities supporting air-ground planning, targeting, tasking, execution, and combat assessment. The JFC influences the structure and the direction of the TAGS by:

(1) Designating joint force component commanders.

(2) Assigning authorities (e.g., ACA, SCA, and AADC).

(3) Assigning responsibilities and missions.

(4) Apportioning forces.

b. The JFC directs the weight of the joint air effort by providing guidance, objectives, targeting priorities, air apportionment, C2, logistics, joint fire support coordination measures (FSCM), and rules of engagement. The purpose is to attain desired effects during each phase of the campaign plan. Additionally, the JFC establishes supported and supporting relationships between the joint force component commanders.

c. The TAGS is comprised of the combined component C2 elements. Joint force components must work together in planning and executing joint air operations accomplishing JFC-assigned objectives, complying with JFC guidance, and satisfying component commanders' requirements. The challenge to personnel working within the TAGS is to operate a system that is responsive to all components and supported echelons while accomplishing the JFC's objectives.

Chapter II
ARMY AIR-GROUND SYSTEM

1. Background

a. The AAGS is an inherent part of the Army C2 system (e.g., arrangement of facilities, networks, information, personnel, and processes) that connects to the TACS to enable air-ground operations. (See Army doctrine publication (ADP) 6-0, *Mission Command*). AAGS is the Army's control system for synchronizing, coordinating, and integrating air operations with the ground commanders' CONOPS. The AAGS provides the framework for initiating and processing air support requests, collection requirements, airspace integration, Army indirect fires, joint fires, AMD, and liaison exchanges. The AAGS and Air Force TACS enhance air-ground integration for their components by conducting critical functions, and are habitually integrated creating synergistic effects for joint operations.

b. For Army forces (ARFOR), the goal of airspace control is integrating airspace users from planning through execution. Army commanders must integrate airspace users if assigned an airspace volume to control within a larger framework designed for the JOA. This integration occurs in accordance with the commander's intent, priorities, and acceptable levels of risk. Successful integration maximizes airspace use and capability while minimizing adverse effects.

Note: The operations process achieves joint air-ground integration and facilitates coordination with each echelon of command, other components, and coalition partners. This results in collaborative planning and complementary employment of air and surface assets and forces in unified land operations.

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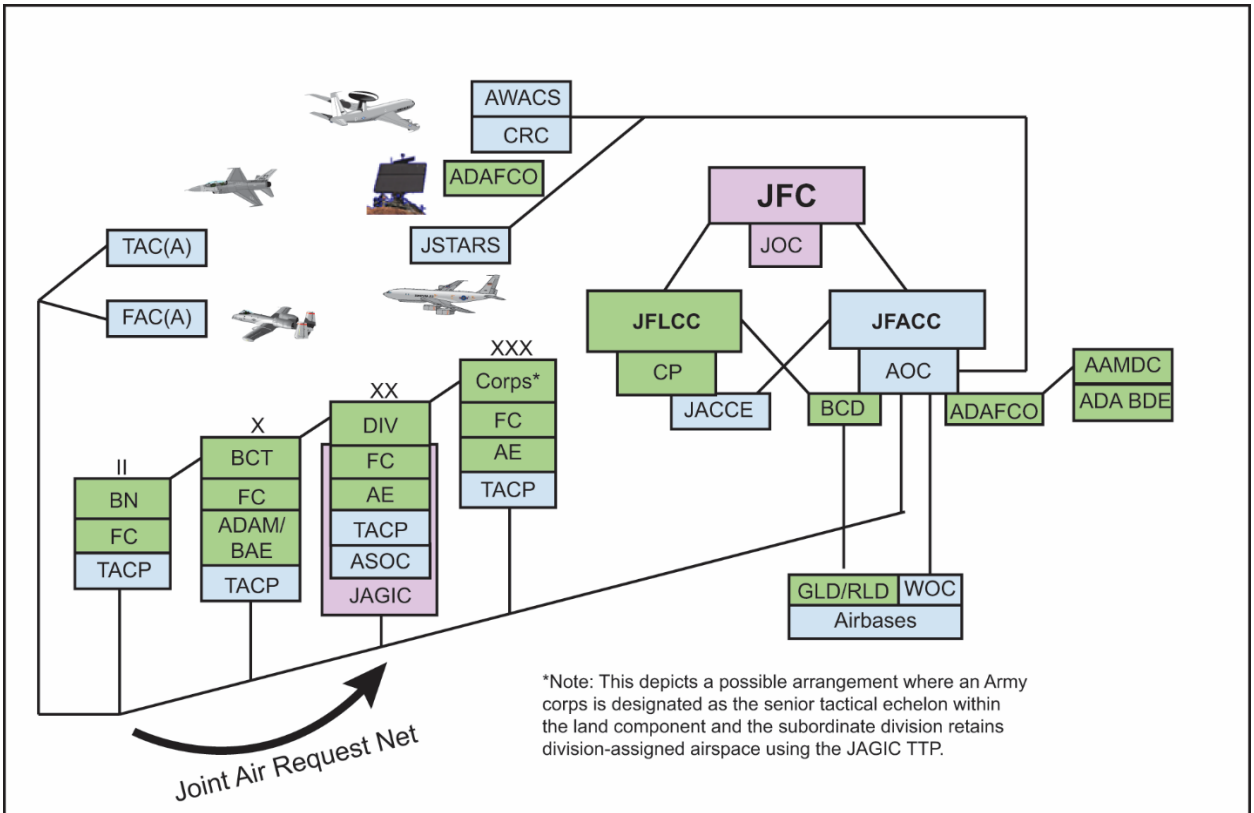
2. Echelons of Command

Understanding the roles and functions of the various echelons of command is essential to understanding the functionality of the AAGS. Figure 4 displays elements of the TACS/AAGS.

a. Theater Army or ASCC. Each GCC has a theater Army HQ assigned to serve as the ASCC. It provides a regionally oriented, long-term Army presence for peacetime military engagement, security cooperation, deterrence, and limited intervention operations. A Theater Army can serve as a Joint Land Force Component Command for large scale combat operations if designated by the Joint Force CDR (JFLCC). Each theater Army has operational and administrative responsibilities. The operational responsibilities include command of forces, direction of operations, and control of assigned AOs. The administrative responsibilities encompass the Service-specific requirements for equipping, sustaining, training, unit readiness, discipline, and personnel matters. See field manual (FM) 3-94, *Theater Army, Corps, and Division Operations*, for more information.



Legend:

AAMDC—Army air and missile defense command
ADA—air defense artillery
ADAFCO—air defense artillery fire control officer
ADAM—air defense and airspace management
AE—airspace element
AOC—air operations center
ASOC—air support operations center
AWACS—airborne warning and control system
BAE—brigade aviation element
BCT—brigade combat team
BCD—battlefield coordination detachment
BDE—brigade
BN—battalion
CP—command post
CRC—control and reporting center
DIV—division
FAC(A)—forward air controller (airborne)
FC—fires cell
GLD—ground liaison detachment
JACCE—joint air component coordination element
JAGIC—joint air-ground integration center
JFACC—joint force air component commander
JFC—joint force commander
JFLCC—joint force land component commander
JOC—joint operations center
JSTARS—joint surveillance target attack radar system
RLD—reconnaissance liaison detachment
TAC(A)—tactical air coordinator (airborne)
TTP—tactics, techniques, and procedures
TACP—tactical air control party
WOC—wing operations center

Figure 4. TACS/AAGS

b. ARFOR. The ARFOR is the senior Army (not joint) HQ within the AOR, theater of war, or JOA. The COMARFOR may be the commander of the theater Army; ASCC to the GCC; or an existing, lower echelon HQ (e.g., Army corps or division (DIV)) to a JFC. The COMARFOR provides administrative and logistics support to all Army forces assigned to these organizations, as specified by the JFC. The COMARFOR is

the supported commander inside the boundaries of the assigned AO. See FM 3-94 for further details.

c. Corps. A corps is the senior Army HQ deployed to a joint operating area. It commands Army and multinational forces in campaigns and major operations. A corps is composed of one or more maneuver DIVs, and supports functional or multifunctional brigades to accomplish the corps commander's operational mission. The CCDR may designate the corps HQ as the JTF HQ; the ARFOR HQ; the Joint Force Land Component CDR (JFLCC); and on rare occasions, a tactical-level HQ for large-scale combat operations. See ATP 3-92, Corps Operations, for more information on the corps.

d. DIV. The DIV is the Army's tactical unit for a corps and primary echelon for conducting decisive action. DIVs maneuver brigades to fight battles and engagements. In a limited contingency operation the Joint Force Commander may designate the Division as a JFLCC. A DIV is composed of one or more brigade combat teams (BCTs), and support, functional or multifunctional brigades. A DIV combines offense, defense, and either stability or defense support of civil authorities' tasks in an AO assigned by its higher HQ. Similar to a corps, the DIV operates as a formation, not just as a HQ, during large-scale combat operations. The air support operations center (ASOC) and tactical air control party (TACP) integrate with the division current operations fires cell, DIV airspace, and air missile defense elements to form a joint air ground integration center (JAGIC). The JAGIC integrates and coordinates fires and air operations over and within the DIV commander's area of operations, up to the coordinating altitude, and short of the FSCL. See Army doctrine publication (ADP) 3-90, *Offense and Defense*, and FM 3-94 for more information.

e. BCT. A BCT is a combined arms organization consisting of at least two maneuver battalions (BNs), a field artillery BN, and necessary supporting functional capabilities. It is the lowest echelon at which all warfighting functions are incorporated and is the basic tactical task organization. BCTs maneuver against and close with and destroy the enemy. BCTs seize and retain key terrain, exert constant pressure, and break the enemy's will to fight. They are the principal ground maneuver units of a DIV. However, they can operate outside a DIV HQ structure, directly for a corps or higher echelon commander. There are three types of BCTs: infantry, armored, and stryker. Each is modular and interchangeable. See ADP 3-90 for more information.

f. BN. An Army Battalion is a fixed tactical formation consisting of two or more companies and ranging in size from 500-800 Soldiers. Army Battalions are normally organized by branch, such as Infantry, Artillery, and Aviation. Battalions are composed primarily of Soldiers specializing in that branch and are given appropriate tactical tasks by their Brigade to accomplish the Brigade mission.

3. AAGS Integration

a. Joint air-ground integration is achieved by nesting the Army's operations and targeting processes with the joint air tasking cycle. The Army processes support requirements up the Army chain of command. The requests are approved, denied,

or modified ensuring requirements are met. The commander of ARFOR provides guidance on timing of the following requests:

(1) Preplanned joint tactical air strike requests (JTARs).

(2) Air support requests (AIRSUPREQs).

(3) Airspace coordinating measures requests (ACMREQs).

(4) Allocation requests (ALLOREQs).

(5) Collections requirements in support of component planning and preparation.

b. The ASOC is the principal air control agency within the TACS and is responsible for controlling joint air operations that directly support ground forces. The ASOC should be aligned at the DIV level, but may align at the corps level when operating as the senior tactical echelon. The TACP consists of ALOs and JTACs integrating joint capabilities to create desired effects to support the ground scheme of maneuver. TACPs support maneuver elements at the corps, DIV, brigade, and battalion levels, but may be employed at any echelon in support of specific missions of limited duration. See Chapter III for TACS.

4. AAGS Elements

a. The COMARFOR is responsible for the efficient operation of the AAGS, especially the BCD, Army air and missile defense command (AAMDC), and ground liaison detachments (GLD). The COMARFOR is responsible for the effective integration of AAGS within the TAGS. The COMARFOR is also responsible for ensuring the supporting JFACC understands what assistance is required and provides necessary liaisons.

b. The supported commander (i.e., COMARFOR) should accomplish the following tasks to leverage joint assets:

(1) Exchange liaisons with the supporting commands, ensuring their integration into their supported and supporting elements. Elements must incorporate liaisons into their battle rhythms with a clear understanding of the COMARFOR's intent, CONOPS, plans, and current operations.

(2) Identify external support requirements in sufficient time for the supporting command to plan, prepare, rehearse, and execute per the JFC's approved battle rhythm.

(3) Define support requirements and submit them (i.e., AIRSUPREQs).

(4) Coordinate operations with other affected components and the JFC.

(5) Influence the air apportionment recommendation and the AOD, which identifies priorities of use for joint air support.

c. When the Army identifies requirements exceeding organic capabilities, the senior deployed Army HQ consolidates, approves, and sends AIRSUPREQs and ACMREQs to the BCD at the JAOC.

d. A BCD is an Army unit assigned to an ASCC functioning as the primary interface between the COMARFOR and JAOC. The BCD coordinates the ground maneuver commander's plan and supporting air operations. The BCD integrates with the JAOC and participates in joint C2 processes (i.e., the joint air tasking cycle). The BCD's tasks include:

(1) Articulating the COMARFOR's or JFLCC's requests and requirements for air operations in support of the ground CONOPS.

(2) Coordinating with, and receiving, objectives, guidance, and priorities from the COMARFOR and staff. The COMARFOR staff must continuously advise the BCD on matters pertaining to current and future operations and air support requirements.

(3) Processing preplanned AIRSUPREQ; United States (US) message text format D670 or JTAR (DD Form 1972, Joint Tactical Air Strike Request).

(4) Monitoring and interpreting the land battle situation for JAOC personnel and providing the necessary interface for exchanging current intelligence and operational data between the ARFOR and JAOC. See ATP 3-09.13, *The Battlefield Coordination Detachment,* for more information on the BCD.

e. The GLD is an Army liaison element assigned to the ASCC, OPCON to each BCD, and collocated at operational Air Force flying squadrons or wings.

(1) GLDs advise Air Force commanders on Army organizations, ground force operations, tactics, capabilities, doctrine, and air support requirements. A GLD consists of one combat arms officer, called the ground LNO, and one fire support noncommissioned officer equipped with organic Army communication systems.

(2) GLDs serve as information conduits between the supporting Air Force wings or other air component's CAS and AI missions for supported Army units. GLDs brief aircrews on the supported Army unit commander's intent and CONOPS. They also provide updates on the ground tactical situation, targets, and JTARs.

(3) GLDs debrief aircrews after missions and provide operational and intelligence data to the BCD. GLDs may be afloat with a carrier strike group (CSG) or expeditionary strike group (ESG) when Navy air assets are supporting ARFOR.

f. The reconnaissance liaison detachments (RLDs) are aligned with Air Force reconnaissance squadrons and collocated with the sensor operator (mission pilot) and provide liaison and coordination. RLDs ensure nonorganic assets satisfy requests for aerial collection and meet the supported commander's current collection priorities.

g. The commander, AAMDC, is designated the theater Army air and missile defense coordinator for the theater Army commander or the JFLCC, if one is established. As approved by the JFC, the AADC may designate the commander, AAMDC, as a deputy AADC for AMD in support of the AADC for DCA operations.

(1) The AAMDC coordinates with joint and multinational partners to develop procedures for combined AMD operations, interoperability, and training. The AAMDC plans, coordinates, integrates, and executes AMD for the CCDR, COMARFOR, or the combined or JFLCC.

(2) The AAMDC participates in developing the AADP.

(3) The AAMDC shares AMD aspects of intelligence preparation of the battlefield with the BCD and provides AMD target nominations for high payoff targets. See ADP 3-09, *Fires,* for more information.

h. The air defense artillery fire control officer (ADAFCO) is the single point of contact between Army land-based AMD fire direction centers and the joint or Army controlling authority.

(1) The AAMDC ADAFCO and a Navy liaison for the Aegis system are located with the AADC or JFACC and the senior air defense officer at the JAOC. They are responsible for coordinating and deconflicting upper-tier (i.e., exo-atmospheric) ballistic missile engagements. The AAMDC ADAFCO maintains communications with the air defense artillery (ADA) BDE ADAFCOs at the RADC's or SADC's location to share situational awareness.

(2) ADA brigade (BDE) ADAFCOs are located with a control and reporting center (CRC), on an aircraft carrier, amphibious assault ship, cruiser, destroyer, at a tactical air operations center (TAOC), or, in very specific circumstances, an Airborne Warning and Control System (AWACS).

(3) The ADA BDE ADAFCO is responsible for lower-tier engagements (i.e., endo-atmospheric) within a particular region or sector. Lower-tier engagements include terminal phase engagements of ballistic missiles, air-surface missiles, and air breathing threats (aircraft and cruise missiles). The ADA BDE ADAFCOs are located with the RADC's or SADC's mission crew commanders or senior weapons directors. They are the Army's link between Patriot units and the joint controlling agency (e.g., RADC or SADC) and issue all fire control orders to their subordinate units.

i. ADA BDEs support theater-level operations using terminal high-altitude area defense and Patriot assets and can provide additional forces, which include counter rocket, artillery, mortar system of systems, and short-range air defense capabilities. ADA forces at the BDE level include nondivisional and maneuver base systems. These systems are employed to protect operational forces and assets from air and missile attack and provide global missile defense. The ADA BDE commander advises the AAMDC commander on overall counterair and AMD integration, synchronization, and employment. ARFOR ADA BN are task organized under ADA BDEs to defend designated assets.

j. Command posts (CPs) synchronize the warfighting functions, via the operations process, where air-ground integration occurs. There are three primary types of CP a

main CP, a tactical CP, and a support area CP described in the following paragraphs. See ATP 6-0.5 for doctrine on CP organizations and operations.

(1) Main CP. This is an operations center containing the majority of the staff and is designed to control current operations, conduct detailed analysis, and plan future operations.

(2) Tactical CP. This is a facility containing a tailored portion of a unit HQ and is designed to control portions of operations for a limited time.

(3) Support Area CP. The support area CP enables DIV and corps commanders to exercise mission command over disparate, functionally-focused elements (operating within the support and consolidation areas) that may exceed the effective span of control of the Marine expeditionary brigade (MEB) or DIV and corps main CPs.

k. The corps and theater fires cell (FC) plans, coordinates, integrates, and synchronizes the employment and assessment of fires in support of current and future theater-wide operations. The cell coordinates, integrates, and assigns joint, interagency, and multinational firepower to targets/target systems. It synchronizes firepower to include Army, joint, interagency, and multinational component air assets, SOF, naval surface fire support, cyberspace/electromagnetic activities, and Army missiles. Conversely, the DIV JAGIC (if formed), BDE, and BN FCs plan, prepare, execute, and assess fires in support of current and future operations. These FCs back-brief targeting guidance to the commander, in accordance with the commander's intent for fires and maneuver, develop high priority targets, and prioritize targets for attack, matching them to a wide range of targeting and delivery systems. For more information about the FC reference JP 3-09.

l. Air defense cells are organic to corps, DIVs, and BDEs. Each air defense coordination element is mobile and equipped with an AMD planning coordination system shelter to access, process, plan, and distribute the tactical digital information necessary to execute the AMD and airspace coordination missions. They contribute to the commander's situational awareness by providing a unit level common tactical air picture. These elements are responsible for synchronizing AMD operations with the commander's scheme of maneuver, resolving immediate airspace conflicts, and coordinating with other Army, joint, and multinational AMD units for early warning and complementary defense coverage from enemy air and missile threats.

m. The air defense airspace management (ADAM) cell is organic to a BCT. It provides the BDE commander situational understanding of the airspace and early warning via connectivity with airspace users and mission partners' sensors and command networks. The ADAM continuously plans for, controls, and monitors the operations of all airspace users supporting the BCT's operations and those transiting through the airspace over their ground commander's AO. The ADAM is integrated with the brigade aviation element (BAE).

n. The BAE supports the BCT as a dedicated planning and coordination cell which integrates and synchronizes Army aviation operations with the ground commander's scheme of maneuver, fires plan, and unit airspace plan (UAP). The BAE coordinates

with the supporting aviation BDE or task force for Army aviation mission requirements. The BAE is also responsible for integrating airspace requirements in the BCT UAP and submits airspace requirements to its higher HQ. The BAE is integrated with the ADAM cell.

Note: ADAM capabilities resident in a combat aviation BDE, fires BDE, and maneuver enhancement BDE do not have an aviation operations component and, therefore, have a limited capability to perform BAE functions.

o. The airspace element (AE) is a staff element at the corps and DIV level CP.

(1) The senior Army AE (the corps or DIV) coordinates airspace requirements through the BCD when the ACA is at the JAOC. The BCD's airspace section ensures joint airspace policies and documents incorporate the Army's airspace priorities and operational requirements.

(2) As the airspace functional lead for the corps and DIV staffs, the AE develops aviation standard operating procedures and airspace control annexes. These procedures and annexes ensure consistency with joint airspace procedures, the theater ACP, aeronautical information publications, and associated plans and orders. The AE coordinates with the TACP, ASOC, CRCs, AWACS, Marine Corps direct air support center (DASC), TAOC, and other airspace control entities for rapid resolution of airspace issues.

(3) The DIV AE or JAGIC (if applicable) oversees airspace control for the DIV by providing a link between the TAC C2 and the BCT ADAM/BAE. The DIV and above HQ develops the Army UAP based on the BCT's Tactical Airspace Integration System inputs. It sends airspace coordinating measures (ACMs) to the JAOC BCD for approval and integration with all other airspace requirements in the airspace control order (ACO).

p. The fire support team is a field artillery team which supports a specific maneuver company or troop and selected units to plan and coordinate all supporting fire. These include mortars, field artillery, naval surface fire support, and CAS integration. Fire support teams provide maneuver companies and reconnaissance troops with fire support coordination, targeting, input for terminal attack control, and assessment capabilities.

q. Joint fires observers (JFOs) are trained Service members who can request, adjust, and control surface-to-surface fires. They provide targeting information in support of Types 2 and 3 CAS terminal attack control and perform autonomous terminal guidance operations. The JFO is not an addition to the Army fire support organization, but a Soldier who has received training for initial JFO certification and has maintained qualifications through currency and evaluation requirements. See ATP 3-09.32/Marine Corps reference publication 3-31.6/Navy tactics, techniques, and procedures 3-09.2/Air Force tactics, techniques, and procedures 3-2.6, *Multi-Service Tactics, Techniques, and Procedures for the Joint Application of Firepower,* for more information. To facilitate CAS attacks, the JFO provides timely and accurate targeting information to a qualified terminal attack controller, such as a

JTAC, forward air controller (airborne) (FAC(A)), or directly to supporting CAS aircraft (when authorized by the controlling JTAC or FAC(A)).

r. A field artillery BDE's primary task is conducting corps-level strike operations. It is capable of employing Army fires and incorporating electronic warfare. In addition, a BDE can request joint fires and coordinate with airspace control elements. The field artillery BDE can detect and attack targets using a mix of its organic target acquisition and fires capabilities, a supported DIV's information collection capabilities, and access to higher echelon HQ information collection capabilities provided by national-to-tactical intelligence assets. The field artillery BDEs' organic assets include one or more multiple launch rocket systems or high-mobility artillery rocket system BNs and a target acquisition battery. When a field artillery BDE is allocated to a corps, the BDE commander becomes that corps' fire support coordinator (FSCOORD), and is the primary advisor to the corps commander for integration of Army, joint, and multinational fires. The field artillery BDE commander may designate the corps chief of fires as the deputy fire support coordinator (DFSCOORD). For more information on the field artillery brigade refer to ATP 3-09.24 and FM 3-0.

s. The combat aviation BDE is organized to synchronize the operations of multiple aviation BNs simultaneously conducting operations from a single or multiple locations in the AO. The BDE must prepare to fight as a maneuver BDE; provide support to BCTs; or conduct multiple, independent missions. Aviation forces operate as part of the combined arms team integrated at the BCT level and higher.

t. Each combat aviation BDE has an organic air traffic service company that establishes and operates airfields in support of division operations. The company contains a terminal control platoon and an airspace information services platoon.

(1) The terminal control platoon operates a fully instrumented airfield with airport surveillance radar or precision approach radar and can control local airspace necessary to support airfield operations.

(2) The airspace information services platoon has the ability to control two tactical landing sites with its tactical control teams. The platoon's airspace information center provides flight following services to aircraft operating within its assigned airspace.

u. The division artillery (DIVARTY) commander may designate the DFSCOORD as the division chief of fires. DFSCOORD is the senior staff officer responsible for targeting and integrating effects. The deputy further delegates JAGIC chief responsibility to the assistant FSCOORD, who works through the FC, the JAGIC's staff elements, and ASOC elements to facilitate integrating lethal and nonlethal effects in support of the current operation and fires clearance. For more information on the division artillery, refer to ATP 3-09.90.

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Chapter III
AIR FORCE THEATER AIR CONTROL SYSTEM

1. Background

This chapter focuses on the Air Force's contribution to the TAGS and includes all the C2-related capabilities and activities associated with air and cyberspace, and agile combat support operations.

a. Battle management (BM) is visualizing where forces are in the field and when they will be at specific locations and applying capabilities against specific threats. For example, the dynamics of the counterair mission requires flexibility during decentralized execution taking place at the tactical level. This flexibility, accomplished through BM, allows direct, often real time, monitoring and executing operations based on the intent and within the scope of the operational-level commander's orders.

b. BM supports synchronizing and integrating efforts with other joint air operations. This contributes to the unity of effort and reduces the expenditure of resources and risk of fratricide. For subordinate commanders and battle managers, effective BM requires building and maintaining situational awareness, managing available resources, and directing and controlling execution. The JFACC establishes battle management areas (BMAs) to support effective, decentralized execution of air operations and delegated ACA and AADC responsibilities.

c. The AFFOR staff is the mechanism through which the COMAFFOR exercises responsibilities across all military operations, from steady-state operations in the engagement phase through major operations and campaigns. These responsibilities include deploying, basing, sustaining, and redeploying AFFOR. During steady-state operations, the AFFOR staff supports the COMAFFOR in operational and administrative responsibilities. The operational responsibilities include planning, executing, and assessing steady-state operations in support of the CCDR's theater campaign plan. The administrative responsibilities include activities for organizing, training, and equipping AFFORs. The AFFOR staff is responsible for the operational planning that occurs outside the air tasking cycle (e.g., deliberate planning). An AFFOR staff should be ready to fill one or more roles: that of a theater-wide Air Force Service component, an Air Force warfighting component within a JTF, or the core within a JTF headquarters. While joint and Air Force doctrine state that an individual will be dual-hatted as COMAFFOR and JFACC, the two responsibilities are different, and may be executed through different staffs.

2. TAGS and TACS Relationship

a. The COMAFFOR uses the TACS to command and control Air Force air and cyberspace forces to create effects throughout the operational environment. The AOC is the COMAFFOR's focal point for tasking and exercising OPCON over AFFOR. Subordinate elements of the TACS (described in the following paragraphs) plan, coordinate, monitor, and execute air operations.

b. In most operations, the COMAFFOR holds multiple positions, which can include JFACC, ACA, and AADC. This is due to the Air Force's ability to concurrently command and control these activities. In joint operations, where separate commanders are designated, close coordination is essential for unity of effort, fratricide prevention, and joint air operations deconfliction. See JP 3-01, JP 3-30, and JP 3-52 for integration of ACA and AADC authorities under JFACC.

c. Through paragraph 4, this chapter assumes the JFC has assigned the COMAFFOR as the JFACC, ACA, AADC, space coordinating authority, and collection authority. When the COMAFFOR is also the JFACC, the AOC becomes the JAOC.

3. Elements of the TACS

a. JAOC. The JAOC is the senior element of the TACS and provides C2 of joint air operations. It develops an air operations plan that meets the JFC's guidance. It allocates resources and tasks apportioned forces through the joint air tasking cycle and produces the ATO. The elements of the TACS are shown in figure 5. For further information on a JAOC, see AFI 13-1 AOCV3, *Operational Procedures–Air Operations Center.* Primary JAOC functions include:

(1) Developing air operations strategy and planning documents integrating air and cyberspace operations which meet objectives and guidance.

(2) Tasking and executing day-to-day air operations; providing rapid reaction, positive control, weapons employment coordination and deconfliction; and integrating the total air effort of the air assets made available to the JFACC.

(3) Receiving, assembling, analyzing, filtering, and disseminating all-source intelligence and weather information to support air operations planning, executing, and assessment.

(4) Issuing the ACO and coordinating airspace control activities for the ACA when the JFACC is designated as the ACA.

(5) Providing overall direction of air defense, including theater and ballistic missile defense, for the AADC when the JFACC is designated AADC.

(6) Planning, tasking, and executing theater airborne ISR missions.

(7) Conducting operational and tactical-level assessments, which determine mission and overall effectiveness, as required by the JFC; and supporting the theater assessment process.

(8) Producing and disseminating ATO, ACO, SPINS, OPTASKLINK messages, common operational picture guidance, and associated changes.

(9) Providing integration and support of all air mobility, including air refueling missions.

(10) Issuing space control procedures and coordinating space control activities for the SCA when the JFACC is designated as the SCA.

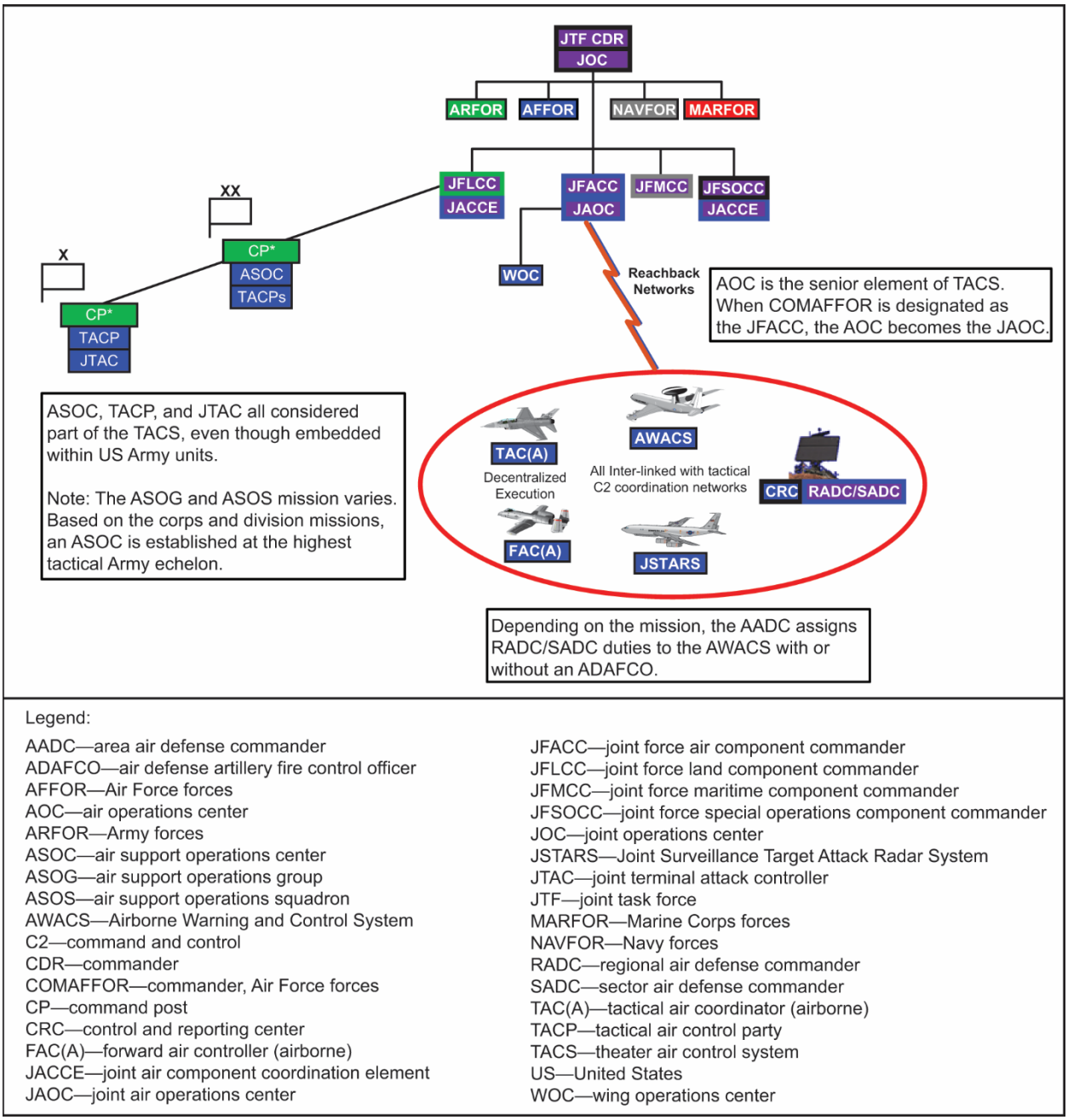

Figure 5. The TACS

b. CRC. A CRC is a ground-based mobile element of the TACS, with long-range wide-area air target indicator radars. Radars can be collocated with the CRC or in a forward deployed radar configuration. In addition, the CRC can import and display nonorganic radar data via direct communication feeds. It is an integrated Air Force battle management command and control (BMC2) platform capable of persistent operations while providing 360 degree, wide-area surveillance; early warning; BM; target detection and tracking; and weapons control functions. The CRC is tailorable, by mission requirements, and provides support and enables tasks that facilitate the full spectrum of air power. This includes ATO execution, airspace management and

integration, surveillance and combat identification, and tactical data link management. The CRC can find, fix, track, and target airborne threats and exchange air picture data with other joint and coalition C2 systems and aircraft via various tactical data link systems. The CRC can obtain tactical data link information from other surface and airborne participants expanding or augmenting surveillance coverage. Responsibility for executing decentralized planned, dynamic, functional, geographic missions, and authorities for theater offensive/defensive air operations can be delegated to the CRC. The CRC mission commander may be delegated RADC or SADC responsibilities and is a key BMC2 element for DCA operations. It is under the OPCON of the JFACC and vertically integrated with the JAOC. It may be employed alone or horizontally integrated with other BMC2 and surveillance and reconnaissance elements of the joint TAGS. Depending on the type and phase of military operations, the JFACC may delegate all or portions of identification, commit, engagement, airspace control, and tactical data link control authorities to the CRC.

Note: ADA BDE ADAFCO elements employ with appropriate RADC or SADC units and are responsible for integrating Army, lower-tier AMD engagement operations into the joint integrated air defense system. They may be deployed to supplement CRC and AWACS mission crews in the TACS, a TAOC, or appropriate Naval systems. (Refer to chapter II for further details)

c. E-3B/C AWACS.

(1) AWACS is a modified Boeing 707 aircraft with a long range, wide-area air and maritime moving target indicator radar. This makes it an airborne element of the TACS and is one of the first air BM assets to arrive in a theater of operations. It is an integrated Air Force BMC2 platform capable of persistent operations providing 360 degree, wide-area surveillance; early warning; BM; target detection and tracking; and weapons control functions.

(2) AWACS is tailorable by mission requirement providing support and enabling tasks for the full spectrum of air power, including ATO execution, airspace management and integration, surveillance and combat identification, and tactical data link management.

(3) AWACS' elevated radar system can find, fix, track, and target airborne threats at lower altitudes and extended ranges compared to ground-based radars.

(4) It can exchange radar picture data with other joint and coalition C2 systems and fighter aircraft via various tactical data link systems. AWACS can obtain tactical data link information from other surface and airborne participants, expanding or augmenting surveillance coverage. It also can identify and locate airborne and ground-based emitters with an integrated radio frequency passive detection system.

(5) Executing decentralized planned, dynamic, functional, and geographic missions and tasks, and authorities for theater offensive and defensive air operations can be delegated to AWACS.

(6) The AWACS mission commander may be delegated RADC or SADC responsibilities and is a key BMC2 element for DCA operations.

(7) It is under the OPCON of the JFACC and vertically integrated with the JAOC. It may be employed alone or horizontally integrated with other BMC2 and surveillance and reconnaissance elements of the joint TAGS. Depending on the type and phase of military operations, the JFACC may delegate all or portions of identification, commit, engagement, airspace control, and tactical data link control authorities to the AWACS.

d. E-8C Joint Surveillance Target Attack Radar System (JSTARS).

(1) JSTARS is a modified Boeing 707 aircraft with a long range, wide-area ground and maritime moving-target indicator. It has a synthetic aperture radar making it an airborne element of the TACS and is one of the first assets to arrive in a theater of operations. JSTARS is an integrated Air Force BMC2 platform capable of persistent operations providing surveillance, early warning, BM, target detection and tracking, and weapons control functions. It also can provide surveillance and reconnaissance support.

(2) JSTARS is tailorable by mission requirement, providing support and enabling tasks for the full spectrum of air power, including ATO execution, airspace management and integration, wide-area and focused surveillance, target characterization and execution, and tactical data link management.

(3) JSTARS exchanges radar picture data with other joint and coalition C2 systems and fighter aircraft via various tactical data link systems. JSTARS can obtain tactical data link information from other surface and airborne participants expanding or augmenting surveillance coverage. JSTARS capitalizes on its wide area surveillance capabilities by providing radar data directly to other joint C2 and intelligence nodes, using unique surveillance and control tactical data links, and visualizing the ground and maritime battlespace in near-real time.

(4) Executing decentralized planned, dynamic, functional, and geographic missions and tasks, and authorities for theater offensive and defensive air operations can be delegated to JSTARS. JSTARS directs target attack mission capabilities and assists ground, air, and naval commanders in detecting, delaying, disrupting, and destroying enemy forces. JSTARS may also be assigned as an extension of the ASOC/DASC to increase ASOC radio coverage by using radar to locate and coordinate target execution, and support CAS operations.

(5) It is under the OPCON of the JFACC and vertically integrated with the JAOC. JSTARS may be employed alone or horizontally integrated with other C2 and surveillance and reconnaissance elements of the joint TAGS. Depending on the type and phase of military operations, the JFACC may delegate all or portions of identification, commit, engagement, airspace control, and data link control authorities to the JSTARS.

e. Air Support Operations Group (ASOG). The Air Force provides an ASOG to support a corps when the corps operates as the senior tactical echelon. The ASOG

includes a corps TACP and the appropriate C2 architecture to include an ASOC if resourced to support the corps. The corps TACP provides air-ground integration, planning, and execution capabilities in direct support of the corps in its assigned AO. When deployed, the ASOG becomes the expeditionary air support operations group and the commander has OPCON of subordinate Air Force air support operations squadrons (ASOSs).

f. ASOS. In garrison, the Air Force aligns an ASOS to support a DIV and the DIV's subordinate maneuver echelons. The ASOS includes DIV, BDE, and BN TACPs and an ASOC. The ASOS provides air-ground integration, planning, and execution capabilities in direct support of the DIV in the volume of JFC/ACA delegated airspace known as DIV-assigned airspace. Normally, the ASOS will support a DIV operating as a tactical echelon. When deployed, the ASOS becomes the expeditionary ASOS.

g. ASOC. The ASOC is the primary Air Force control agency of the TACS for executing air and cyberspace capabilities in direct support of joint force land component operations. As a direct subordinate element of the JAOC, the ASOC is responsible for directing and controlling air operations in its assigned area (short of the fire support coordination line (FSCL) and up to the coordinating altitude). The ASOC is at the Army's senior tactical echelon, collocated with the DIV FC and AE.

(1) ASOC functions include:

(a) Executing the ATO, as directed by the JFACC, to meet the ground commander's objectives by coordinating and integrating airpower in support of ground operations.

(b) Providing procedural control of air component aircraft operating in the AO short of the FSCL.

(c) Establishing, maintaining, and operating the autonomous reach-forward and reachback communications architecture and infrastructure necessary for mission execution, including the joint air request net (JARN).

(d) Providing decentralized air support execution coordinated with the established commander's weight of effort and priority of fires.

(e) Obtaining clearance of fires from the appropriate fires echelon.

(f) Integrating, coordinating, directing and controlling air component missions within its assigned area (primarily short of the FSCL) in direct support of land maneuver objectives and as directed by the JFACC.

(g) Assisting with dynamic targeting and friendly-force location information for CAS, AI, suppression of enemy air defenses (SEAD), airlift, airdrop, ISR, information operations (IO), and PR missions within their AO.

(h) Assisting the senior ALO who is responsible for advising the senior ground maneuver commander on properly integrating joint capabilities to support the ground scheme of maneuver.

(i) Setting up and using ASOC systems to establish and maintain data link connectivity, and maintain the common tactical picture within its assigned echelon's AO.

(2) The ASOC may coordinate other missions in its assigned area to include AI, IO, air defense, ISR, joint SEAD, airlift, and joint PR. Air missions conducted within the ASOC's control area, and not directly supporting the ground component, are coordinated through the ASOC. The ASOC deconflicts ground force maneuver and fires and provides target and threat updates.

(3) During large-scale combat operations, the ASOC's designated area extends to the FSCL for mission execution control. Coordinated with the TACP, the ASOC's role in planning and advisory functions may extend to the assigned echelon's forward boundary. The JFACC may delegate launch, redirect, or retarget authority for ground alert CAS missions to the ASOC, separately or as part of a JAGIC, providing a fast response time when air support is needed. The decision to delegate retargeting authority to the ASOC or JAGIC for specific AI missions short of the FSCL depends on the circumstances, including the timeline for generating the desired effects on the target. Unless delegated, targeting authority for all AI missions remains with the JFACC.

h. TACP. The TACP integrates joint capabilities creating desired effects, to support the ground scheme of maneuver. TACPs primarily support maneuver elements at the corps, DIV, BDE, and BN levels, but may be employed at any echelon in support of specific missions of limited duration. A TACP consists of the following members:

(1) ALO. The ALO serves as the senior member of the TACP at each echelon. The ALO is the primary advisor to the ground commander on air and cyberspace capabilities. ALOs provide expertise in applying and integrating joint capabilities to generate multi-domain effects, throughout the operational environment, in direct support of the supported echelon. The ALO is responsible for distributing and employing assigned TACPs at each echelon. Additionally, ALOs may be certified and qualified to serve in the JTAC role.

(2) JTAC. A JTAC is a qualified Service member who, from a forward position, directs the action of combat aircraft engaged in CAS and other combat operations. A JTAC controls aircraft maneuver and ordnance employment in proximity to friendly forces, where detailed integration is required. The JTAC provides the ground commander recommendations on the use of joint capabilities and its integration with the ground scheme of maneuver.

i. FAC(A). A FAC(A) is an airborne extension of the TACP and is a trained and qualified aviation officer who exercises control, from the air, of aircraft engaged in CAS of ground troops. The three objectives of the FAC(A) are: achieve ground commander's intent, maximize and integrate fires on the battlefield, and mitigate friendly fire. The FAC(A) provides coordination, deconfliction, and terminal attack control for CAS missions, and locates and marks ground targets.

j. Tactical Air Coordinator (Airborne) (TAC(A)). The TAC(A) is an extension of air support control agencies. The TAC(A) provides a communication relay between the

TACP, attack aircraft, and other elements of the TACS in the absence of a JSTARS or a FAC(A). The TAC(A) expedites the CAS aircraft-to-JTAC handoff during "heavy traffic" CAS operations. TAC(A) tasks may include coordination of CAS briefs, relay threat updates, bomb hit assessments, battle damage assessments (BDAs), aircraft coordination, and fire support.

k. Wing Operations Center (WOC). The WOC is the air expeditionary wing commander's C2 element. It includes a CP, command section, battle staff, and other planning and support personnel. The WOC functions as the operations center for units assigned or attached to the wing for operations. The JFACC exercises TACON of the WOC and is vertically integrated with the AOC. It is horizontally integrated with other BMC2 elements of the TACS. The WOC provides C2 of unit forces and ensures sorties are generated and missions accomplished as directed in the ATO.

4. Air Force and Air Component Liaisons

a. JACCE. The JFACC may establish one or more JACCEs with other component commanders' HQ to integrate the air component's operations. The JACCE may be assigned to a supported JTF HQ (if the theater JFACC is designated in support of a JTF) to integrate air component operations within the joint force. When established, the JACCE acts as the JFACC's primary representatives to commanders and facilitates interaction among associated staffs.

b. AFLE. If the COMAFFOR is not the JFACC, AFLEs provide an interface between the COMAFFOR and the JFACC. This interface facilitates coordination and synchronization of Air Force assets supporting joint air operations. AFLE personnel are selected for their BM expertise and knowledge of C2 concepts and procedures.

5. Air Force TACS support for Homeland Security

Battle Control Center (BCC). The Air Force BCC supports the North American Aerospace Defense Command Commander and the CCDRs of US Northern Command and US Indo-Pacific Command. It is the primary tactical C2 node for homeland defense (including the National Capital Region), homeland security, and civil support. The BCC is a ground based, fixed element of the TACS.

a. It is comprised of four major systems: a BMC2 processing and display system called the Battle Control System-Fixed; primary and secondary radar capability; flight-plan processing and other contributing identification systems; and communication and data link connectivity.

b. The BCC manages the largest operational, netted-sensor tracking architecture in the Department of Defense. It operates continuously to provide wide-area air surveillance, early warning, BM, target detection and tracking, and nonlethal warning and weapons control functions.

c. BCC fuses all-source sensor and intelligence data into a common tactical picture and disseminates tactical warning and attack assessment information to users and decision-makers. It can perform all tasks to facilitate the full spectrum of air power,

including ATO execution, airspace management and integration, surveillance and combat identification, and tactical data link management.

d. The BCC can find, fix, track, and target airborne threats and exchange air picture data with other joint and allied C2 systems and fighter aircraft through tactical data link systems. The BCC receives tactical data link information from other surface and airborne participants, which augments the surveillance and tactical air picture. The BCC can distribute the tactical air picture (including plot level data) directly to the AOC and CCDR. It can operate autonomously if connectivity is denied with the AOC. In addition, each BCC can provide immediate, mutual support and redundancy if one of the adjacent sectors becomes inoperative.

e. The BCC is under the OPCON of the JFACC and vertically integrated with the JAOC. The command and control structure of the BCC is shown in figure 6. It may be employed alone or horizontally integrated with other BMC2 surveillance and reconnaissance elements. Depending on the type and phase of military operations, the JFACC may delegate all, or portions of identification, commit, engagement, airspace control, and data link control authorities to the BCC.

Note: For US-only air operations within the continental US, Commander Air Force North/1 AF is designated COMAFFOR, JFACC, AADC, and SCA.

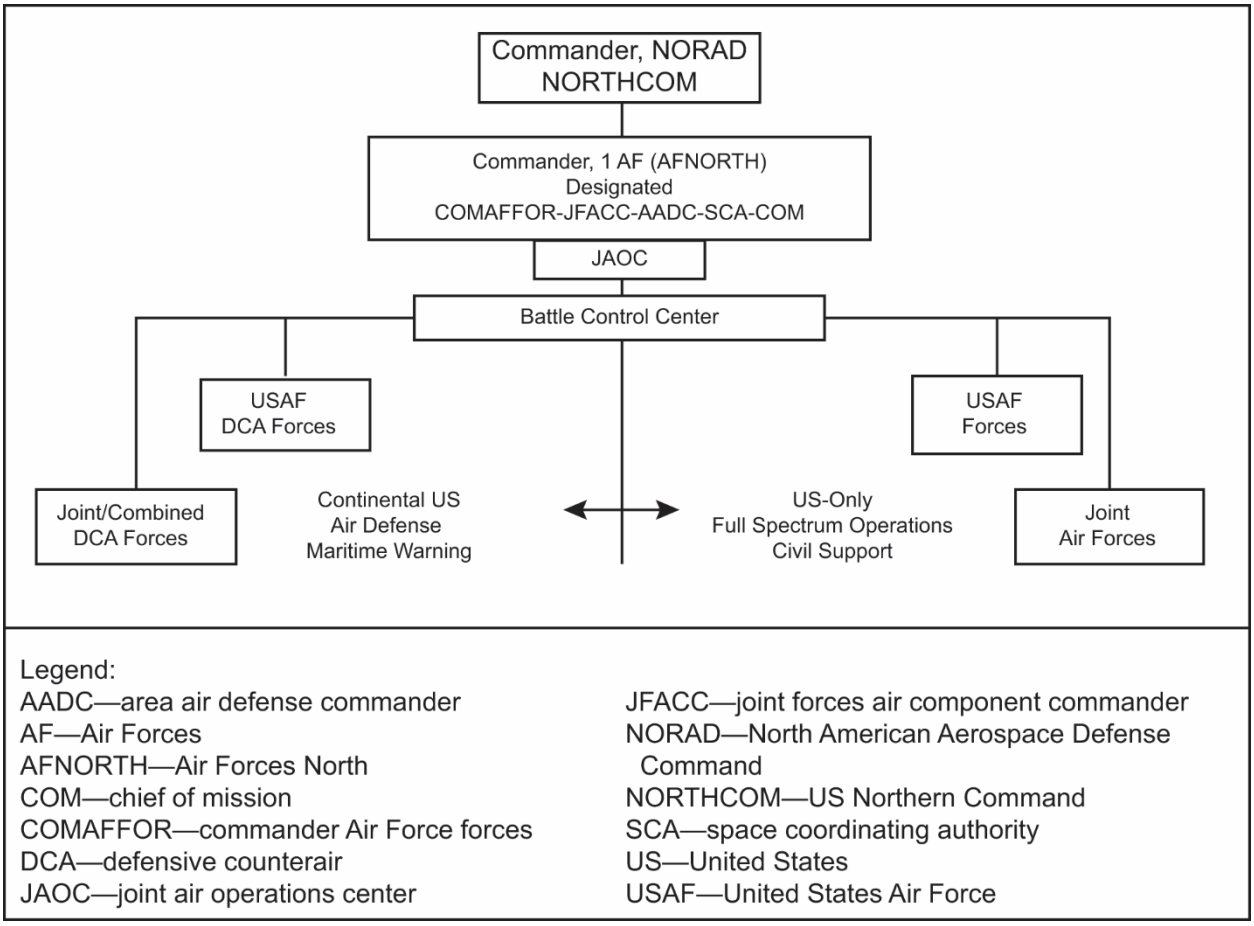

Figure 6. The BCC

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Chapter IV
NAVY TACTICAL AIR CONTROL SYSTEM AND COMPOSITE WARFARE COMMANDER

1. Background

This chapter provides a general understanding of the roles NAVFOR fill in joint operations and doctrinal tools and C2 systems use to apply naval air power.

2. Navy C2 Structure

NAVFOR operate in a variety of modes, depending upon mission and deployment conditions. Groups, units, and elements may operate separately for a large percentage of a deployment. When required, NAVFOR must be capable of limited and independent C2 of joint air operations. Naval processes and procedures for joint air operations C2 align with joint air planning and execution doctrine and systems.

NAVAL CONTRIBUTION TO TAGS IN OPERATION ODYSSEY DAWN/UNIFIED PROTECTOR

During the first 96 hours of OPERATION ODYSSEY DAWN/UNIFIED PROTECTOR, the Kearsarge amphibious ready group (KSG ARG) provided the primary air command and control (C2) capability across the joint operations area. With its organic early warning radars, data link capability, and embarked tactical air control squadron, the KSG ARG performed the role of a traditional combat reporting center to include JOA airspace management, tanker management, force marshalling, on-scene combat search and rescue mission commander, and joint targeting relay node.

Even after Airborne Warning and Control System (AWACS) became established, the KSG ARG routinely covered C2 shortfalls when the AWACS was unavailable. The KSG ARG controlled over 1,200 sorties, relayed 189 10-line targeting requests, executed combat search and rescue for a downed F-15E, and coordinated the transfer of over 15 million pounds of fuel from 313 tankers to 746 aircraft.

SOURCE: KEARSARGE Amphibious Ready Group, 26th Marine Expeditionary Unit, Post-Deployment Brief.

3. Maritime Operations Center (MOC)

a. MOCs function as the core organizational construct for a Navy component commander (NCC), numbered fleet commanders (NFCs), or a JFMCC to support operational-level assessment, planning, and execution. The MOC provides the commander a functionally organized staff and C2 suite capable of executing Navy, joint, or combined responsibilities. MOCs can serve as the core construct for a JTF or combined JTF. The MOC staff coordinates and liaises with other component operations centers (e.g., AOC).

b. In executing maritime operations, the JFMCC or NCC is the supported commander and the JFACC is the supporting commander. In this case, the JFACC conducts air operations in support of JFMCC or NCC objectives. For example, the

JFACC may attack targets posing a threat to JFMCC forces, or conduct reconnaissance of installations of interest to the JFMCC. If the JFMCC needs additional aircraft to accomplish assigned missions, the JFMCC requests the aircraft from the JFACC via an allocation request. If supportable and consistent with the JFC apportionment decision, the JFACC provides joint air assets to the JFMCC and transfers TACON of aircraft to the JFMCC for the duration of the sorties. The MOC follows joint and Service procedures and processes and uses compatible communications systems to C2 allocated air assets executing assigned missions.

4. Composite Warfare Command Structure

a. Composite Warfare Doctrine. The Navy's composite warfare commander (CWC) is the cornerstone of their task force operational and tactical C2 systems. The CWC enables the officer in tactical command (OTC) of a naval force to wage combat operations 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 subsurface threats. See Navy warfare publication (NWP) 3-56, *Composite Warfare Doctrine*, for more information on the CWC concept.

b. Principal Warfare Commanders. Responsible to the CWC for conducting the tactical battle. Principal warfare commanders may include:

(1) Air and Missile Defense Commander (AMDC). Protects the force against air-breathing and ballistic missile threats.

(2) Surface Warfare Commander. Protects the strike group from surface threats.

(3) Antisubmarine Warfare Commander. Directs task group antisubmarine warfare operations by controlling the antisubmarine warfare actions of all assigned units.

(4) Strike Warfare Commander (STWC). Coordinates offensive power projection operations for air and naval cruise missile engagements against land-based targets.

(5) IO Warfare Commander. Directs the management and exploitation of the electromagnetic and acoustic spectra.

(6) Sea Combat Commander. Plans, directs, monitors, and assesses CWC tasks in support of the JFMCC or NFC maritime support plan for sea control.

c. Responsibilities of Principal Warfare Commanders. Although all warfare commanders interface with the TAGS, the primary operators are the STWC and AMDC. Principal warfare commanders issue operation task (OPTASK) and daily intention messages promulgating their intentions to the forces under their control. The messages are addressed to all concerned forces (NAVFOR and other Service component forces performing missions for the OTC or CWC). The OTC or CWC coordinates with other Service or functional component commanders outside the naval force and warfare commanders through the NCC's staff.

d. Coordinators. These assist the CWC and subordinate warfare commanders. They differ from warfare commanders by executing policy, but not controlling forces or initiating autonomous actions. Some common coordinators for air operations are in the following list.

(1) Air Resource Element Coordinator (AREC). Manages and coordinates the carrier aircraft allocation and distribution.

(2) Naval Force ACA. Coordinates and manages naval force airspace use.

(3) Helicopter Element Coordinator. Manages naval helicopter assets.

(4) Tomahawk Land-Attack Missile (TLAM) Strike Coordinator (TSC). Responsible for all TLAM strike planning, coordination, and reporting. The TSC may be collocated with the NCC aboard an aircraft carrier, ashore at a JTF HQ, or delegated at lower levels by the TSC (as shown in figure 7).

(5) TLAM Launch Area Coordinator (LAC). The TSC's principal coordinator for executing TLAM strike operations.

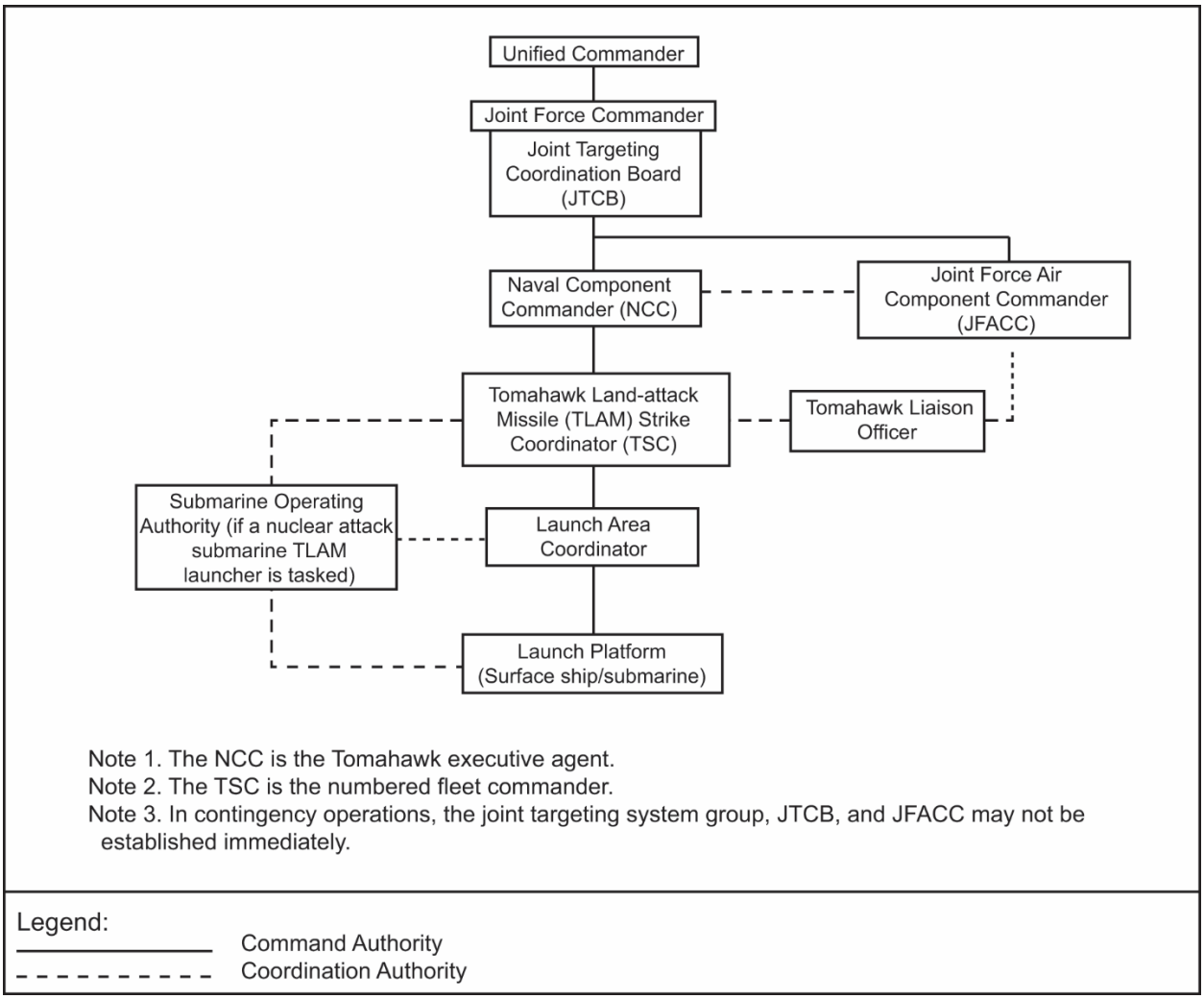


Figure 7. Tomahawk Strike Coordination Chain

e. CWC Structure. The CWC structure was designed to fight open-ocean wars against a conventional enemy navy. CWC has evolved and supports expeditionary operations, including overland and the littorals, accommodating the wide range of current missions.

5. Battle Space Organization

NAVFOR divides its AO into three tactical area subsets within the operational environment: surveillance area (SA); classification, identification, and engagement area (CIEA); and vital area (VA). These areas are defined by the strike group commander and are used to describe a defended region around high value assets. When NAVFOR transitions from open ocean, through near land, to littoral joint or coalition operations, these areas merge with, and are superseded by, jointly defended airspace defined by the AADC and ACA. The functions of SA, CIEA, and VA defense still apply, but they are reestablished under joint or coalition guidelines, which may not directly translate to Navy concepts of traditional defended airspace.

a. The SA is the area in the operational environment extending out to a range that equals the sensor's ability to continuously detect and track any vessel. The dimensions of the SA are a function of strike group surveillance capabilities.

b. The CIEA is defined as the area within the SA (and surrounding the VA) where all contacts must be classified, identified, monitored, and (if necessary) escorted, covered, or engaged. The CIEA extends from the outer edge of the VA to the outer edge of the commander's effective ability (and the ability of assigned forces) to monitor airspace. The CIEA is a function of own-force assets and capabilities, threat speed, and the commander's desired decision time, and size of the VA.

c. The VA is defined as a designated area or installation to be defended. The VA extends from the center of the defended asset to a distance equal to or greater than the expected threat weapon's maximum range within the threat sector boundaries. The intent is to engage legitimate threats prior to their breaching the perimeter of the VA. The size of the VA is a function of the threat. In some operating environments, such as littorals, engaging threats prior to breaching the VA is not possible because the force may be conducting concurrent warfare operations within the weapons release range of potential threats. See NWP 3-20, *Navy Surface Warfare Manual,* for more information.

6. Navy Capability Sets and CSGs

a. The Navy (i.e., a JFMCC or NCC) organizes assigned and attached forces as part of a task force organizational construct, aligned through a numbered fleet commander. The afloat senior commander is designated as the OTC or CWC. As part of a joint command structure, the numbered fleet commander may be designated as a JTF commander or a JFMCC under a CCDR, JFC, or commander of another JTF. Further, an NCC may be tasked as a JFMCC or assigned by the CCDR to provide service support to a JFC or combined JTF. A commander, task force (CTF) is a subordinate commander, OTC, or CWC responsible for tactical execution of assigned missions or tasks. A strike group commander may be

designated as a commander, task group (CTG) and serve as the OTC or CWC for specific strike group tasks.

b. CTFs and CTGs are tactical-level commanders who are subordinate to the JFMCC or NCC. Their staffs are organized around the CWC construct described in NWP 3-56. When operating independently, warfare commanders submit air requests to the CWC. The CWC apportions and passes apportionment decisions to the AREC, the aircraft carrier commander, for allocation. When operating as part of a merged task organization or joint force, warfare commanders submit air support requests to their CWC. CWCs with assigned or attached tactical aircraft recommend their apportionment to the OTC. CWCs without assigned or attached tactical aircraft submit consolidated air requests to the OTC.

c. In a joint force with an assigned JFACC, the OTC maritime tactical aircraft apportionment recommendation, mission data, and ATO shell are passed either to the JFMCC, who reviews and revises the data or recommendations, or directly to the JFACC via the NALE for inclusion in the ATO.

d. The CSG commander and embarked staffs (ship's company, carrier air wing, destroyer squadron, and others) play an integral role in planning for the mission data and ATO shells and managing executing air operations. There is a strong emphasis on joint planning and execution procedures during the conduct of daily operations. ESG and amphibious ready groups (ARGs) or Marine expeditionary units (MEUs) participating in joint operations perform many of the same roles as CSGs, aligned under the CWC construct.

7. Amphibious Forces

a. An amphibious operation is a military operation launched from the sea, by an amphibious force, embarked in ships or craft of an ATF. Its primary purpose is introducing a landing force (LF) ashore to accomplish a mission.

(1) An amphibious force is defined as an ATF and LF trained, organized, and equipped for amphibious operations.

(2) An ATF is defined as a Navy task organization formed to conduct amphibious operations (e.g., an ESG or ARG).

(3) An LF is defined as a Marine Corps (e.g., a MEB or MEU) or Army task organization formed to conduct amphibious operations.

b. Amphibious operations require a three-dimensional geographic area containing the amphibious force's objectives. The operational area must be large enough to conduct maritime surface, subsurface, land, and air operations required for executing the amphibious force's mission. The JFC employs various maneuver, movement control, and FSCMs to facilitate effective joint operations. These measures include boundaries, phase lines, objectives, and coordinating altitudes, which deconflict air operations, air defense areas, AOAs, submarine operating patrol areas, and minefields. An AOA has airspace assigned for the amphibious force to establish an amphibious defense zone. Coordination and careful consideration of the coordinating FSCM and boundaries occurs between the JFACC, ACA, and AADC

for effectively employing an ACE and deconflicting the airspace. If an AO is used for amphibious operations, a corresponding high-density airspace control zone (HIDACZ) will be requested to allow for controlling aircraft and missiles in support of the amphibious operation. If an AO is assigned instead of an AOA, a corresponding HIDACZ will be incorporated to support air operations above the AO.

c. The most common type of amphibious force is an ARG or MEU. When amphibious operations are conducted by a Navy and Marine Corps team, the airspace C2 relationship is symbiotic. The Navy and Marine Corps team is designed to C2 operations while afloat, ashore, or both because of the broad spectrum of LF operations. The partial interchangeability of NTACS and MACCS provides the flexibility for meeting the complex air C2 needs of an amphibious force.

8. LF

a. The size of the LF deploying with an ESG or ARG varies. LFs contain organic air C2 capabilities, depending on the assigned mission. The most common LF is the MEU, which is the smallest of the standing MAGTFs.

b. Large-scale amphibious operations (e.g., LFs at the MEB or Marine expeditionary force (MEF) level) require robust C2 architecture and established procedures and division of responsibilities between the Navy and LFs. Large LFs are task organized and provide the full spectrum of aviation C2 during amphibious operations. Examples of air C2 element responsibilities include:

(1) Coordinating air resources.

(2) Producing the ATO shell, with MOC and AOC coordination, once ashore.

(3) Producing the air plan.

(4) Coordinating and approving air plan changes.

(5) Supporting the development and control of airspace (e.g., in an AOA when moving ashore).

(6) Controlling air missions.

(7) Coordinating airspace requirements and issues with ADC, MOC, and AOC.

(8) Supplying LNOs to the MOC and AOC (e.g., Marine LNO or BCD).

(9) Coordinating and executing CAS control with the ATF and AOC.

(10) Coordinating air assets with the ATF's supporting arms coordination center (SACC) and the LF's fire support coordination center (FSCC).

(11) Assisting ATF airspace deconfliction with the Tomahawk executive agent, TSC, and TLAM LAC.

(12) Monitoring ATO execution, providing bomb hit assessments, BDAs, and mission assessments.

9. NTACS and MACCS Coordination

a. The Marine Corps air C2 element is the Marine Corps tactical air command center (Marine TACC) and the Navy air C2 element is the Navy tactical air control center (Navy TACC). The Marine and Navy TACCs are functionally different depending on the phase of the amphibious operation. Table 1 depicts the relationships between Navy and Marine Corps C2 elements, their functions, and capability to phase functions ashore.

b. The Navy TACC is the senior Navy amphibious air control agency responsible for future plans and current air operations. The Navy TACC's functional areas are:

(1) Plans and support section.

(2) Air support control section (ASCS).

(3) Passenger/mail/ cargo (PMC) section.

(4) Air traffic control section (ATCS).

(5) Air defense coordination section (ADCS).

c. The plans and support section performs future planning functions and the other four sections control and integrate air operations. The plans and support section is responsible for developing the component ACO, ATO, SPINS, OPTASK air, and additional fire support asset requests for non-JTF operations.

(1) MEFs and MEBs can conduct future planning similar to the Navy TACC's plans and support section. However, a MEU does not have this complete capability. The MEU ACE staff, with the command element, has some of the capabilities of a Marine tactical air direction center (TADC). The MEU ACE provides the Navy TACC with future operations inputs and requests from the LF. The MEU ACE performs the TADC functions to enable follow-on forces when establishing a mission-capable Marine TACC.

(2) During MEU amphibious operations, the embarked Navy TACC coordinates sourcing support of nonorganic air assets to serve the LFs' immediate and scheduled air support requirements. Scheduled nonorganic support is coordinated through the Navy TACC, either by the MEU ACE or command element.

Table 1. Amphibious Afloat and Ashore C2			
Navy Element	**Function**	**Marine Expeditionary Unit (MEU) Phase Ashore Element**	**Marine Expeditionary Brigade (MEB) or Marine Expeditionary Force (MEF) Phase Ashore Element**
Landing force (LF) operations center	LF function for the command element operations.	MEU command operations center	MEB or MEF command operations center
Supporting arms coordination center	Coordination and deconfliction of ground forces, naval surface fire support, indirect fires, and air support.	Fire support coordination center	Force fires coordination center
Navy tactical air control center (Navy TACC)	Amphibious task force (ATF) function to conduct future operations planning (air tasking order (ATO) development), execute current operations (supervise ATO execution).	(Retained at Navy TACC)	Marine Corps tactical air command center (Marine TACC)
Navy TACC air support control section	ATF function to coordinate and control air support operations.	Air support element	Direct air support center
Navy TACC air traffic control section	ATF function to perform terminal aircraft control.	Marine air traffic control mobile teams	Marine air traffic control detachment
Navy TACC air defense coordination section (ADCS)	ATF function to coordinate with air defense commanders for employing aircraft and missiles to defend against enemy air threats.	(Retained at Navy TACC ADCS)	TAOC as sector air defense commander or regional air defense commander

d. The Navy TACC ASCS coordinates, controls, and integrates maritime, organic, mission aircraft and assault support operations. The ASCS is located in the SACC, the embarked equivalent of the LF's FSCC. The Marine Corps counterpart to the Navy TACC's ASCS is the DASC. For MEU-level amphibious operations, the air support element (ASE) is deployed with identical capabilities, but limited assets and endurance.

(1) During amphibious MEU operations, the ASE goes ashore in the same wave as the senior FSCC. The ASE physically or electronically collocates with the FSCC, integrates aircraft employment with other supporting arms, and processes immediate air support requests. When the ASE is established ashore, the embarked ASCS begins to phase amphibious airspace control to the ASE ashore. If an ASE is used, it may be expanded to a full DASC with additional follow-on force augmentation. As described in JP 3-30, the DASC is the principal

air control agency responsible for the direction of air operations supporting ground forces. It functions in a decentralized mode of operation, but is directly supervised by the Marine TACC. The DASC is similar to the Air Force's ASOC.

(2) A TAC(A) is a naval aviator who coordinates the action of combat aircraft engaged in close support of land or maritime forces. The TAC(A) serves as an onsite, airborne extension of the DASC. The DASC or Marine TACC determines the TAC(A)'s authority over aircraft operating within the assigned area. MACCS TAC(A) responsibilities are to avert conflicts among aircraft and coordinate employing air assets with other supporting efforts. The TAC(A) coordinates with TACP, FSCC, FAC(A), assault support coordinators (airborne) (ASC(A)), fire direction centers of artillery and naval surface fire support, and CAS assets.

(3) The Marine FAC(A) has the same capabilities as the Air Force FAC(A).The Marine FAC(A) is trained, qualified, and designated to:

(a) Perform air reconnaissance and surveillance.

(b) Conduct terminal control of aircraft engaged in offensive air support operations.

(c) Control artillery and naval surface fire support missions.

(d) Act as a radio relay.

(e) Control landing zone preparations.

(4) The ASC(A) is an aviator who coordinates, from an aircraft, the movement of aviation assets during assault support operations. The ASC(A) has an extensive knowledge of the MACCS and acts as an airborne extension of the DASC. The ASC(A) assists in providing situational awareness to the assault force, relays requests to the DASC, exercises launch authority for immediate and on-call missions, coordinates with the TAC(A), and provides routing recommendations to the air mission commander.

(5) The Navy TACC's ATCS provides initial safe passage, radar control, and surveillance for assault support and CAS aircraft in an operational area. For a MEU, the Marine Corps' counterpart to the ATCS is the Marine air traffic control mobile team (MMT). While the MMT does not have organic radar capability, it can operate out of an established host nation or captured ATC facilities. The MMT assumes control of the airspace immediately surrounding forward arming and refueling points (FARPs) and forward operating bases when the MEU operates from austere locations.

(6) Marine wing communication squadron (MWCS) personnel and equipment are collocated with the ACE when the HQ is established ashore. The MWCS establishes communication links with the ACE, DASC, and Navy TACC, when available. The communications links become pathways to process immediate air support requests and pass other information among the ACE, FSCC, and Navy TACC.

(7) The Navy TACC's ADCS provides liaison with AMDCs and provides early detection, identification, and warning of enemy aircraft.

(8) As MEF or MEB transitions ashore, they establish their own air defense capability and are either a SADC or a RADC. The MEU does not have an ADCS capability. Thus, the Navy TACC's ADCS does not phase control ashore for the air defense mission in support of MEU LF operations. The MEU has an organic low-altitude air defense (USMC) (LAAD) detachment for air defense. The LAAD detachment provides a mix of man-portable, air-defense teams and tactical data link capabilities. The TAOC is the Marine Corps' counterpart to the Navy TACC's ADCS. The TAOC is deployed in support of large MAGTFs.

10. Additional Naval Air Planning and Support Staffs

a. Additional air C2 planning and support staffs exist for air assets that are not organic to a CSG, commander, amphibious task force (CATF), or ESG. These assets include maritime patrol, reconnaissance, and fleet logistics aircraft. They have operational planning staffs, tactical support centers, operations wings, and other C2 elements. The staffs coordinate with the MOC staff.

b. Other Navy staffs not exclusively aviation-related may report to a unit other than a CSG or CATF. Examples of these units include naval special warfare units, tactical support centers, or Navy expeditionary combat command units with unmanned aircraft systems (UASs). These units may report directly to a task group commander, JFMCC, NCC, or a numbered fleet commander. Navy organic air assets follow the C2 procedures in this document similar to other detached aviation units previously described. They may provide a liaison to the MOC or AOC.

Chapter V
MARINE AIR COMMAND AND CONTROL SYSTEM

1. Background

The Marine Corps is able to project combat power ashore for the JFC using the MAGTF. The MAGTF is a combined arms force with integrated ground, aviation, and logistics capabilities. It has an expeditionary focus and offers a unique organization to the CCDR or JFC with a total-force package.

2. Marine Corps Aviation

a. ACE. The ACE is part of the MAGTF's combined-arms team, complementing the MAGTF's ground combat element (USMC) (GCE) and logistics combat element (LCE), while functioning in consonance with the Marine Corps' doctrinal philosophy of maneuver warfare.

b. Aircraft and Missile Control. Controlling aircraft (fixed-wing, rotary-wing, tilt-rotor, and UAS) and missiles allows the MAGTF commander to employ ACE assets and conduct combat operations. It includes the facilities, equipment, communications, procedures, and personnel to plan, direct, and control the ACE's effort. Collectively, these comprise the MACCS, which is the Marine Corps' contribution to the TAGS. It is shown in figure 8.

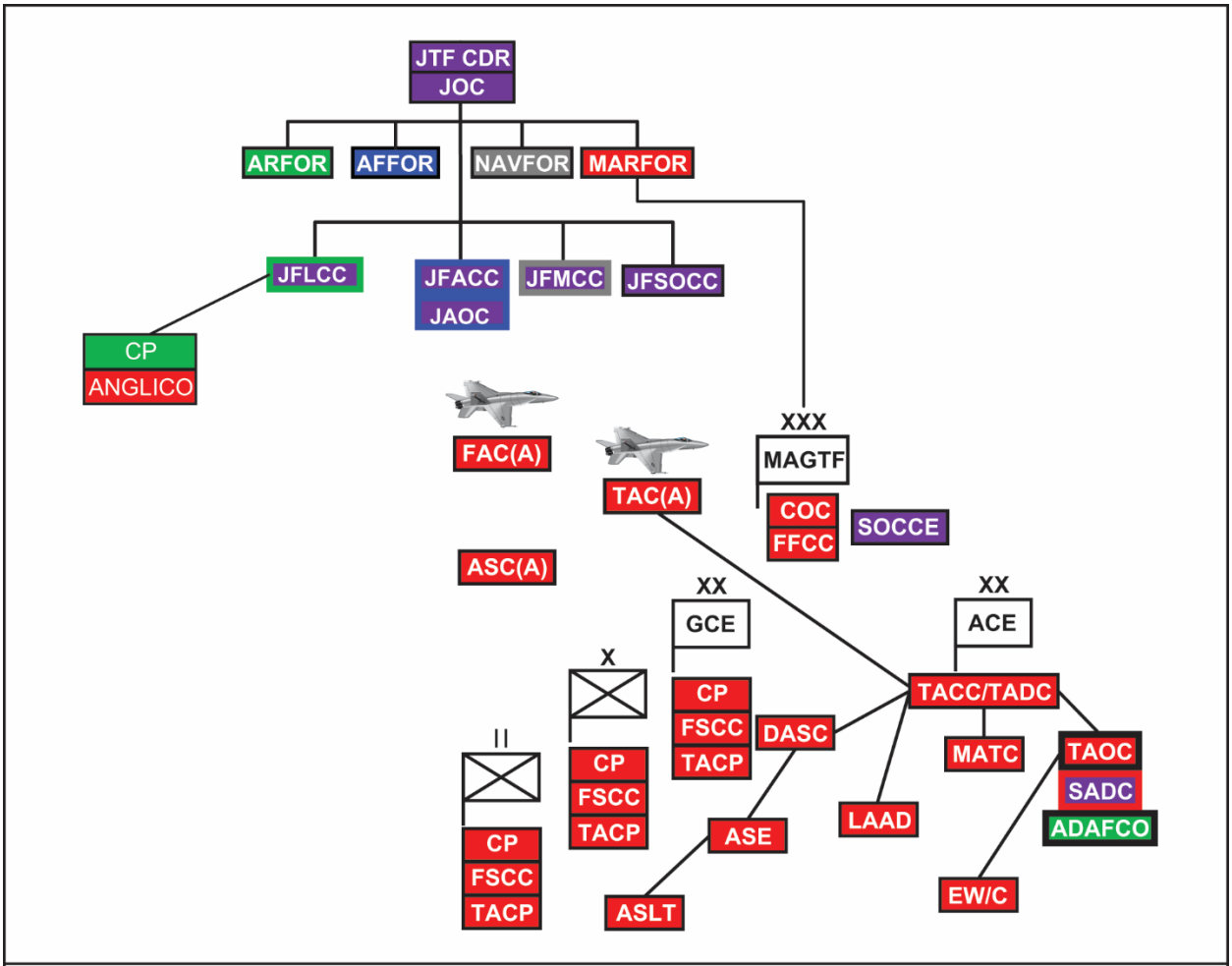
3. MACCS

The Marine Corps uses the centralized command, decentralized control philosophy when conducting C2. The MACCS provides the MAGTF commander the means to exercise C2 authority over Marine aviation assets.

a. Marine TACC. Marine TACC is the senior MACCS agency and serves as the operational CP for the ACE commander and his staff. The Marine TACC is the only agency within the MACCS to exercise command. It plans, supervises, coordinates, and executes MAGTF air operations, including all ATOs and the current ACE operation order. The Marine TACC integrates Marine aviation into the MAGTF targeting and request processes via the Fires and Effect Coordination Center (FECC). In doing so, the Marine TACC ensures Marine aviation remains in support of the MAGTF's objectives. The Marine TACC provides the functional interface for employing MAGTF aviation in joint and coalition operations. The Marine TACC consists of three mutually supporting, cross-functional, operational organizations supported by a centralized intelligence organization. The Marine TACC organizations are future plans, future operations, current operations, and air combat intelligence (ACI).

(1) Future plans conducts aviation and aviation support planning for the next MAGTF mission.

(2) Future operations develops and prepares the MAGTF's portion of the ATO and ACO and interfaces with the JAOC's combat plans DIV by merging the MAGTF ATO into the joint ATO.



Legend:

ACE—aviation combat element
ADAFCO—air defense artillery fire control officer
AFFOR—Air Force forces
ANGLICO—air-naval gunfire liaison company
ARFOR—Army forces
ASC(A)—air support coordinator (airborne)
ASE—air support element
ASLT—air support liaison team
CDR—commander
COC—combat operations center
CP—command post
DASC—direct air support center
EW/C—early warning/control
FAC(A)—forward air controller (airborne)
FFCC—force fires coordination center (USMC)
FSCC—fire support coordination center
GCE—ground combat element
JAOC—joint air operations center
JFACC—joint force air component commander
JFLCC—joint force land component commander
JFMCC—joint force maritime component commander
JFSOCC—joint force special operations component commander
JOC—joint operations center
JTF—joint task force
LAAD—low-altitude air defense (USMC)
MAGTF—Marine air-ground task force
MARFOR—Marine Corps forces
MATC—Marine air traffic control
NAVFOR—Navy forces
SADC—sector air defense commander
SOCCE—special operations command and control element
TAC(A)—tactical air coordinator (airborne)
TACC—tactical air command center
TACP—tactical air control party
TADC—tactical air direction center
TAOC—tactical air operations center (USMC)

Figure 8. MAGTF and MACCS Diagram

b. Current operations executes the daily ATO and begins the assessment phase. This section interfaces with the JAOC's combat operations DIV.

ACI is embedded in the Marine TACC providing timely, tailored, and fused intelligence integral to the functioning of future plans, future operations, and current operations.

c. TADC. Establishing the TADC facilitates amphibious operations. Overall control of aviation assets remains afloat, therefore, the TADC is subordinate to the Navy TACC. Once the Navy phases control of aviation assets ashore to the commander LF, the Marine Corps TADC becomes the Marine TACC.

d. DASC.

(1) The DASC is the principal MACCS air control agency responsible for directing air operations directly supporting ground forces. It functions in a decentralized mode of operation, and is supervised by the Marine TACC or Navy TACC. During amphibious or expeditionary operations, the DASC is the first MACCS agency ashore and lands in the same serial (i.e., scheduled wave or on-call wave) as the GCE's senior FSCC.

(2) The DASC processes immediate air support requests; coordinates aircraft employment with other supporting arms; manages terminal control assets supporting GCE and LCE; and procedurally controls assigned aircraft, UASs, and aircraft transiting through the DASC-controlled airspace.

(3) The DASC is doctrinally collocated with the senior FSCC to coordinate support efforts for multiple Marine units.

(4) The DASC employs two types of extensions: ASEs and air support liaison teams (ASLTs).

(a) ASE. ASE is a task-organized element employed by the Marine air support squadron (MASS) which performs various air support control functions. Employment options range from MEU-level operations characterized by limited assets and endurance, to multi-division operations where the ASE has similar capabilities, unique responsibilities, and is subordinate to the DASC. An ASE functions as an extension of the Navy TACC or helicopter direction center with the BN TACP. It repositions with the FSCC and takes over control functions while the main DASC relocates.

(b) ASLT. ASLTs are organized by the MASS to maintain face-to-face liaison between the DASC and the FSCC, and is employed where the DASC cannot remain physically collocated with the senior or subordinate FSCC during operations. Depending on the nature of operations, the MASS commander, or the supported commander, determines if it is in the commander's best interest for the ASLT to be collocated with the supported unit. In this instance, the DASC provides an ASLT maintaining a face-to-face liaison with the supported unit in an effort to enhance direct air support for those forces. An ASLT varies in size from a single Marine with a man-portable radio or

field telephone, to a few Marines operating from vehicles. Mission requirements identified during planning determine the size of an ASLT.

e. TAOC.

(1) The TAOC is a task organized, ground based, C2 agency supervised by the Marine TACC. The TAOC is designed to support up to the Marine air wing level sortie rates and mission sets, such as OCA, DCA, SEAD, strike, air-to-air refueling area (AAR), and offensive air support with positive control in support of the MAGTF.

(2) Using organic sensors, the TAOC tracks, classifies, and identifies all air tracks within MAGTF airspace or its assigned sector. The organic radar systems augment the MAGTF's and the JAOC's surveillance picture during joint operations. Much like the Air Force's CRC, the TAOC can exchange its air picture data with adjacent, higher, and joint agencies via tactical data links. The TAOC, through Composite Tracking Network, provides information to the Navy Cooperative Engagement Capability Network. When provided the authority to do so, the TAOC evaluates and coordinates air-to-air threat engagements to the MAGTF, across multiple weapon engagement zones, and to any weapons systems under its direction. Additionally, the TAOC provides BMC2 for all nonfighter aircraft within its sector of control, including the managing all AAR aircraft and fuel.

(3) The TAOC can employ an extension called the early warning and control site that performs air surveillance functions and augments the MAGTF surveillance picture. Geographically displaced from the TAOC, it serves as a TAOC extension, tasking assigned aviation assets outside the TAOC's radar and communications coverage. An early warning and control site is organized to perform as a subordinate agency of the TAOC, and can operate as a separate agency. The TAOC can employ an early warning and control site to perform air surveillance functions and to augment the MAGTF surveillance picture. Geographically displaced from the TAOC, it serves as a TAOC extension, tasking assigned aviation assets outside the TAOC's radar and communications coverage. An early warning and control site is organized to perform as a subordinate agency of the TAOC and can operate as a separate agency.

f. SADC. SADCs have command-designated responsibility for an air defense sector within a region. SADCs distribute air defense aircraft to control agencies within their sector. The controlling agencies, in turn, are responsible for executing the air defense mission through coordinating, controlling, and integrating aircraft and surface-to-air weapon systems under their direction. Also, the TAOC may function as a SADC. SADC responsibilities include:

(1) Coordinating actions between regions and sectors.

(2) Evaluating the results of engagements within a designated sector.

(3) Forwarding observations and results of engagements, within a designated sector, to the RADC or AADC.

(4) Requesting from the AADC or, when authorized, directing changes to the air defense warning condition and weapons control status commensurate to the threat.

(5) Requesting from the AADC additional air defense assets, when necessary.

g. The early warning and control site performs air surveillance functions and augments the MAGTF surveillance picture. Geographically displaced from the TAOC, it serves as a TAOC extension, tasking assigned aviation assets outside the TAOC's radar and communications coverage. An early warning and control site is organized to perform as a subordinate agency of the TAOC, and it can operate as a separate agency.

h. Marine Air Traffic Control Detachment (MATCD). A MATCD provides all weather radar and nonradar approach, departure, en route, and tower ATC services to friendly aircraft and airspace control, management, and surveillance for its designated airspace sector. It also provides required ATC services supporting MAGTF and joint operations and navigational assistance to friendly aircraft, including en-route ATC services. Additionally, it interfaces with the MACCS, other military C2 agencies, and civilian agencies or organizations, the Federal Aviation Administration, and the International Civil Aviation Organization. MATCD provides liaison personnel to the site survey and reconnaissance team. This team ensures air traffic procedures, MATCD sitting criteria, and terminal instrument procedures are considered and addressed during the site survey. The MATCD provides liaison personnel for the Joint Staff, ATC agencies, airspace management, C2, and host nation, as required, for integrated planning and management of air operations. It also provides control tower and radar and nonradar approach and departure control services within its assigned airspace; precision and nonprecision navigational aids; and landing services under all weather landing conditions. MATCD personnel display and disseminate air and ground situation information to designated higher and adjacent air C2 agencies. The MATCD serves as the operational liaison between the MAGTF, joint force, and national and international ATC agencies. It coordinates activation and execution of the airfield base defense zone and provides ATC subject matter experts for liaison billets with the joint, multinational force, civil, and military ATC agencies.

i. MMT. This is a team trained and equipped to provide initial rapid-response ATC, and command, control, and communications in support of MAGTF and joint missions. MMTs support operations at air sites, FARPs, rapid ground refueling points, or laager points. As a standalone ATC capability, the MMT task organizes and provides ATC services for airfield seizures, noncombatant evacuation operations, domestic or foreign humanitarian assistance operations, civil assistance operations, and other short-duration MAGTF or joint operations. Although employed with other combat units, the MMT provides all equipment for self-sustainment during initial operations.

j. LAAD BN. A LAAD BN provides close-in, low altitude, surface-to-air weapons fires in defense of the MAGTF. The LAAD BN defends forward combat areas, maneuver forces, VAs, and installations or units engaged in special or independent operations. The LAAD BN:

(1) Maintains, as a primary capability, a man-portable or vehicle-mounted, surface-to-air weapons component of the MAGTF that deploys in the assault echelon of an expeditionary operation.

(2) Provides surface-to-air weapons support for units engaged in special or independent operations.

(3) Provides for separate deployment of subordinate batteries and platoons accommodating special tactical situations and task organization.

(4) Plans and coordinates requirements for liaison and communications with appropriate commands, ensuring the most effective integration of LAAD units within the integrated air defense system.

(5) Provides early warning of hostile air threats to other components of the air defense system.

k. TACP. TACP is a subordinate operational component of a tactical air control system providing an air liaison to land forces for controlling aircraft. A TACP is located within the GCE and provides ground commanders the means to access offensive air support. In the Marine Corps, TACPs are organic to infantry divisions, regiments, BNs, and other combat arms units. TACPs establish and maintain facilities for liaison and communications between parent units and airspace control agencies; inform and advise the ground unit commander on employing supporting aircraft; and request and control air support.

4. Liaisons

To provide MAGTF Commanders a liaison capability to plan, coordinate, employ, and conduct terminal control of fires in support of joint, coalition, or allied forces. Air-naval gunfire liaison company (ANGLICO) teams, at all levels, are equipped with high, very high, and ultrahigh frequency communications. ANGLICOs are assigned to non-Marine units; however, the MAGTF commander may reassign them. An ANGLICO structure is shown in figure 9.

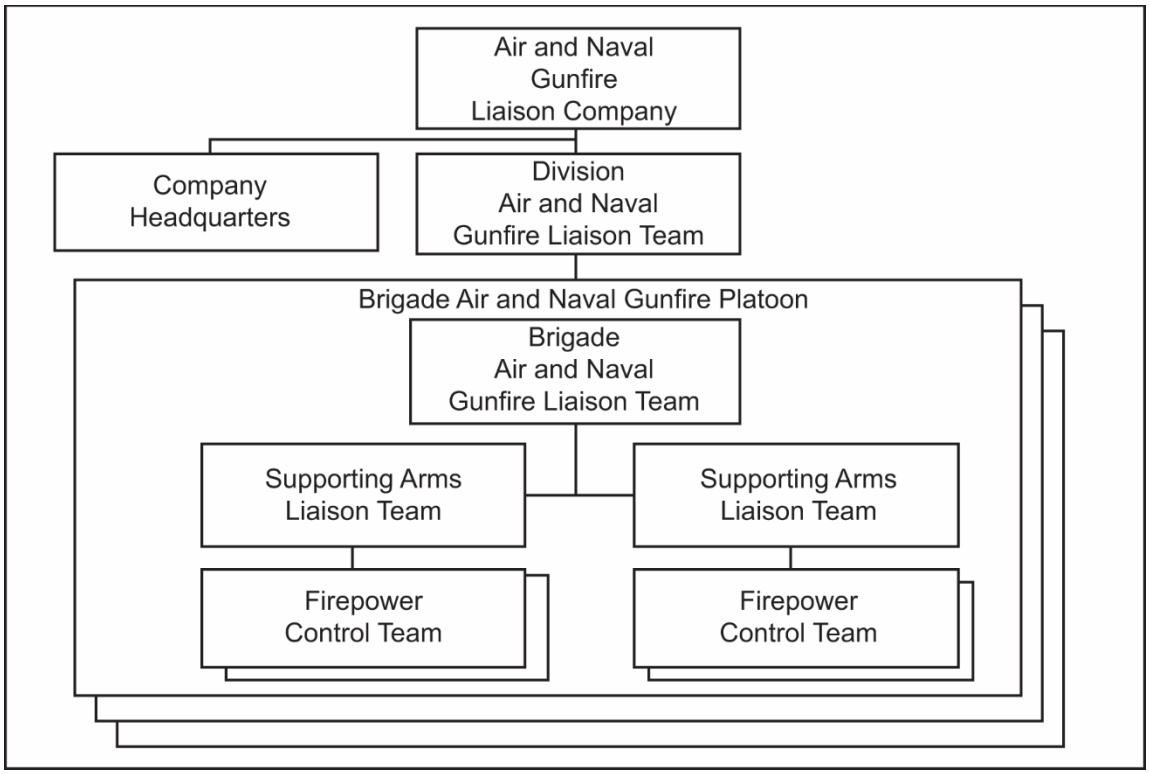


Figure 9. The ANGLICO Organization

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Chapter VI
SPECIAL OPERATIONS AIR GROUND (SOAGS) SYSTEM

1. Background

a. Integrating special operations (SO) into the TAGS requires a comprehensive and cohesive process which incorporates and supports:

(1) Specially equipped aircraft.

(2) Uniquely trained surface forces.

(3) Increased operational security measures.

(4) Trained joint fires elements (JFEs).

(5) Extensive liaison across components.

b. SOF may provide their own air support, use air support of another component, or provide air support for use by conventional forces (CF). For more information, see JP 3-05, *Special Operations*.

2. Component Operations

SO are, inherently, joint and can be multinational, employed unilaterally, or synchronized with CF. SOF must be prepared to conduct scalable operations with various governmental and nongovernmental agencies, other Services, and the forces of other nations. Effective SOAGS employment may require extensively leveraging various TAGS strike assets, C2 systems and elements, CF, and national intelligence networks.

3. Planning

a. The JFSOCC/SOJTF commander analyzes which theater mission requirements SOF can address and makes employment recommendations to the JFC on how SO can satisfy those requirements. SO must be coordinated, integrated, and deconflicted with conventional operations to enhance mission accomplishment and prevent friendly fires. Synchronizing and planning SO through TAGS interfaces are essential.

b. Some SOF missions require support from other forces to be successful. Support involves aiding, protecting, complementing, and sustaining employed SOF. Support includes conventional air support, intelligence, communications, and logistics. Support from conventional assets may include:

(1) Liaisons.

(2) C2 elements.

(3) Refueling during deployments or long-range missions.

(4) SEAD.

(5) Electronic warfare.

(6) Diverting enemy forces.

(7) Airlift capability.

(8) Providing air and ground landing zone or FARP security.

(9) CAS.

c. When CF air and space forces are anticipated in support of SOF, a Joint Air Coordination Element (JACE), or other equivalent ASOC-like capability, they are made available through prior coordination with the JFACC as described in FM 3-05, *Army Special Operations*.

d. SOF ensure adequate JTACs are available for the mission requirements in the proposed air-ground plan and should coordinate with other components if additional JTAC support is required.

e. Detailed planning is required when strike aircraft accompany a SOF infiltration, conduct preplanned CAS missions, or are on call during actions at an objective area. Any of these mission types is coordinated during the deploying SOF unit's mission-planning procedures.

f. Integrating conventional aviation assets into SO mission profiles requires advanced planning and extensive coordination. SOF operate on dynamic timelines. Planning times are based on intelligence-gathering requirements, detailed planning, and rehearsals. Because of the dynamic and short lead times, planning for, and receiving support from, other components requires competent liaisons and an interface for injecting SOF–CF requirements. It is difficult for components operating on long planning schedules to receive support from SOF; therefore, persistent coordination is key.

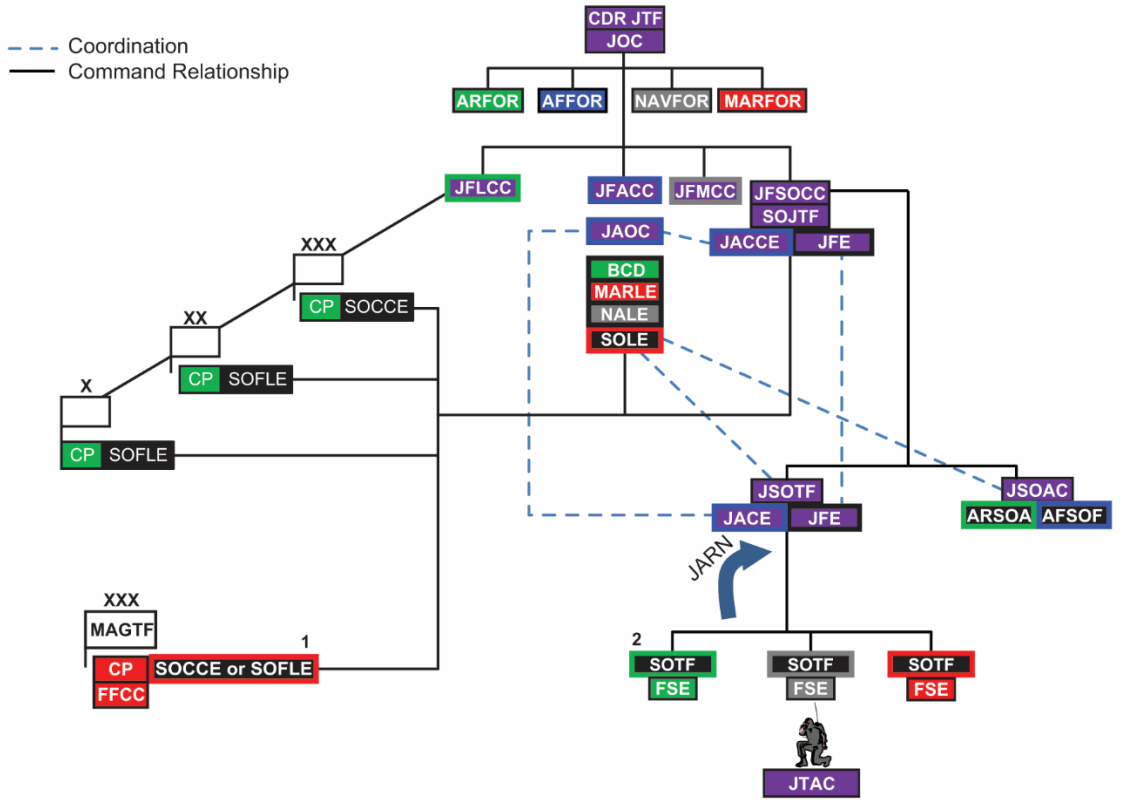
4. C2

a. All SOF are under the OPCON of the Commander, US Special Operations Command. A GCC exercises OPCON of SOF through the commander of the theater SO command, or a subordinate JFC. C2 of SOF is executed within a SOF chain of command. The C2 structure for SOF depends on objectives, security requirements, and the operational environment.

b. SOF airpower is placed under the centralized control of the joint special operations air component commander (JSOACC). Air Force SOF are placed under the TACON of a JSOACC. The joint special operations air component (JSOAC), collectively, refers to the commander, staff, and assets of a SO functional air component of a joint force special operations component, SOJTF, or a joint special operations task force (JSOTF). The JSOAC is responsible for centralized planning, directing, and executing joint SO air activities and for coordinating conventional air support for SOF with the designated JFACC. The JSOACC will be the commander with the preponderance of SO air assets and the greatest ability to plan, coordinate, allocate, task, control, and support the assigned or supporting air assets.

c. Principal functions supporting coordination within the SOAGS are the JSOAC, SOLE, TACP, special tactics team (STT), SOCCE, special operations forces liaison element (SOFLE), JACE, SOF JFE, and JTACs. The JACE, coordinated with the JSOAC, is the senior organization for air support coordination within the SOAGS.

Although some elements within SOAGS, such as the TACP, may belong to different Services or other nations, they function as a single entity in planning, coordinating, and synchronizing air support operations with SO (as shown in figure 10).



Note 1. Depending on the size of the MAGTF, the JFSOCC will provide the MAGTF either a SOCCE or SOFLE.
Note 2. A SOTF can range in size from a SOF team to a SOF BN and be manned by ARSOF, NAVSOF, or MARSOF.

Legend:

AFFOR—Air Force forces
AFSOF—Air Force special operations forces
ARFOR—Army forces
ARSOA—Army special operations aviation
ARSOF—Army special operations forces
BCD—battlefield coordination detachment
BN—battalion
CDR—commander
CP—command post
FFCC—force fires coordination center (USMC)
FSE—fire support element
JACCE—joint air component coordination element
JACE—joint air coordination element
JAOC—joint air operations center
JARN—joint air request net
JFACC—joint force air component commander
JFE—joint fires element
JFLCC—joint force land component commander
JFMCC—joint force maritime component commander
JFSOCC—joint force special operations component commander
JOC—joint operations center
JSOAC—joint special operations air component
JSOTF—joint special operations task force
JTAC—joint terminal attack controller
JTF—joint task force
MAGTF—Marine air-ground task force
MARFOR—Marine Corps forces
MARLE—Marine liaison element
MARSOF—Marine Corps special operations forces
NALE—naval and amphibious liaison element
NAVFOR—Navy forces
NAVSOF—Navy special operations forces
SOCCE—special operations command and control element
SOF—special operations forces
SOFLE—special operations forces liaison element
SOJTF—special operations joint task force
SOLE—special operations liaison element
SOTF—special operations task force

Figure 10. SOAGS

5. SOAGS Functional Elements

a. JSOAC. A JFSOCC; the JSOTF commander; or the commander, joint special operations task force (CDRJSOTF) establishes a JSOAC and designates a JSOACC that functions as the senior air advisor within the SOAGS. The JFSOCC exercises OPCON of assigned and attached joint SO aviation assets through the JSOACC when a JSOAC is established. At the operational level, the JSOAC plans and C2s CF air assets in support of SOF when the appropriate organic C2 and CF air and space expertise are available. At the tactical level, the JACE has C2 of CF air support for the JSOTF. When this capability does not reside within a JSOAC, the JFACC provides the JACE as the interface to the JSOTF. The JSOAC can support multiple JSOTFs within a theater. A single JSOAC, with multiple joint special operations air detachments, preserves unity of command and manages limited theater special operations air assets.

b. JACE. The JACE is collocated with the SOF JFE at the JSOTF and provides air and space power expertise. The SOF JFE or JACE monitors a special operations JARN and processes immediate requests for CAS and other fires and effects. The JACE functions as the focal point for JSOTF air support requests and advises the CDRJSOTF on effective use of air power in support of SOF. If available, airborne platforms, such as JSTARS or AWACS, can function as an extension of the JACCE in routing immediate CAS requests and fighter diversions. SOFs are prepared to use digital targeting and established request procedures on the JARN, when possible. The JFSOCC coordinates with the JFACC for a JACE at each JSOTF prior to the commencement of operations. In all cases, the JACE and JSOACC provide the JFSOCC with expertise for planning, execution, and C2 of air operations in support of mission requirements.

c. SOF JFE. The SOF JFE plans, coordinates, synchronizes, and executes joint fires support for the JSOTF. The SOF JFE and JACCE (if established) monitor and respond to SOF joint fires requests. Through a single net (e.g., JARN), the SOF JFE and JACE teams determine the most responsive resource and delivery means responding to immediate support requests. The SOF JFE consolidates FSCMs and ACMs for the JSOTF, tracks team locations, and reports the locations to the SOLE to aid the air-ground deconfliction process.

d. STT. STTs consist of combat controllers, pararescuemen, TACPs, JTACs, and SO weather personnel. STTs are organized, trained, and equipped to establish visual and procedural terminal area airspace control (i.e., attack, air traffic services, and C2) at remote assault (drop or landing) zones and austere or expeditionary airfields. They sustain these operations until relieved by other elements. STTs are part of the theater SOF and under OPCON of the JSOACC. TACON of STT may be delegated to the JFACC for specific missions (e.g., air mobility operations) or to the CDRJSOTF, based on the SO mission.

e. Special Operations Weather Team (SOWT). SOWT members are meteorologists with advanced tactical training for operating in a hostile or denied territory. They gather and interpret data and provide intelligence from deployed locations while

operating with Air Force and Army SOF. SOWTs assist mission planning with route and target forecasts, conduct special reconnaissance, and train SOF and foreign national forces on how to conduct operations in limited meteorological operations.

f. SOLE. The SOLE is a liaison to the JFACC or a Service component air C2 organization. It is a joint team responsible for coordinating, deconflicting, and synchronizating SO air, surface, and subsurface operations with conventional air operations by placing SOF air, land, and maritime liaison personnel in the AOC. The SOLE director reports directly to the JFSOCC and has no command authority for mission tasking, planning, or execution. The SOLE provides SOF operation coordination in the ATO and ACO. The SOLE also coordinates FSCM between the AOC and SOF HQ, reducing the potential for fratricide. A SOLE is tailored for the operation. SOLE functions include:

(1) Harmonizing JFSOCC strategy and targets with JFACC's intent and vision via liaison with the JAOC strategy DIV.

(2) Injecting SOF requirements (including ground and naval SOF contingents) within the JFACC's master air attack plan via close coordination in the JAOC's combat plans DIV.

(3) Facilitating JFSOCC inputs into the ACO, ATO, and SPINS.

(4) Providing updates for situational awareness to the JAOC's combat operations DIV, coordinating CAS, and requesting immediate support for time-sensitive targets.

(5) Monitoring and deconflicting SOF activities and locations to reduce fratricide.

(6) Coordinating real-time ISR requirements for the JFSOCC.

(7) Synchronizing SOF PR activities with the JPRC.

(8) Coordinating SOF component space requirements with the JFACC when the JFACC is designated the SCA.

(9) Coordinating and monitoring SOF support of conventional units and operations (e.g., AC-130 gunships conducting CAS in support of non-SOF units).

(10) Providing additional deconfliction between SOF and other aircraft, including UAS, during theater air operations.

g. SOCCE. A SOCCE is employed when SOF conduct operations in support of CF, such as an Army corps or a MEF. It collocates with the fires C2 element within the CP of the supported commander and performs C2, fires support coordination, and liaison functions. The SOCCE remains under the OPCON of the JSOTF. The SOCCE receives operational intelligence and target acquisition reports directly from deployed SOF elements and provides them to the supported HQ.

h. SOFLE. When SOF teams or companies are TACON to conventional ground forces, or are operating within CF unit boundaries, the SOCCE may have one or more subordinate SOFLE at the DIV level or below. The SOFLE conducts liaison functions with the ground force commander and exercises specific fires support

coordination responsibilities for SOF teams operating within DIV boundaries, as delegated by the SOCCE.

i. JTAC. SOF JTACs are certified and qualified to perform terminal attack control responsibilities. SOF JTAC training emphasizes night infrared, laser, and digital CAS equipment. For remotely deployed SOF units, requests for CAS are passed through the most expedient, direct, and available means of communications. Requests are sent to the SOF JFE or JACE over the JARN. SOF JTAC are specially trained operators assigned to US Army Special Operations Command, Air Force Special Operations Command (AFSOC), Naval Special Warfare Command, and Marine Forces Special Operations Command. Any certified, qualified JTAC may be tasked to augment SOF specific missions.

j. SOF TAC(A). The SOF TAC(A) is an airborne extension of the JOC, JTAC, or equivalent air support control agencies.

(1) The SOF TAC(A) performs duties similar to a FAC(A), while acting on behalf of C2 entities, including:

(a) CAS aircraft hand-off to terminal attack controllers.

(b) Integrating CAS with supported forces.

(c) Terminal guidance operations.

(d) Communications relay between C2 and CAS entities.

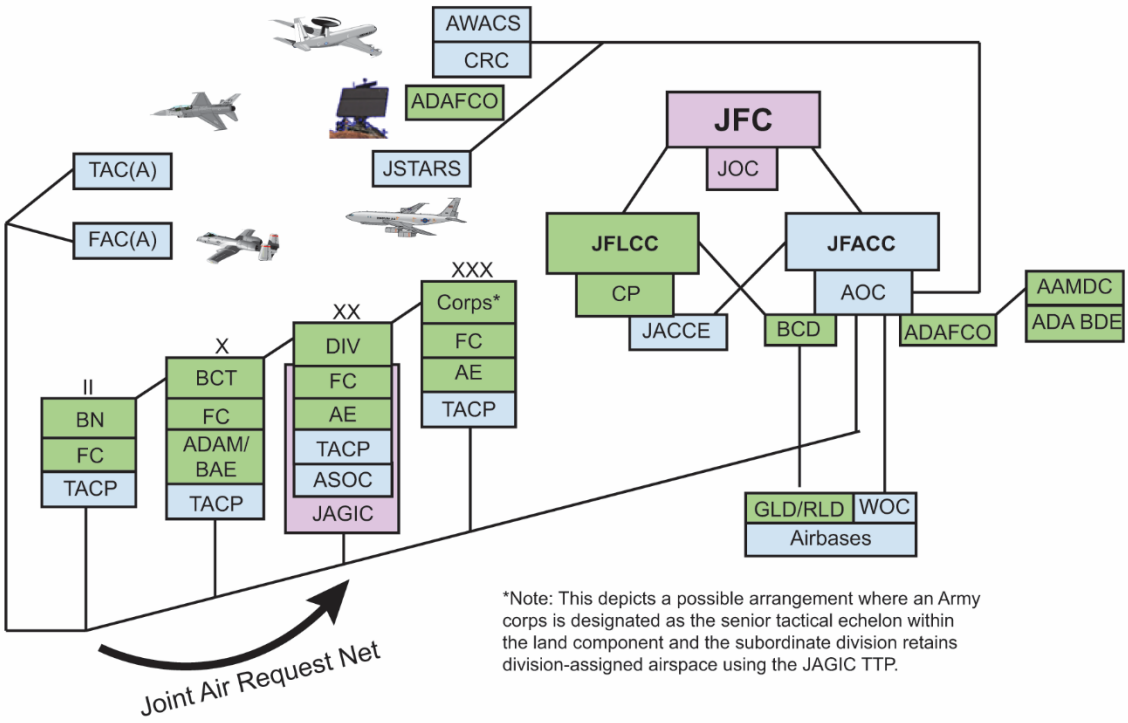
(e) Coordinating aircraft and surface fire support, fixed-wing and rotary-wing operations, indirect fire support, casualty evacuation, and combat search and rescue operations.

(2) The SOF TAC(A) does not possess weapons release authority. At the discretion of the JTAC or FAC(A), the terminal attack control responsibilities of brief, stack, or mark may be delegated to a TAC(A) as referenced in table 1.

k. SOF Combat Aviation Advisors. These individuals coordinate coalition support with US activities. AFSOC maintains regionally-focused liaison teams specially trained to integrate allies and coalition partners into the TAGS. They assist their host nation counterparts with planning, ATO coordination, mission execution, and training on C2 systems and methods, if needed.

Appendix A
THEATER AIR-GROUND SYSTEM (TAGS)

Figure 11 depicts the TAGS using the Army construct joint force commander. It is an example and not intended to show every possible TAGS configuration. Each joint force commander tailors the system based on situation, mission, forces available, and C2 structure.



Legend:

AAMDC—Army air and missile defense command
ADA—air defense artillery
ADAFCO—air defense artillery fire control officer
ADAM—air defense and airspace management
AE—airspace element
AOC—air operations center
ASOC—air support operations center
AWACS—airborne warning and control system
BAE—brigade aviation element
BCT—brigade combat team
BCD—battlefield coordination detachment
BDE—brigade
BN—battalion
CP—command post
CRC—control and reporting center
DIV—division
FAC(A)—forward air controller (airborne)
FC—fires cell
GLD—ground liaison detachment
JACCE—joint air component coordination element
JAGIC—joint air-ground integration center
JFACC—joint force air component commander
JFC—joint force commander
JFLCC—joint force land component commander
JOC—joint operations center
JSTARS—joint surveillance target attack radar system
RLD—reconnaissance liaison detachment
TAC(A)—tactical air coordinator (airborne)
TTP—tactics, techniques, and procedures
TACP—tactical air control party
WOC—wing operations center

Figure 11. Theater Air Control System/Army Air-Ground System

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Appendix B
COMPONENT INPUTS TO THE JOINT AIR TASKING CYCLE

1. Joint Air Tasking Cycle

a. The joint air tasking cycle provides for effectively and efficiently employing joint air capabilities and forces. This is an iterative, cyclic process for the planning, apportionment, allocation, coordination, and tasking joint air missions and sorties within the guidance of the joint force commander (JFC). The cycle accommodates changing tactical situations or JFC guidance and requests for support from other component commanders. The joint air tasking cycle is analytical and systematic and focuses joint air efforts on accomplishing operational requirements.

b. Designated component liaison officers or messages conduct much of the day-to-day tasking cycle using an interrelated series of information exchanges and active involvement in plan development, target development, air execution, and assessment, which are means of requesting and scheduling joint air missions. A timely air tasking order (ATO) is critical because other joint force components conduct their planning and operations based on a prompt, executable ATO. Figure 12 shows the joint air tasking cycle. The joint air tasking cycle facilitates a series of interrelated information and data exchanges between supported and supporting commanders.

c. The joint air tasking cycle battle rhythm is a predictable process with fixed suspense dates for component inputs to the joint air operations center (JAOC). It provides suspense dates for targeting, air support requests, airspace coordinating measure requests (ACMREQs), and other inputs to produce a timely and executable ATO. The tasking process is a responsive cycle, capable of modification prior to, and during, the execution stage.

d. The joint air tasking cycle begins with the JFC's objectives, incorporates guidance received during JFC and component coordination, and culminates with assessing previous actions.

e. The ATO articulates tasking for joint air operations for a specific execution timeframe, normally 24 hours. The joint air tasking cycle is synchronized with the JFC's battle rhythm. The JAOC establishes a 72- to 96-hour ATO planning cycle. The battle rhythm, or daily operations cycle (schedule of events), articulates briefings and report requirements. It provides suspense for targeting, air support requests (AIRSUPREQs), and friendly order of battle updates to produce the air battle plan, which includes the ATO message and other products.

f. The battle rhythm is essential to ensure information is available, when and where required, to provide products necessary for synchronizing joint air operations with the JFC's concept of operations (CONOPS) and supporting other components' operations.

g. Airpower must be responsive to a dynamic operational environment and the joint air tasking cycle must be flexible and capable of modification during ATO execution.

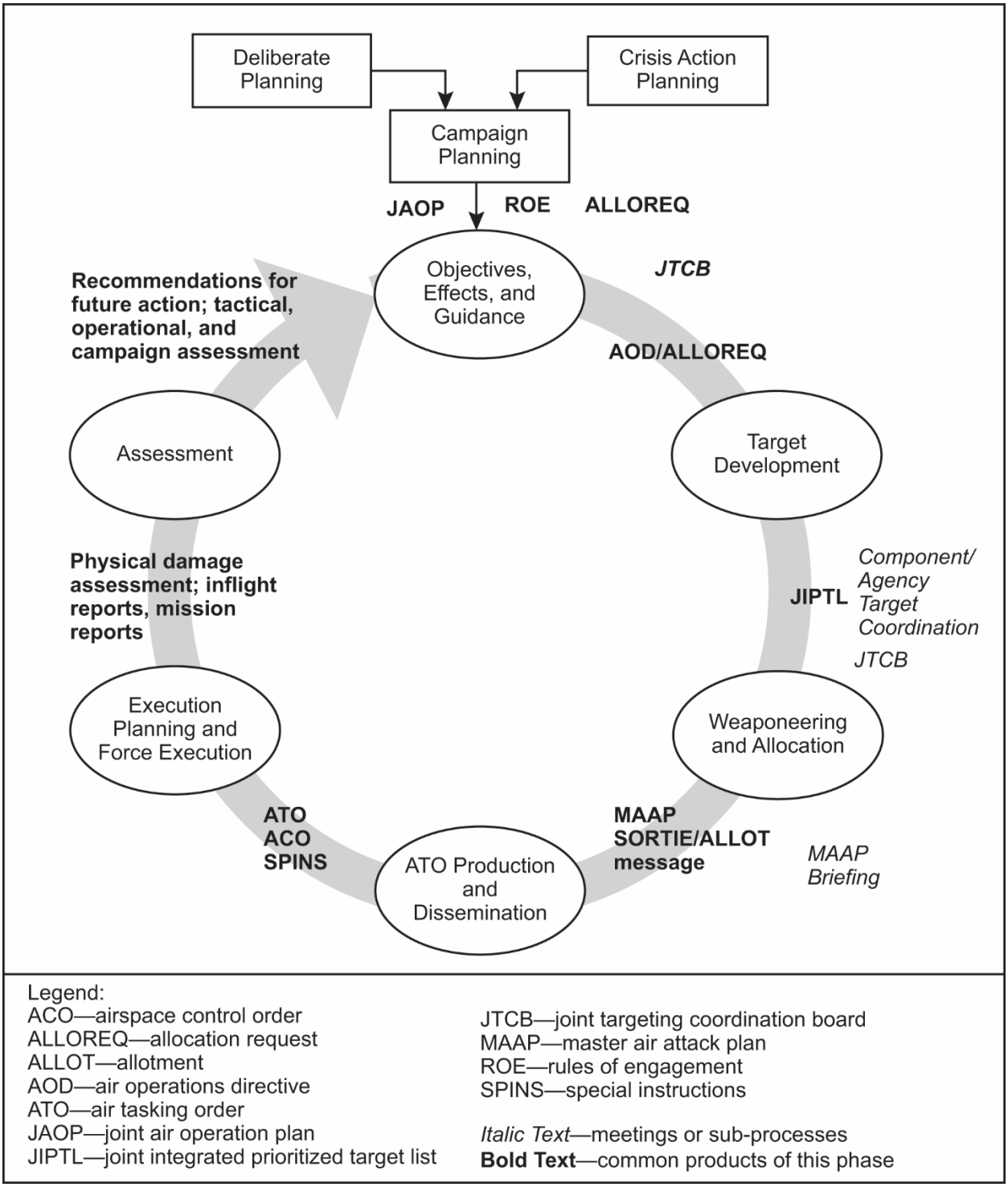

Figure 12. The Joint Air Tasking Cycle

h. The result of the tasking process is a series of ATO, and related products in various stages of process. (See figure 13.) The primary factor driving the daily

schedule for developing the ATO is the battle rhythm. The battle rhythm is a detailed timeline that lists a series of briefings to produce specific products by a specified time.

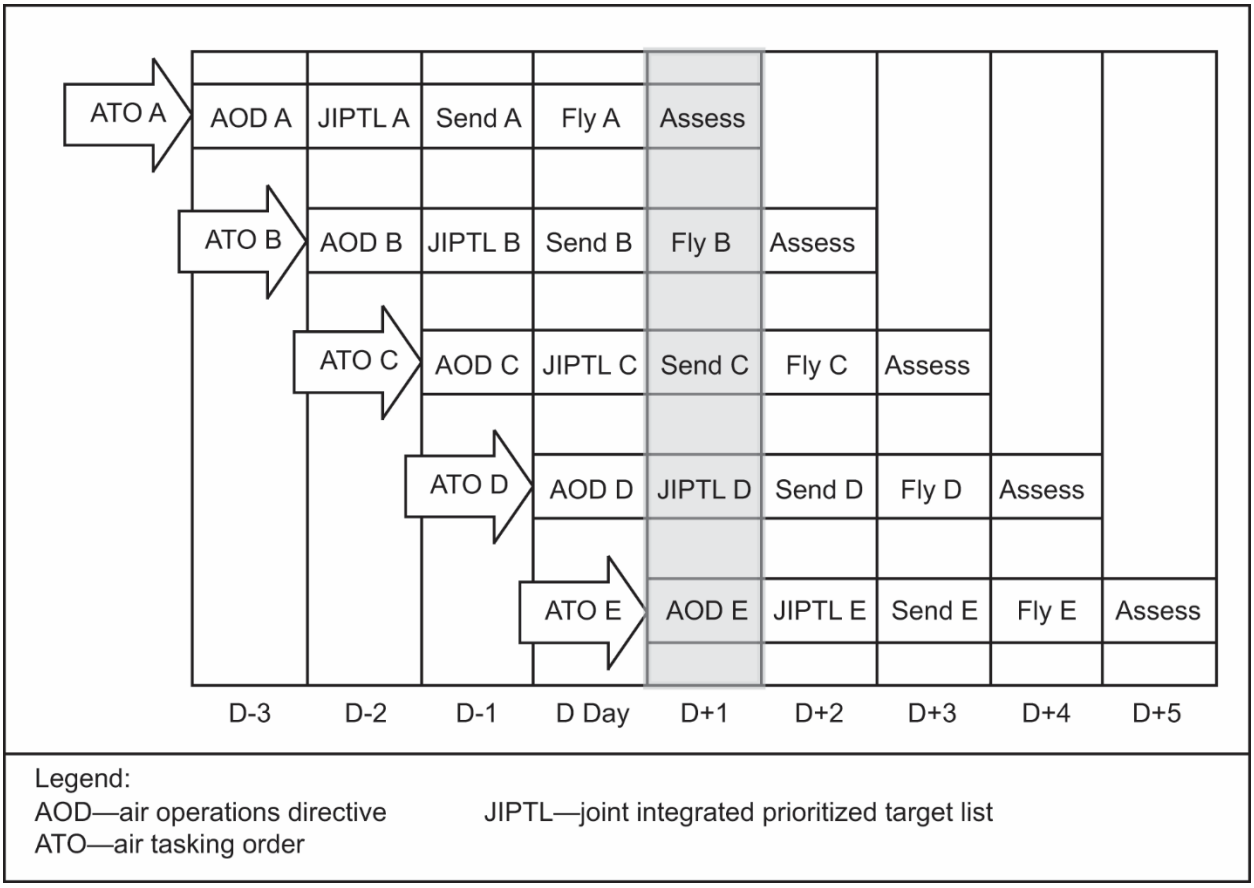

Figure 13. Multiple ATOs in Various Stages of Planning and Execution

i. The joint air tasking cycle, from JFC guidance to the start of ATO execution, depends on the JFC's and joint force air component commander's (JFACC's) procedures. A 72-hour cycle, starting with objectives, effects, and guidance is standard. The precise timeframes should be specified in the JFC's or JFACC's joint air operations plan. Long-range combat air assets, positioned outside the theater but operating in the joint operational area (JOA), may be airborne before ATO publication or execution. These assets require the most current ATO information and updates. The JAOC, however, can retask such missions during execution. Intertheater air mobility missions may not operate within the established tasking cycle. The air mobility division is an air operations center division that assists the combat plans division with intertheater and intratheater air mobility missions that should be integrated into the ATO.

j. The ATO matches and tasks air forces and capabilities made available to the JFACC for tasking to prosecute targets and resource AIRSUPREQs and other requirements. Other component air missions should be on the ATO to improve joint force visibility and assist with overall coordination and deconfliction. The other-

component air missions that appear on the ATO may not be under JFACC control and the JFACC will coordinate changes with all affected components.

k. The joint air tasking cycle consists of six stages (See figure 12). The joint air tasking cycle receives products from information developed during the joint targeting cycle and other joint force processes. The joint targeting cycle and joint air tasking cycle are systematic processes matching available capabilities and forces with specific targets to achieve the JFC's objectives. Unlike the joint targeting cycle, the joint air tasking cycle is time dependent and built around finite time periods to plan, prepare for, and conduct joint air operations. There is a set suspense for product inputs and outputs for each stage of the joint air tasking cycle. Prior to the JFC and component commanders' meeting, the JFACC should meet with senior component liaisons and the JFC's staff to develop recommendations for joint air planning and apportionment for future operations. This meeting may be used to review JFC objectives and guidance, assess and analyze results of joint force operations, and consider changes to ongoing joint air operations. Also, attendees may review adversary capabilities and courses of action, centers of gravity, decisive points, vulnerabilities, and key targets; and discuss updates to the joint integrated prioritized target list (JIPTL), based on JFC guidance. The JFACC should provide objectives and guidance to the joint air operations staff to achieve the JFC's intent, recommend an air scheme of maneuver, and review joint force capabilities and forces available to accomplish assigned tasks. The guidance should refine requirements for capabilities and forces from other components, and after consulting other component commanders, formulate an air apportionment recommendation for presentation to the JFC.

(1) Stage 1, Objectives, Effects, and Guidance.

(a) The JFC consults often with component commanders to assess the results of the joint force's efforts and to discuss the strategic direction and future plans. This provides component commanders an opportunity to make recommendations, make support requirements known, and state their ability to support other components. The JFC provides updates to the guidance, priorities, and objectives based on enemy operations and the current/expected friendly order of battle. The JFC also refines the intended CONOPS. The JFC's guidance on objectives and effects will identify targeting priorities and will include the JFC's air apportionment decision.

(b) Air Apportionment. Air apportionment allows the JFC to ensure the priority of the joint air effort is consistent with campaign or operation phases and objectives. Given the many functions that joint air forces can perform, its operational area-wide application, and its ability to rapidly shift from one function to another, JFC pays particular attention to air apportionment. After consulting with other component commanders, the JFACC makes the air apportionment recommendation to the JFC. The methodology the JFACC uses to make the recommendation may include priority or percentage of effort devoted to assigned mission-type orders, JFC objectives, or other

categories significant to the campaign or operation. The air apportionment recommendation is a vital part of the joint air planning and tasking process. The JAOC strategy DIV formulates the air apportionment recommendation that the JFACC submits to the JFC for upcoming iterations of the joint tasking cycle. With air capabilities made available to the JFACC, the strategy plans team can recommend the relative level of effort and priority that may be applied to various JFC and/or JFACC objectives. The end result is an air apportionment recommendation. This product is normally forwarded to the joint targeting coordination board (JTCB) for coordination and approval by the JFC. In the case of a theater JFACC supporting multiple JFC (e.g., two or more joint task force commanders), the air apportionment recommendation (e.g., CAS and interdiction) referenced here is made to each supported JFC. The JFC is the final approval authority for the air apportionment decision.

(2) Stage 2, Target Development.

(a) Target development is the point in the joint targeting cycle and intelligence process where efforts of the joint air targeting cycle relate target development to air tasking, and target aimpoints are selected. These and other data are submitted to the targeting effects team (TET). This occurs after analysts, from other organizations, have incorporated all-source intelligence reports into a targeting database. The TET correlates target nominations to the tactical tasks in the air operations directive (AOD) for that air battle plan period.

(b) It screens nominated targets ensuring that, once attacked, they create the desired effects that meet JFC guidance (as delineated in the AOD) and verifies chosen measures of effectiveness (MOE) will accurately evaluate progress and can be collected. It prioritizes nominated targets based on the best potential for creating the JFC's desired effects and components' priorities and timing requirements. The product of this effort, when approved by the JFC or the JFC's designated representative (e.g., JTCB), is the JIPTL.

(3) Stage 3, Weaponeering and Allocation.

(a) During this stage, JAOC personnel quantify the expected results from employing lethal and nonlethal means, against prioritized targets, to create desired effects. The JIPTL provides the basis for weaponeering assessment activities. All approved targets are weaponeered, including recommended aimpoints, weapon systems and munitions, fuses, target identifications and descriptions, desired direct effects of target attack, probability of creating the desired effect, and collateral damage concerns. The final prioritized targets are developed and provided to the master air attack plan (MAAP) team.

- The TET may provide the MAAP team a draft JIPTL to begin planning. Once the JIPTL is approved by the JFC, the MAAP team can finalize force allocation (i.e., a sortie flow plan). The force application cell can complete coordination with the supporting force enhancement cell to satisfy mission requirements. This ensures the prioritized targets are planned to generate effects and achieve objectives while

maximizing the combat effectiveness of joint air assets. The resulting MAAP is the employment plan that forms the foundation of the ATO.

- The MAAP is a graphic depiction of capabilities required for a given period. Developing the MAAP includes reviewing JFC and JFACC guidance, component plans and their AIRSUPREQs, updates to targets, capabilities and force availability, target selection from the JIPTL, and weapon system allocation. Components may submit critical changes to targets, AIRSUPREQs, and asset availability during the final stages of ATO development.

- The completed MAAP matches available resources to the prioritized target list. It accounts for air refueling requirements, suppression of enemy air defenses requirements, air defense, intelligence, surveillance, and reconnaissance (ISR), and other factors affecting the plan.

(b) Following the JFC's air apportionment decision, the JFACC translates that decision into the total number of sorties by weapon system type available for each objective and task. Based on the apportionment decision, internal requirements, and AIRSUPREQ messages, each air-capable component prepares an allocation request (ALLOREQ) message for transmission to the JFACC (not less than 36 hours prior to the start of the ATO execution period). This coincides with the beginning of the MAAP process. ALLOREQ messages report (from other components to the JFACC):

- Number and type of air assets made available for tasking as directed by the JFC air apportionment decision. These may be excess sorties not required by the air capable components and made available for tasking by the JFACC. The air capable component commander will direct what missions those assets are capable of conducting.

- Requests for air support from components to the JFACC that exceed the unit's capabilities.

(c) The sortie allotment (SORTIEALOT) message confirms, and where necessary modifies, the ALLOREQ and provides general guidance to plan joint air operations. The JAOC reviews each component's allocation decision/ALLOREQ message and may prepare a SORTIEALOT message back to the components in accordance with established operations plans guideline. The SORTIEALOT addresses the following three basic requirements.

- Revisions, if any, to the component's planned allocation of joint air sorties necessitated by unforeseen joint force requirements and within the JFC's air apportionment guidance.

- Approval/disapproval of component requests and allotment of other component's excess sorties.

- Revisions to mission data for components' AIRSUPREQ.

(4) Stage 4, ATO Production and Dissemination.

(a) An ATO production team constructs, publishes, and disseminates the daily ATO and special instructions (SPINS) to forces. The team members develop and maintain a comprehensive address list of approved ATO recipients and coordinate redundant procedures for timely ATO dissemination and receipt.

(b) The air operations database (AODB) manager is an experienced ATO production technician who oversees the AODB update and change process.

(c) The AODB consists of the friendly order of battle that includes bases, units, aircraft, mission types, and call signs and incorporates the identification friend or foe/selective identification feature plan. JFC and JFACC guidance (including the AOD), target worksheets, the MAAP, and component requirements are used to create the final ATO, SPINS, and airspace control order (ACO).

(d) Planners must develop airspace control and air defense instructions in sufficient detail to allow components to plan and execute all air missions listed in the ATO. These directions must enable combat operations without undue restrictions while balancing combat effectiveness with the safe, orderly, and expeditious use of airspace.

(e) Instructions must provide for quick coordination of task assignment and reassignment (i.e., redirection, retargeting, or change of mission type) and must direct aircraft identification and engagement procedures and rules of engagement appropriate to the nature of the threat.

(f) These instructions also should consider the volume of friendly and possibly neutral air traffic, friendly air defense requirements, identification-friend-or-foe technology, weather, and adversary capabilities. Instructions are contained in SPINS and in the ACO and are updated as frequently.

(g) The AOD, ATO, ACO, and SPINS provide operational and tactical direction at appropriate levels of detail. The level of detail should be very explicit when forces operate from different bases and multicomponent or composite missions are tasked. In contrast, less detail is required when missions are tasked to a single component or base.

(5) Stage 5, Execution Planning and Force Execution. The JFACC directs executing air capabilities and forces made available for joint air operations. Inherent in this is the authority to redirect joint air assets. The JFACC will coordinate with affected component commanders upon redirection of joint sorties previously allocated for supporting component operations. Aircraft or other capabilities and forces not apportioned for joint air operations, but included in the ATO for coordination purposes, may be redirected with the component commander's or JFC's approval. Aircraft, or other capabilities and forces made

available for joint air operations, may be redirected with the approval of the JFACC.

(a) The JAOC must be responsive to required changes while executing the ATO. Completing in-flight reports, discovering time-sensitive targets, and making an initial assessment (such as a battle damage assessment) may cause redirecting joint air capabilities and forces before launch or once airborne.

(b) During execution, the JAOC is the focal point for changes to the ATO and is the centralized control node for tasking joint air capabilities and forces. Also, it is charged with coordinating and deconflicting those changes with the appropriate control agencies and components.

Note: Take care when redirecting sorties from one target to another to ensure the proper weapons and fuses are available for the new target.

(c) Due to operational environment dynamics, the JFACC may be required to make changes to planned joint air operations during execution. Employing joint air assets against emerging targets requires efficient, timely information sharing and decision making among components. It is critical the JFC establishes, coordinates, and promulgates procedures before operations begin. The dynamic targeting portion of the joint targeting cycle is established to facilitate this process. The JFACC will coordinate with affected component commanders, to ensure target deconfliction and forces are out of danger relative to the new target areas.

(d) During execution, the JFACC redirects joint air assets to respond to moving targets or changing priorities. Ground or airborne, C2 platform, mission commanders may be delegated authority from the JFACC to redirect sorties or missions made available to higher priority targets. It is essential, however, the JAOC is notified of all redirected missions.

(6) Stage 6, Assessment. An assessment is performed by all levels of the joint force.

(a) The JFC should establish a dynamic system to conduct assessments throughout the joint force and ensure all components are contributing to the overall joint assessment effort. The joint force J-3, assisted by the J-2, is responsible for coordinating an assessment. An assessment is a continuous process that measures the overall effectiveness of employing joint force capabilities during military operations. It determines progress toward accomplishing tasks, creating effects, and achieving objectives. Continuously, the JFACC should plan and evaluate the results of joint air operations and provide assessments to the JFC for consolidation into the overall assessment of the current operation.

(b) Assessment is conducted at the tactical and operational levels within the joint force. At the tactical level, assessment is essential for decision making

during ATO execution. However, the tactical assessment process continues for days or weeks to evaluate weapons and tactical engagement effectiveness as additional information and analyses become available from sources inside and outside the operational area. This should include an actual collateral damage determination. Air planners should determine measures of performance to evaluate task accomplishment and MOE to assess changes in system behavior, capability or the operational environment. Planners should ensure they establish logical links between air objectives and tasks, and the measures used to evaluate them, early in the planning sequence. They should identify intelligence collection management and other intelligence collection requirements as part of the planning process. At the operational level, assessment is concerned with gathering information on the broader results achieved by air operations and planning for future operations.

(c) The assessment process, at the tactical level, provides one of the major sources of information for performing an assessment at the operational level. Tactical inputs, along with a wide assortment of other information, aid in developing the air component's operational-level assessment.

(d) The JFACC's operational-level assessment should be forwarded to the joint force J-3 as one component's input to the JFC's overall determination of the operation's success. An operational-level assessment can serve as the basis for important recommendations that can affect the JFC's apportionment decision and the JFACC's air resource allocation.

(e) Although assessment appears to mark the end of the air tasking cycle, it is an ongoing activity that provides important inputs to decision making and aids processes throughout that cycle.

(f) There are at least five ATOs in various stages of the joint air tasking cycle at any time:

- ATO A—Assessment of sorties already flown (strategy and intelligence, surveillance, and reconnaissance divisions).
- ATO B—Execution planning and force execution (combat operations division).
- ATO C—ATO production and dissemination (combat plans division).
- ATO D—Weaponeering and allocation (combat plans division).
- ATO E—Target development (combat plans and ISR divisions).

(g) The JFACC's responsibilities include monitoring joint air operations execution and redirecting joint air operations. Inherent in the JFACC's authority is the ability to redirect joint air assets. A JFACC may delegate authority to subordinate commanders' command and control (C2) nodes thereby redirecting air missions to higher priority targets or operations. For details, see JP 3-30, *Command and Control for Joint Air Operations*.

(h) The following are ATO mission changes.

- Retarget. This is used to deviate from an ATO-tasked mission to an emerging target or target of opportunity or provide an updated location or status of planned targets.
- Re-roll. A re-roll changes an aircraft mission type on the ATO, facilitating a higher priority requirement or satisfying an immediate air support request (e.g., change an air interdiction mission to CAS).
- Retask or redirect. This is a generic term for taking an ATO mission and retasking it to a dynamic event (e.g., troops in contact or combat search and rescue).
- Divert. This means to proceed to alternate base.

Note: For the purpose of the remainder of this section, it is assumed that a United States Army theater, corps, or division headquarters (HQ) is designated as the joint force land component commander (JFLCC); therefore, the following input procedures are "Army forces (ARFOR)-centric."

2. ARFOR Inputs to the Joint Air Tasking Cycle

The ARFOR HQ is responsible for providing inputs to the daily ATO, ACO, SPINS, and other products affecting air-ground operations with supporting air components through the battlefield coordination detachment (BCD) at the JAOC. The ARFOR HQ sets deadlines for brigade combat team (BCT) and division generated targets (e.g. joint air-ground integration center (JAGIC)), preplanned joint tactical air strike requests (JTARs), ACMREQ, collection requirements, and other inputs influencing daily ATO and ACO production.

3. Army Operations Process Inputs

a. The Army's operation process provides products to joint C2 processes achieving joint air-ground integration as described in chapter II. During the operations process, the ARFOR HQ identifies requirements exceeding organic capabilities or identifies weaponeering solutions air support can provide. The Army nests its military decision making process cycle and decides, detects, delivers, and assesses battle rhythms with the military decision-making process (MDMP). This provides subordinate units guidance on when to submit a JTAR, ACMREQs, and collection requirements facilitating planning and preparation by supporting components. The ARFOR HQ develops operations and fires plans affecting other components and requires coordination with the JAOC and other joint forces.

b. Daily ARFOR tasks during the joint air tasking cycle include:

(1) Collaborating with the JAOC through the BCD. The Army submits the requirements and inputs (summarized in table 2) through the BCD to the JAOC.

Table 2. Daily ARFOR Inputs to JAOC Joint Air Tasking Cycle	
Army Forces (ARFOR) Daily Input Recipients	**ARFOR Daily Inputs During Planning Stages**
Air operations directive	a. Provide the commander's inputs to the air apportionment recommendation thereby influencing the joint force air component commander air allocation decision for using joint airpower in the daily air battle plan. b. ARFOR inputs to para. 1.c. Situation, Friendly forces. c. Develop and advocate for ARFOR prioritized tactical tasks used for prioritizing targets on the joint integrated prioritized target list. d. Provide ground-force priorities and objectives; give the battlefield coordination detachment (BCD) Army mission briefs and share operational data.
Theater battle management core system air tasking order (ATO)	a. Provide daily aircraft beddown report updating the joint air operations center (JAOC) friendly order of battle and the air operations database. b. Provide Army aircraft missions schedule to BCD for Army component inclusion in the ATO (provide valid identification, friend or foe codes). Provide platform subject matter experts (e.g., GUARDRAIL RC-12 or unmanned aircraft) to BCD for ATO mission planning. c. Provide scheduled fire missions requiring coordination with other affected components (e.g., rocket and missiles or engagement areas). d. Send daily joint tactical air strike requests (JTARs) to the BCD via the Army Field Artillery Tactical Data System. Communicate the desired target priorities, timing, and effects. e. Provide ARFOR friendly ground-operations briefings and graphics (fire support coordination measures, airspace coordinating measures (ACMs), and maneuver graphic control measures).
Airspace control order (ACO)	a. Consolidate, integrate, and coordinate ARFOR requirements for airspace use and users facilitating air-ground operations (e.g., organic and supporting aircraft, fires, unmanned aircraft systems). b. Process Army unit airspace plan ACM requests and send them to BCD at the JAOC using the tactical airspace integration system. c. Participate in integrating ARFOR ACMs into theater ACO.
Special instructions (SPINS)	a. Provide SPINS inputs (e.g. Section 6: Operations—air interdiction and close air support (CAS)). b. Include provisions for: close combat attack with air weapons teams; guided multiple launch rocket systems, army tactical missile system clearance of fires, CAS, targeting mobile targets, kill box procedures, JTAR numbering, or processing immediate JTAR procedures.

Note: This list is not all-inclusive and the ARFOR HQ should coordinate requirements directly with the BCD.

(2) Establishing and maintaining the Army Battle Command System's (ABCS) connectivity and functionality between the BCT air defense and airspace management/brigade aviation element (ADAM/BAE), AFATDS with the division AE and FC (JAGIC, if formed) and BCD. Ensure digital connectivity exists among BCD, ABCS, and JAOC theater battle management core system (TBMCS). Establish primary, alternate, contingency, and emergency plans as alternatives to digital connectivity.

(3) Provide the ground commander's input to the JFACC air apportionment recommendation influencing how joint air power is used in the daily air battle plan.

(4) Submitting a ground concept of operations and priority of air support affecting the JFACC's strategy-to-task methodology guidance for the AOD. The ARFOR reviews operational objectives, tactical objectives, and tactical tasks for each AOD where target nominations are matched against available air support. ARFOR must clearly and accurately define objectives, the main effort, and priority of support for supporting air forces. ARFOR accomplishes this by clearly linking its selected targets (candidate target list and target data nominations), prioritized objectives and tactical tasks, and effects in the AOD. The BCD requires a clear understanding of the commander, Army forces' (COMARFOR's) intent, concept of operations, and priority of support to effectively represent and present the Army's requirements within the AOD and during the joint air tasking cycle.

(5) Projecting organic Army aircraft missions for operations (e.g., air assaults, deep attacks, or RU-21 Guardrail missions) requiring joint force visibility and ensuring ARFOR aviation missions are promulgated in each ATO and ACO.

(6) Coordinating shaping operations, and inputs planned missile and rocket fire missions into the ATO.

(7) Developing and approving the unit airspace plan (UAP) and sending ACMREQs to the airspace control authority (ACA) for coordination and inclusion in the daily ACO. The ARFOR operations section for air includes airspace information in ARFOR orders. The ARFOR AE, division JAGIC (if established), and ADAM/BAE consolidate all airspace user needs, at each echelon, for consolidation in the ARFOR UAP and submits ACMREQs to the BCD at the JAOC for approval in the theater ACO.

(8) Establishing and coordinating various maneuver and movement control, ACMs, and fire support coordination measures (FSCMs) facilitating operations by making them available for inclusion in the ACO, as applicable.

(9) Providing relevant procedures for CAS, the Army Tactical Missile System (ATACMS), or prosecuting targets with mobile characteristics that affect supporting joint air operations for inclusion in the SPINS. SPINS are detailed instructions for implementing missions on the ATO. However, the SPINS may supplement information in the ACO, area air defense plan (AADP), and operations task link. The ARFOR is responsible for coordinating inputs and changes to SPINS and providing sufficient details for other supporting aircraft operating inside the ARFOR AO.

(10) Approving and submitting a preplanned air support list (ASL) which includes targets and a JTAR for scheduled and on-call air missions for resourcing with joint air assets. The ASL is submitted per the JFC's battle rhythm, during the planning stages of the joint air tasking cycle, and resourced on the initial ATO.

ARFOR submits targets aligned with prioritized tactical tasks per the AOD, meeting JIPTL selection and prioritization criteria and justifying use of joint air assets (as shown in table 3).

Table 3. ARFOR Inputs to JAOC Joint Air Tasking Cycle

Army Forces (ARFOR) daily input Recipients	ARFOR Daily Tasks
Joint integrated prioritized target list (JIPTL)	a. Send air support lists and prioritized joint tactical air strike requests to the battlefield coordination detachment (BCD). • Include ARFOR target nominations matched to tactical tasks per the air operations directive to the BCD. • Ensure the candidate target list goes into the joint targeting toolbox and modernized integrated database. • Enter air support requests, without targets, into the air operations database. • The BCD advocates Army targets at the joint air operations center for inclusion in the draft JIPTL (when the joint force air component commander (JFACC) is given targeting oversight authority by the joint force commander (JFC)). b. Provide friendly ground order of battle briefings.
Joint integrated prioritized collection list Component prioritized collection list	a. Send ARFOR collection requirements through joint intelligence channels and a courtesy copy to BCD intelligence. b. When the JFACC is the JFC airborne intelligence, surveillance, and reconnaissance (ISR) manager, coordinate ARFOR ISR capabilities to support collection efforts. The BCD monitors and assists tasking airborne ISR assets and satisfying the collection plan, reconnaissance, surveillance, and target acquisition annex, and ISR synchronization matrix development to meet the ARFOR commander's critical information requirements and requests for information.
Tactical operations data	a. The primary Army air and missile defense command functions on behalf of the commander, Army forces. b. Update the ARFOR critical asset list and provide subject matter experts for Patriot and terminal high-altitude area defense.
Operations task link	Submit Army communications and frequency requirements.

(11) Preparing and submitting friendly ground order of battle and aircraft bed down reports to the BCD to provide an update in the JAOC air operations database.

(12) Submitting the component's prioritized collection list for integration into the joint integrated prioritized collection list. This list is approved by the joint collection management board for JFACC tasking of airborne ISR assets.

(13) Sharing the commander's critical information requirements with the BCD and supporting components.

(14) Submitting communications and frequency requirements for deconfliction and inclusion in the joint integrated frequency list.

(15) Submitting ARFOR-approved air mobility requests to the deployment and distribution operations center for prioritization and to the BCD airlift section for coordination at the JAOC.

c. ARFOR provides support to the JFACC, ACA, and area air defense commander (AADC). The JFC may direct components to support joint air operations with assets, capabilities, or forces not under tactical or operational control to the JFACC. The JFLCC provides ground forces and capabilities in support of the JFACC when directed as follows.

(1) Provide supporting fires engagement options including:

(a) An attack weapons team and any planned manned and unmanned teams.

(b) A multiple launch rocket system.

(c) A guided multiple launch rocket system.

(d) An ATACMS.

(e) An unmanned aircraft system.

(2) Share intelligence.

(3) Provide dynamic collection capability with organic assets.

(4) Track, target, and provide observed fires and intelligence.

(5) Provide personnel recovery (PR) support.

(6) Provide target and JTAR updates confirming the validity of previous requests for support.

(7) Identify airspace users and needed ACM.

(8) Deconflict airspace requirements per the airspace control plan (ACP).

(9) Assist theater air control system C2 agencies (e.g., control and reporting center or airborne warning and control system) airspace control efforts.

(10) Identify and share FSCMs with other affected components.

(11) Provide maneuver control measures, concept of operations and fires through the BCD to the JAOC.

(12) Share ground operations briefings, orders, graphics, and other pertinent information with the JFACC or JAOC through the BCD.

d. ARFOR provides the following inputs during ATO execution. They:

(1) Submit timely target and JTAR updates revalidating requirements.

(2) Provide target updates and verify supporting air missions are tasked as planned or modify the aircraft mission tasking.

(3) Prepare and share friendly ground operations briefings and the commander's updates with the BCD at JAOC and ground liaison detachments at the wing operations center (WOC).

(4) Provide air mission assessments to the JFACC for operational-level combat assessments.

(5) Exchange current operational and intelligence data between the ARFOR staff (e.g., chief of fires or chief of operations) and BCD at the JAOC.

(6) Provide situational understanding. They update information about the current operations and friendly forces.

(7) Coordinate changes to aircraft missions (i.e., aborts, re-targets, re-roles, diverts) of previously tasked aircraft that may affect timelines or desired effects. This is accomplished via the air support operations center.

(8) Participate in dynamic targeting, PR, and combat search and rescue activities.

(9) Provide commander update briefs and inform supporting commanders participating in the commander's update.

(10) Coordinate changes to Army airlift and airdrop support.

4. ARFOR Input to the Joint Operation Planning Process for Air (JOPPA)

During campaign and operations planning or order development, the ARFOR component collaborates with the geographic combatant commander and JFC's joint planning group. The ARFOR is obligated to provide a liaison to the supporting air component or JFACC who is assigned other JFC-designated authorities, such as AADC or ACA, who influence theater-level guidance affecting ground operations. Some ARFOR JOPPA inputs are listed in table 4.

a. All airspace users (i.e., manned aircraft, unmanned aircraft, artillery, missiles, or other flying assets) are required to comply with the airspace guidance promulgated in the ACP. ARFOR participates in the ACP development and modification process.

b. ARFOR also participates in developing the AADP and ensures tasks for ARFOR assets (such as Patriot missile systems and terminal high altitude area defense) are incorporated. The Army air and missile defense command (AAMDC) represents the COMARFOR in this process.

c. The AAMDC Commander, in the role of the Theater Army Air and Missile Defense Coordinator (TAAMDCOORD), provides assistance to the Joint Force Land Component Commander's/ArmyForce's staff (J3 and J5) in providing recommendations on Army critical asset priorities for nomination to the Critical Asset List

Table 4. ARFOR Collaboration to JOPPA	
Plans to Which Army Forces (ARFOR) Input	**ARFOR Inputs**
Joint air operations plan	a. Establish commander, Army forces (COMARFOR) representation with the commander, Air Force forces' staff, joint air operations center, and WOC enhancing air-ground integration. b. Provide input to the joint operation planning process for air supporting the land operations plan or order for each phase of the operation. c. Coordinate COMARFOR inputs to the air apportionment recommendation by phase (updated daily).
Airspace control plan	a. Assist with planning and developing airspace control system and airspace control procedures enhancing land operations. b. Determine airspace sectors and command and control agencies. c. Coordinate Army airspace priorities with airspace control authority.
Area air defense plan and joint forces commander-approved defended asset list	a. ARFOR send critical asset list to the area air defense commander and subject matter experts for the Patriot and terminal high-altitude area defense systems.

5. Army Processing of Air Support Requests

Note: The term JTAR is used here to represent air support requests whether the requester is using the DD Form 1972 JTAR or the United States message text format D670 AIRSUPREQs.

The Army processes preplanned and immediate air support requests through the Army air-ground system (AAGS). The Army approves or denies requests for external air support and identifies air support requirements to the air component using a JTAR. A JTAR is processed through the fires cell (FC), at each echelon of command, for approval and prioritization before being sent to the supporting air component. The Army nests their MDMP and targeting battle rhythm with the joint air tasking cycle providing subordinates guidance regarding submission timelines of a preplanned JTAR. Tactical air control parties are located at each echelon of command to advise and assist the FC with completing a valid JTAR. The division JAGIC, if established, provides comprehensive assistance in consolidating and validating battalion and BCT-generated JTARs with those for division-deep targets.

a. The Army's operations process is driven by operational events, but using joint air assets requires the Army to submit a JTAR on time to meet the daily battle rhythm of the joint air tasking cycle. The joint air tasking cycle is time driven and designed to enable the JFACC to publish the ATO on time, enabling tasked aviation units to conduct tactical mission planning. When the suspense for sending a preplanned JTAR is met, the supported ground forces' commander knows whether or not

dedicated joint air support sorties are available to support the ground scheme of maneuver.

b. ARFOR must submit their preplanned JTAR to the supporting air component in time to meet the planning stages of the joint air tasking cycle. The suspense for a preplanned JTAR is identified by the BCD, communicated with the ARFOR, and included in the ARFOR's decision cycle at each echelon of command. Depending on the operational tempo, a trained division or corps FC may take the initiative and submits a preplanned JTAR for subordinate units that are unable to meet the suspense. ARFOR submits a JTAR for on-call air missions and area targets requesting dedicated sorties on the ATO to support ground forces.

c. A JTAR must contain sufficient information for the supporting air component to task aircraft via the ATO, but may require additional information before the tasked unit can complete mission planning. The preferred system to process a JTAR is AFATDS. Units prioritize their JTARs in an air support list. The BCD AFATDS is interoperable with the TBMCS at the JAOC, enabling digital parsing by the BCD into the database for air component planning and resourcing.

ARMY PROCESSING OF PREPLANNED JOINT TACTICAL AIR STRIKE REQUESTS (PREFERRED METHOD)

The first brigade combat team (BCT) identifies requirements exceeding organic capabilities during their operations process (military decision-making process (MDMP) and targeting). The first BCT commander, staff, and tactical air control party participate in the planning process. During mission analysis, the first BCT approves and submits preplanned joint tactical air strike requests (JTARs) in a prioritized air support list (ASL), including JTAR with and without targets, via the Advanced Field Artillery Tactical Data System (AFATDS) to the division fires cell (FC). The division FC processes and approves, denies, or modifies the BCT JTARs. The JTAR is approved by the commander of Army Forces are consolidated in a prioritized ASL.

The higher headquarters anticipates and identifies sufficient air support requirements for their subordinate tactical units (two levels down) that have not initiated MDMP for future operations (72–96 hours) and submit preplanned JTARs on their behalf for on-call air assets (e.g., airborne or ground or alert or close air support). All preplanned JTARs are validated, checked for duplication and errors, and prioritized per the commander's targeting guidance. The division FC consolidates approved ASLs, re-prioritizes them in the division ASL, and generates their own JTAR.

Fire support planning and JTARs processing continues at corps or ARFOR before sending the ASL to the battlefield coordination detachment (BCD) at the joint air operations center (JAOC). The JTAR must meet the established air tasking order (ATO) battle rhythm providing the JAOC sufficient time to process them during the planning stages of the joint air tasking cycle. A preplanned JTAR is resourced with allocated aircraft by master air attack planners who task aircraft and build tailored missions on the ATO supporting the specific JTAR requirements. During ATO production, each JTAR number is paired with a tasked air mission number to support it before publishing the ATO.

Once the ATO is published, it is disseminated from the theater battle management core system (TBMCS) to the BCD AFATDS. The BCD AFATDS sends the ATO

message throughout the Army air-ground system AFATDS network to each echelon of command with information about which JTAR is supported (GREEN) or not (RED) with aircraft. It is imperative for units to review the ATO for accuracy. The first BCT FC AFATDS receives the ATO notification that three of five JTARS are supported and they must modify their plan accordingly.

During ATO execution, units update the target status, location, and other details to revalidate each JTAR and supporting air mission. The ARFOR sends immediate an JTAR, satisfying dynamic requirements. The air support operations center manages dynamic changes and makes near real-time inputs to the JAOC database that are viewed by the JAOC combat operations division and supporting wing operation centers. When time permits, the JAOC publishes ATO changes informing other affected joint forces.

SOURCE: MR2-TBMCS-IRIS SUM/AJST

d. Immediate requests for close air support are requests that were not requested early enough during planning cycles. High priority, an immediate JTAR is resourced with air assets on the current ATO through preplanned JTARs, or by diverting other aircraft from their planned missions. In either case, the air mission may not be the optimum resource for supporting an immediate JTAR due to other planned missions.

e. The ASOC and joint terminal attack controllers use the joint air request net to send immediate an JTAR. If time permits, an immediate JTAR is sent through the AAGS, using AFATDS to go through fire support processing.

ARMY PROCESSING IMMEDIATE JOINT TACTICAL AIR STRIKE REQUEST (PREFERRED METHOD)

A brigade combat team (BCT) has received reliable intelligence of a weapons cache in its assigned area of operations. The BCT issues a warning order to one of its battalions executing a cordon and search in the area in six hours. The BCT commander establishes 2d battalion as the main effort for the operation. The BCT fires cell (FC) begins fire support planning by entering the weapons cache into the Advanced Field Artillery Tactical Data System (AFATDS) as a target. The FC analyzes the target considering available resources and commander's guidance, and provides weapon-target pairing solutions for the guided multiple launch rocket system (GMLRS) and close air support (CAS). The BCT air liaison officer (ALO) checks the air tasking order and recommends the unit submit an immediate joint tactical air strike request (JTAR) for airborne alert CAS. This ensures responsive air support with the right armament for the target and enables situational awareness for the aircrews of the ground unit's mission. The commander approves the ALO and fire support officer recommendations. The FC submits the JTAR for CAS and the request for GMLRS fires through fire support channels. The digital requests in AFATDS are analyzed, approved, and forwarded to the appropriate echelon for final approval and prioritization. The JTAR is approved in Army forces (ARFOR) fire support channels at the division, corps, or ARFOR level. The corps or ARFOR FC forwards the immediate JTAR (digitally) through AFATDS to the battlefield coordination detachment at the joint air operations center (JAOC). The JTAR automatically parses into the theater battle management core system (TBMCS) database.

The air support operations center (ASOC) at the division and corps views the request in a TBMCS application called Web Air Request Processor (WARP). The ASOC pairs the digital request with an appropriate CAS mission that already exists on the ATO and updates the TBMCS database. The ASOC has been given launch authority by the joint force air component commander and changes a dedicated ground alert CAS mission to airborne alert supporting the Army requestor. When the ASOC selects the SCRAMBLE button in WARP, the TBMCS automatically sends a message to the JAOC CAS duty officer and the wing operations center that executes the air mission and, simultaneously, sends an approved message back to the requesting unit through AFATDS. Digital processing allows the requesting unit to enter request data after the fire support processing is accomplished at each Army echelon and the requester receives digital notification from the ASOC or JAOC with an approved air mission number. The company commander executes the mission knowing GMLRS and CAS are dedicated to support the unit's mission.

SOURCE: MR2-TBMCS-IRIS SUM/AJST

18 July 2011

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Appendix C
Battle Management Area (BMA) Construction

1. The Construct

The BMA construct is to position tactical battle management command and control (BMC2) elements to provide areas of responsibility, for decentralized execution of offensive and defensive operations to achieve the joint force commander's objectives. (See Figure 14.) Additionally, it ensures wide-area surveillance coverage of the joint operations area. (See figure 15.) The number and arrangement of assets should consider desired surveillance, data links, and communication coverage. Also, the battle managers' ability to handle task loads and provide appropriate span of control should be considered.

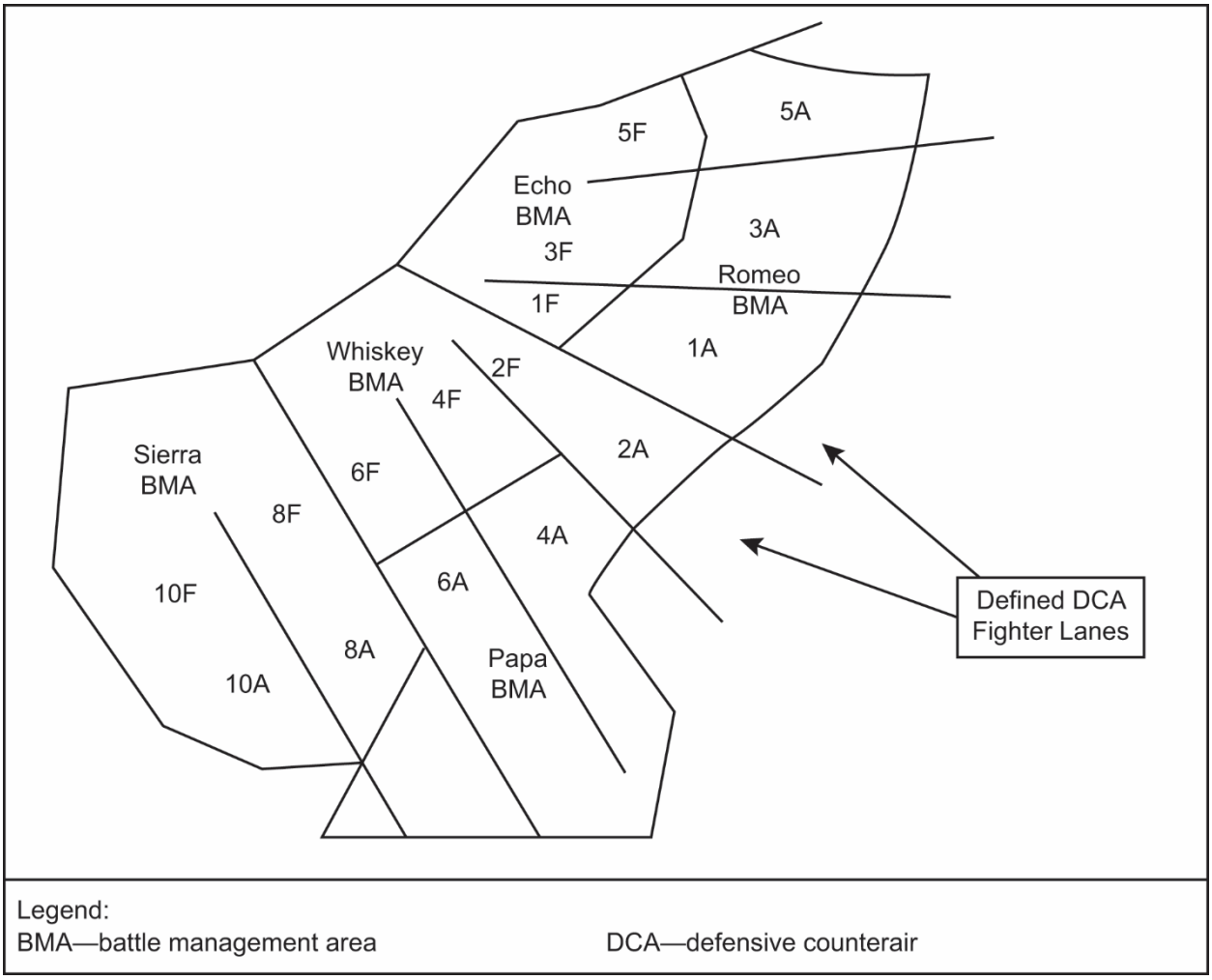

Figure 14. Notional BMAs

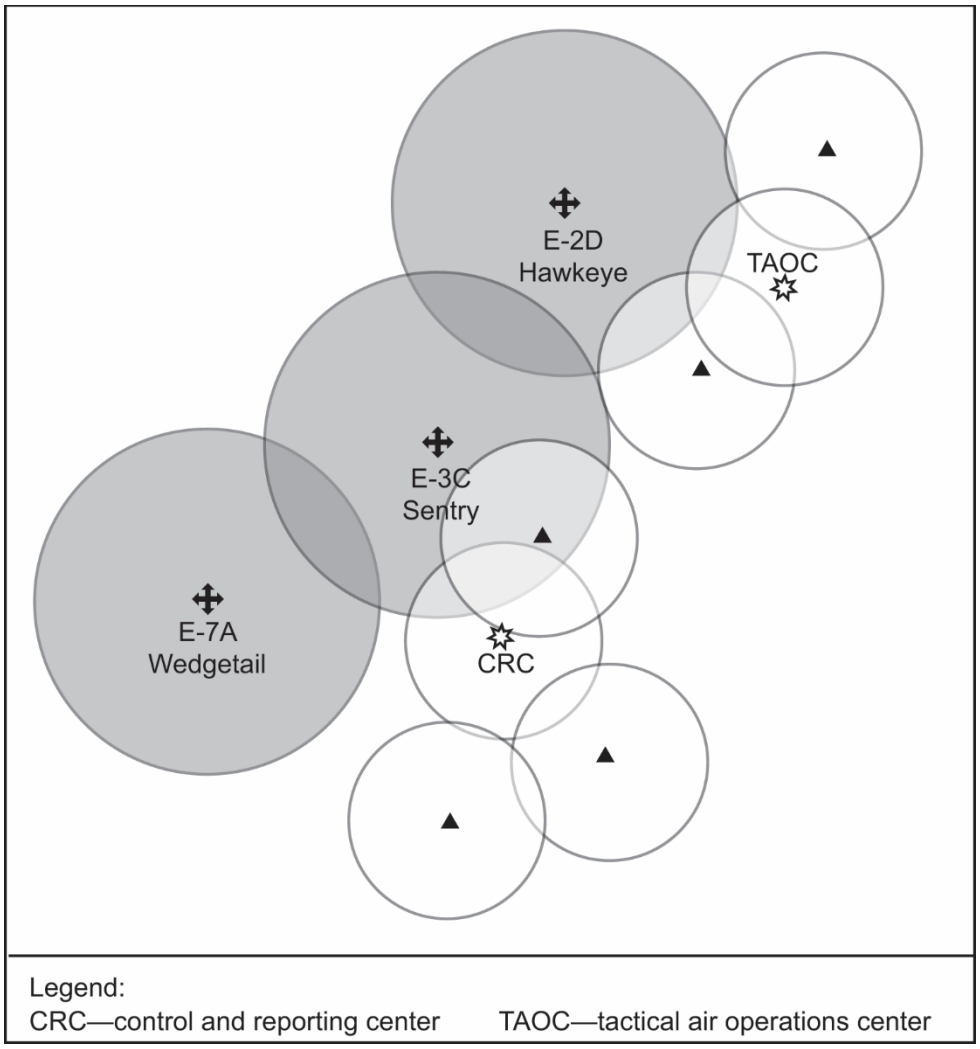

Figure 15. Surveillance Areas of Responsibility/Track Production Areas

2. Joint Force Air Component Commander (JFACC) Responsibilities

a. The JFACC divides the area of responsibility to account for various tactical BMC2 elements' abilities to maintain an optimum span of control of counterair operations. The JFACC delegates authorities for properly managing counterair activities and providing accountability of the JFACC's and area air defense commander's assets operating within the BMA. The controlling element manages all air defense assets within the BMA.

b. Consider the following factors when constructing the BMA and assigning roles and responsibilities:

(1) Expected crew task load and task saturation levels.

(2) Surveillance capabilities and coverage.

(3) Radio and tactical data link, network capability and coverage.

(4) Operator capabilities.

(5) Tanker, shooter locations, and fighter lanes.

(6) Terrain or other environmental factors.

c. BMAs promote maximum mutual support among the tactical execution elements while reducing ambiguity, confusion, and mutual interference. BMC2 conducts 24/7, full-spectrum command and control (C2) of JFACC forces and includes:

(1) Collaborating and coordinating air tasking order activities with coalition and host nation self-defense C2.

(2) Integrating and deconflicting air and surface-to-air missile engagements.

(3) Mitigating fratricide occurrences between coalition and United States forces.

(4) Minimizing interference among component activities.

(5) Performing airspace management.

(6) Integrating and deconflicting dynamic surface fires.

(7) Providing safe aircraft separation.

(8) Executing area air defense commander delegated authorities for Integrated Air Missile Defense (IAMD) in assigned operating areas.

(9) Managing defensive counterair (DCA) capabilities and tanker flow.

(10) Committing DCA fighters and providing targeting.

(11) Directing and integrating surface-to-air engagements.

(12) Supporting strike package commanders from check-in, ingress, on target, egress, and return to base.

(13) Directing movements and providing oversight of high-value airborne asset retrograde activities.

(14) Managing tanker support; dynamically reallocating fuel to meet offensive counterair and DCA commander’s needs.

(15) Deconflicting and integrating air mobility and theater aeromedical evacuation operations.

(16) Supporting joint force maritime component commander air assets conducting countermaritime operations.

(17) Providing a common air picture through precisely tracking all air activity in assigned areas.

(18) Finding, identifying, and categorizing adversary aircraft at maximum ranges.

(19) Maintaining a continuous track of all United States and coalition air assets to the highest degree possible.

(20) Managing tactical data links.

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DD Form 1972, Joint Tactical Air Strike Request

GLOSSARY

PART I – ABBREVIATIONS AND ACRONYMS

A

AADC	area air defense commander
AADP	area air defense plan
AAGS	Army air-ground system
AAMDC	Army air and missile defense command
AAR	air-to-air refueling area
ABCS	Army Battle Command System
ACA	airspace control authority
ACE	aviation combat element (USMC)
ACI	air combat intelligence
ACM	airspace coordinating measure
ACMREQ	airspace coordinating measure request
ACO	airspace control order
ACP	airspace control plan
ACS	airspace control system
ADA	air defense artillery
ADAFCO	air defense artillery fire control officer
ADAM	air defense and airspace management
ADC	air defense commander
ADCS	air defense coordination section
ADIZ	air defense identification zone
ADP	Army doctrine publication
AE	airspace element
AFATDS	Advanced Field Artillery Tactical Data System
AFFOR	Air Force forces
AFLE	Air Force liaison element
AFSOC	Air Force Special Operations Command
AI	air interdiction
AIRSUPREQ	air support request
ALO	air liaison officer

ALLOREQ	allocation request
AMD	air and missile defense
AMDC	air and missile defense commander
ANGLICO	air-naval gunfire liaison company
AO	area of operations
AOA	amphibious objective area
AOC	air operations center
AOD	air operations directive
AODB	air operations database
AOR	area of responsibility
AREC	air resource element coordinator
ARFOR	Army forces
ARG	amphibious ready group
ASC(A)	assault support coordinator (airborne)
ASCC	Army Service component command
ASCS	air support control section
ASE	air support element
ASL	air support list
ASLT	air support liaison team
ASOC	air support operations center
ASOG	air support operations group
ASOS	air support operations squadron
ATACMS	Army Tactical Missile System
ATC	air traffic control
ATCS	air traffic control section
ATF	amphibious task force
ATO	air tasking order
ATP	Army techniques publication
AWACS	Airborne Warning and Control System

B

BAE	brigade aviation element
BCC	battle control center

BCD	battlefield coordination detachment (Army)
BCT	brigade combat teams
BDE	brigade
BM	battle management
BMA	battle management area
BMC2	battle management command and control
BN	battalion

C

C2	command and control
CAS	close air support
CATF	commander, amphibious task force
CCDR	combatant commander
CCMD	combatant command
CDRJSOTF	commander, joint special operations task force
CF	conventional forces
CIEA	classification, identification, and engagement area
COMAFFOR	commander, Air Force forces
COMARFOR	commander, Army forces
COMMARFOR	commander, Marine Corps forces
COMNAVFOR	commander, Navy forces
CONOPS	concept of operations
CP	command post
CRC	control and reporting center
CSG	carrier strike group
CTF	commander, task force
CTG	commander, task group
CWC	composite warfare commander

D

DASC	direct air support center
DCA	defensive counterair
DFSCOORD	deputy fire support coordinator
DIV	division

DIVARTY	division artillery
	E
ESG	expeditionary strike group
	F
FAC(A)	forward air controller (airborne)
FARP	forward arming and refueling point
FC	fires cell
FECC	fire and effects coordination center
FM	field manual
FSCC	fire support coordination center
FSCL	fire support coordination line
FSCM	fire support coordination measure
FSCOORD	fire support coordinator
	G
GCC	geographic combatant commander
GCE	ground combat element (USMC)
GLD	ground liaison detachment
GMLRS	guided multiple launch rocket system
	H
HIDACZ	high-density airspace control zone
HQ	headquarters
	I
IO	information operations
ISR	intelligence, surveillance, and reconnaissance
	J
JACCE	joint air component coordination element
JACE	joint air coordination element
JAGIC	joint air-ground integration center
JAOC	joint air operations center
JAOP	joint air operations plan
JARN	joint air request net
JCC	joint cyberspace center

JFACC	joint force air component commander
JFC	joint force commander
JFE	joint fires element
JFLCC	joint force land component commander
JFMCC	joint force maritime component commander
JFO	joint fires observer
JFSOCC	joint force special operations component commander
JIPTL	joint integrated prioritized target list
JOA	joint operations area
JOC	joint operations center
JOPPA	joint operation planning process for air
JP	joint publication
JPRC	joint personnel recovery coordinator
JSOAC	joint special operations air component
JSOACC	joint special operations air component commander
JSOTF	joint special operations task force
JSTARS	Joint Surveillance Target Attack Radar System
JTAC	joint terminal attack controller
JTAR	joint tactical air strike request
JTCB	joint targeting coordination board
JTF	joint task force

K

KSG ARG	Kearsarge amphibious readiness group

L

LAAD	low-altitude air defense (USMC)
LAC	launch area coordinator
LCE	logistics combat element
LF	landing force
LNO	liaison officer

M

MAAP	master air attack plan
MACCS	Marine air command and control system

MAGTF	Marine air-ground task force
MARFOR	Marine Corps forces
Marine TACC	Marine Corps tactical air command center
MARLE	Marine liaison element
MASS	Marine air support squadron
MATCD	Marine air traffic control detachment
MDMP	military decision-making process
MEB	Marine expeditionary brigade
MEF	Marine expeditionary force
MEU	Marine expeditionary unit
MMT	Marine air traffic control mobile team
MOC	maritime operations center
MOE	measures of effectiveness
MWCS	Marine wing communication squadron

N

NALE	naval and amphibious liaison element
NAVFOR	Navy forces
Navy TACC	Navy tactical air control center
NCC	Navy component commander
NFC	numbered fleet commanders
NTACS	Navy tactical air control system
NWP	Navy warfare publication

O

OCA	offensive counterair
OPCON	operational control
OPLAN	operation plan
OPTASK	operation task
OPTASKLINK	operation task link
OTC	officer in tactical command

P, Q

PMC	passenger/mail/cargo
PR	personnel recovery

R

RADC	regional air defense commander

S

SA	surveillance area
SACC	supporting arms coordination center
SADC	sector air defense commander
SCA	space coordinating authority
SEAD	suppression of enemy air defenses
SO	special operations
SOAGS	special operations air-ground system
SOCCE	special operations command and control element
SOF	special operations forces
SOFLE	special operations forces liaison element
SOJTF	special operations joint task force
SOLE	special operations liaison element
SORTIEALOT	sortie allotment
SOWT	special operations weather team
SPINS	special instructions
STT	special tactics team
STWC	strike warfare commander

T

TAC(A)	tactical air coordinator (airborne)
TACON	tactical control
TACP	tactical air control party
TACS	theater air control system
TADC	tactical air direction center
TAGS	theater air-ground system
TAOC	tactical air operations center (USMC)
TBMCS	theater battle management core system
TET	targeting effects team
TLAM	Tomahawk land-attack missile
TSC	Tomahawk land-attack missile strike coordinator

TTP	tactics, techniques, and procedures
	U
UAP	unit airspace plan
UAS	unmanned aircraft system
US	United States
USMC	United States Marine Corps
	V
VA	vital area
	W, X, Y, Z
WARP	Web Air Request Processor
WOC	wing operations center

PART II – TERMS AND DEFINITIONS

air apportionment—The determination and assignment of the total expected effort by percentage and/or by priority that should be devoted to the various air operations for a given period of time. (*DOD Dictionary of Military and Associated Terms.* Source: JP 3-0)

air interdiction—Air operations conducted to divert, disrupt, delay, or destroy the enemy's military surface capabilities before they can be brought to bear effectively against friendly forces, or to otherwise achieve objectives that are conducted at such distances from friendly forces that detailed integration of each air mission with the fire and movement of friendly forces is not required. Also called AI. (*DOD Dictionary of Military and Associated Terms.* Source: JP 3-03)

airspace control—Capabilities and procedures used to increase operational effectiveness by promoting the safe, efficient, and flexible use of airspace. (*DOD Dictionary of Military and Associated Terms.* Source: JP 3-52)

airspace control authority—The commander designated to assume overall responsibility for the operation of the airspace control system in the airspace control area. Also called ACA. (*DOD Dictionary of Military and Associated Terms.* Source: JP 3-52)

airspace control plan—The document, approved by the joint force commander, that provides specific planning guidance and procedures for the airspace control system for the joint force operational area. Also called ACP. (*DOD Dictionary of Military and Associated Terms*. Source: JP 3-52)

airspace coordinating measures—Measures employed to facilitate the efficient use of airspace to accomplish missions and, simultaneously, provide safeguards for friendly forces. Also called ACMs. (*DOD Dictionary of Military and Associated Terms*. Source: JP 3-52)

apportionment—The quantities of force capabilities and resources provided for planning purposes only, but not necessarily an identification of the actual forces that may be allocated for use when a plan transitions to execution. (*DOD Dictionary of Military and Associated Terms*. Source: JP 5-0)

area air defense commander—The component commander with the preponderance of air defense capability and the required command, control, and communications capabilities who is assigned by the joint force commander to plan and execute integrated air defense operations. Also called AADC. (*DOD Dictionary of Military and Associated Terms*. Source: JP 3-01)

area of operations—An operational area, defined by the joint force commander for land and maritime forces, that should be large enough to accomplish the [commander's] missions and protect the forces. Also called AO. (*DOD Dictionary of Military and Associated Terms*. Source: JP 3-0)

area of responsibility—The geographical area associated with a combatant command within which a combatant commander has authority to plan and conduct

operations. Also called AOR. (*DOD Dictionary of Military and Associated Terms*. Source: JP 1)

battle management—The management of activities, within the operational environment, based on the commands, direction, and guidance given by appropriate authority. (*DOD Dictionary of Military and Associated Terms*. Source: JP 3-01)

combatant command (command authority)—Nontransferable command authority, which cannot be delegated, of a combatant commander to perform those functions of command over assigned forces involving organizing and employing commands and forces; assigning tasks; designating objectives; and giving authoritative direction over all aspects of military operations, joint training, and logistics necessary to accomplish the missions assigned to the command. Also called COCOM. (*DOD Dictionary of Military and Associated Terms*. Source: JP 1)

combatant commander—A commander of one of the unified or specified combatant commands established by the President. Also called CCDR. (*DOD Dictionary of Military and Associated Terms*. Source: JP 3-0)

combat identification—The process of attaining an accurate characterization of detected objects, in the operational environment, sufficient to support an engagement decision. Also called CID. (*DOD Dictionary of Military and Associated Terms*. Source: JP 3-09)

command and control—The exercise of authority and direction, by a properly designated commander, over assigned and attached forces in the accomplishment of the mission. Also called C2. (*DOD Dictionary of Military and Associated Terms*. Source: JP 1)

command and control system—The facilities, equipment, communications, procedures, and personnel essential to a commander for planning, directing, and controlling operations of assigned and attached forces pursuant to the missions assigned. (*DOD Dictionary of Military and Associated Terms*. Source: JP 6-0)

command relationships—The interrelated responsibilities between commanders, as well as the operational authority exercised by commanders in the chain of command; defined further as combatant command (command authority), operational control, tactical control, or support. (*DOD Dictionary of Military and Associated Terms*. Source: JP 1)

common operational picture—A single, identical display of relevant information shared by more than one command, that facilitates collaborative planning and assists all echelons to achieve situational awareness. Also called COP. (*DOD Dictionary of Military and Associated Terms*. Source: JP 3-0)

concept of operations—A verbal or graphic statement that clearly and concisely expresses what the joint force commander intends to accomplish and how it will be done using available resources. Also called CONOPS. (*DOD Dictionary of Military and Associated Terms*. Source: JP 5-0)

conventional forces—1. Those forces capable of conducting operations using nonnuclear weapons. 2. Those forces other than designated special operations forces. Also called CF. (*DOD Dictionary of Military and Associated Terms*. Source: JP 3-05)

joint fire support—Joint fires that assist air, land, maritime, and special operations forces to move, maneuver, and control territory, populations, airspace, and key waters. (*DOD Dictionary of Military and Associated Terms*. Source: JP 3-0)

joint fires—Fires delivered during the employment of forces from two or more components, in coordinated action, to produce desired effects in support of a common objective. (*DOD Dictionary of Military and Associated Terms*. Source: JP 3-0)

joint force—A force composed of significant elements, assigned or attached, of two or more military departments operating under a single joint force commander. (*DOD Dictionary of Military and Associated Terms*. Source: JP 3-0)

joint force air component commander—The commander within a unified command, subordinate unified command, or joint task force responsible to the establishing commander for recommending the proper employment of assigned, attached, and/or made available for tasking air forces; planning and coordinating air operations; or accomplishing such operational missions as may be assigned. Also called JFACC. (*DOD Dictionary of Military and Associated Terms*. Source: JP 3-0)

joint force commander—A general term applied to a combatant commander, subordinate unified commander, or joint task force commander authorized to exercise combatant command (command authority) or operational control over a joint force. Also called JFC. (*DOD Dictionary of Military and Associated Terms*. Source: JP 1)

joint force land component commander—The commander within a unified command, subordinate unified command, or joint task force responsible to the establishing commander for recommending the proper employment of assigned, attached, and/or made available for tasking land forces; planning and coordinating land operations; or accomplishing such operational missions as may be assigned. Also called JFLCC. (*DOD Dictionary of Military and Associated Terms*. Source: JP 3-0)

joint force maritime component commander—The commander within a unified command, subordinate unified command, or joint task force responsible to the establishing commander for recommending the proper employment of assigned, attached, and/or made available for tasking maritime forces and assets; planning and coordinating maritime operations; or accomplishing such operational missions as may be assigned. Also called JFMCC. (*DOD Dictionary of Military and Associated Terms*. Source: JP 3-0)

joint force special operations component commander—The commander within a unified command, subordinate unified command, or joint task force responsible to the establishing commander for recommending the proper employment of

assigned, attached, and/or made available for tasking special operations forces and assets; planning and coordinating special operations; or accomplishing such operational missions as may be assigned. Also called JFSOCC. (*DOD Dictionary of Military and Associated Terms*. Source: JP 3-0)

joint operations—Military actions conducted by joint forces and those Service forces employed in specified command relationships with each other which, of themselves, do not establish joint forces. (*DOD Dictionary of Military and Associated Terms*. Source: JP 3-0)

joint operations area—An area of land, sea, and airspace, defined by a geographic combatant commander or subordinate unified commander, in which a joint force commander (normally a joint task force commander) conducts military operations to accomplish a specific mission. Also called JOA. (*DOD Dictionary of Military and Associated Terms*. Source: JP 3-0)

joint terminal attack controller—A qualified (certified) Service member who, from a forward position, directs the action of combat aircraft engaged in close air support and other offensive air operations. A qualified and current joint terminal attack controller is recognized across the Department of Defense as capable and authorized to perform terminal attack control. Also called JTAC. (*DOD Dictionary of Military and Associated Terms*. Source: JP 3-09.3)

kill box—A three-dimensional area used to facilitate the integration of joint fires. (*DOD Dictionary of Military and Associated Terms*. Source: JP 3-09)

Marine Corps tactical air command center—The principal United States Marine Corps air command and control agency from which air operations and air defense warning functions are directed. Also called Marine TACC. (*DOD Dictionary of Military and Associated Terms*. Source: JP 3-09.3)

Navy tactical air control center—The principal air operations installation (ship-based) from which all aircraft and air warning functions of tactical air operations are controlled. Also called Navy TACC. (*DOD Dictionary of Military and Associated Terms*. Source: JP 3-09.3)

operational environment—A composite of the conditions, circumstances, and influences that affect the employment of capabilities and bear on the decisions of the commander. Also called OE. (*DOD Dictionary of Military and Associated Terms*. Source: JP 3-0)

reachback—The process of obtaining products, services, and applications, or forces, equipment, or material from organizations that are not forward deployed. (*DOD Dictionary of Military and Associated Terms*. Source: JP 3-30)

space coordinating authority—The responsibility to plan, integrate, and coordinate space operations. Also called SCA. (*DOD Dictionary of Military and Associated Terms*. Source: JP 3-14)

special operations—Operations requiring unique modes of employment, tactical techniques, equipment and training; often conducted in hostile, denied, or politically sensitive environments and characterized by one or more of the

following: time sensitive, clandestine, low visibility, conducted with and/or through indigenous forces, requiring regional expertise, and/or a high degree of risk. Also called SO. (*DOD Dictionary of Military and Associated Terms*. Source: JP 3-05)

special operations forces—Those Active and Reserve Component forces of the military services designated by the Secretary of Defense and specifically organized, trained, and equipped to conduct and support special operations. Also called SOF. (*DOD Dictionary of Military and Associated Terms*. Source: JP 3-05.1)

tactical air control party—A subordinate operational component of a tactical air control system designed to provide air liaison to land forces and to control aircraft. Also called TACP. (*DOD Dictionary of Military and Associated Terms*. Source: JP 3-09.3)

targeting—The process of selecting and prioritizing targets and matching the appropriate response to them, considering operational requirements and capabilities. (*DOD Dictionary of Military and Associated Terms*. Source: JP 3-0)

theater—The geographical area for which a commander of a geographic combatant command has been assigned responsibility. (*DOD Dictionary of Military and Associated Terms*. Source: JP 1)

theater of operations—An operational area defined by the geographic combatant commander for the conduct or support of specific military operations. Also called TO. (*DOD Dictionary of Military and Associated Terms*. Source: JP 3-0)

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***ATP 3-52.2**
MCRP 3-20.1
NTTP 3-56.2
AFTTP 3-2.17
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By Order of the Secretary of the Army:

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