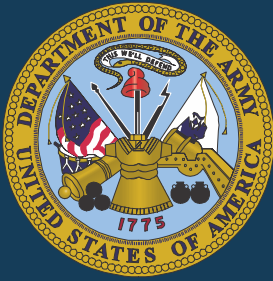


Joint Publication 3-30



Joint Air Operations



25 July 2019
Validated on
17 September 2021



PREFACE

1. Scope

This publication provides fundamental principles and guidance for the conduct of joint air operations. It addresses considerations to form and establish a joint force air component with a designated joint force air component commander and provides principles and guidance to plan, execute, and assess joint air operations across the range of military operations.

2. Purpose

This publication has been prepared under the direction of the Chairman of the Joint Chiefs of Staff (CJCS). It sets forth joint doctrine to govern the activities and performance of the Armed Forces of the United States in joint operations, and it provides considerations for military interaction with governmental and nongovernmental agencies, multinational forces, and other interorganizational partners. It provides military guidance for the exercise of authority by combatant commanders and other joint force commanders (JFCs), and prescribes joint doctrine for operations and training. It provides military guidance for use by the Armed Forces in preparing and executing their plans and orders. It is not the intent of this publication to restrict the authority of the JFC from organizing the force and executing the mission in a manner the JFC deems most appropriate to ensure unity of effort in the accomplishment of objectives.

3. Application

a. Joint doctrine established in this publication applies to the Joint Staff, commanders of combatant commands, subordinate unified commands, joint task forces, subordinate components of these commands, the Services, the National Guard Bureau, and combat support agencies.

b. This doctrine constitutes official advice concerning the enclosed subject matter; however, the judgment of the commander is paramount in all situations.

c. If conflicts arise between the contents of this publication and the contents of Service publications, this publication will take precedence unless the CJCS, normally in coordination with the other members of the Joint Chiefs of Staff, has provided more current and specific guidance. Commanders of forces operating as part of a multinational (alliance

or coalition) military command should follow multinational doctrine and procedures ratified by the United States. For doctrine and procedures not ratified by the United States, commanders should evaluate and follow the multinational command's doctrine and procedures, where applicable and consistent with US law, regulations, and doctrine.

For the Chairman of the Joint Chiefs of Staff:

A handwritten signature in black ink, appearing to read "D. J. O'Donohue". The signature is stylized and cursive.

DANIEL J. O'DONOHUE
Lieutenant General, USMC
Director, Joint Force Development

**SUMMARY OF CHANGES
REVISION OF JOINT PUBLICATION 3-30
DATED 10 FEBRUARY 2014**

- **This publication was validated without change on 17 September 2021.**
- **Changes the title to remove “Command and Control” and updates the scope.**
- **Corrects terminology on coordination measures for airspace control.**
- **Updates the area air defense commander responsibilities.**
- **Updates the figure for the Theater Air Control System: Army Air-Ground System.**
- **Adds a description of the technique of using an “integrated air tasking order.”**
- **Changes the process title to “joint planning process for air” to align with the joint planning process.**
- **Updates and aligns the description of joint targeting entities and processes.**
- **Expands the discussion of the process for the assessment of joint air operations.**
- **Updates the discussion of the employment of unmanned aircraft systems (UASs), to include considerations for countering enemy UASs.**
- **Adds a discussion of considerations and integration of cyberspace operations.**
- **Adds a description of the roles and responsibilities for space and cyberspace liaisons within the joint air operations center.**

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EXECUTIVE SUMMARY COMMANDER'S OVERVIEW

- Discusses options for the joint force commander to organize forces for joint air operations.
 - Describes the duties of the joint force air component commander.
 - Discusses methods to establish and exercise command and control of joint air operations.
 - Outlines how to develop the joint air estimate, the joint planning process for air, joint targeting considerations, and the joint air tasking cycle.
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Introduction

Although the joint force commander (JFC) has several organizational options for command and control (C2) of joint air operations, a joint force air component commander (JFACC) is often the first option for consideration.

Control of the Air

In the air, the degree of control can range from no control, to a parity (or neutral) situation wherein neither adversary can claim any level of control over the other, to local air superiority in a specific area, to air supremacy over the entire operational area. Control may vary over time. It is important to remember, the degree of control of the air lies within a spectrum that can be enjoyed by any combatant. Likewise, that degree of control can be localized geographically (horizontally and vertically) or defined in the context of an entire theater. The desired degree of control will be at the direction of the JFC and based on the JFC's concept of operations (CONOPS) and will typically be an initial priority objective of joint air operations.

Organization of Forces

A JFC has three basic organizational options for C2 of joint air operations: designate a JFACC, designate a Service component commander, or retain C2 within the JFC's headquarters. In each case, effectively and efficiently organizing the staff, C2 systems, and subordinate forces that will plan, execute, and assess joint air operations is key. Factors impacting selection of each option may include the overall mission, forces available, the ability to C2, and the desired span of control.

Joint Air Operations

Joint air operations are performed by forces made available for joint air tasking. Joint air operations do not include those air operations that a component conducts as an integral and organic part of its own operations. Though missions vary widely within the operational environment and across the range of military operations, the framework and process for the conduct of joint air operations should be consistent.

Joint air operations are normally conducted using centralized control and decentralized execution to achieve effective control and foster initiative, responsiveness, and flexibility.

Command and Control of Joint Air Operations

Joint Force Commander

The JFC establishes subordinate commands, assigns responsibilities, establishes or delegates appropriate command relationships, and establishes coordinating instructions for subordinate commanders.

When contemplating C2 options for joint air operations within the operational area, the JFC can choose to exercise C2 through a functional component commander by designating a JFACC, one of the Service component commanders, or the joint force staff. Many factors will weigh on the JFC's selection—most notably the type and availability of forces and capabilities to accomplish the assigned mission.

Joint Force Air Component Commander (JFACC)

The JFC normally designates a JFACC to establish unity of command and unity of effort for joint air operations. The JFC will normally assign JFACC responsibilities to the component commander having the preponderance of forces to be tasked and the ability to effectively plan, task, and control joint air operations. **However, the JFC will always consider the mission, nature, and duration of the operation, force capabilities, and the C2 capabilities in selecting a commander.**

The responsibilities of the JFACC are assigned by the JFC. These include, but are not limited to:

- **Develop a joint air operations plan (JAOP)** in coordination with the other Service and functional components.
- Recommend air apportionment priorities to the JFC.
- Allocate and task the joint air capabilities and forces made available by the Service components based on the JFC's air apportionment decision.
- Provide the JFACC's guidance in the air operations directive.
- Provide oversight and guidance during execution of joint air operations.
- Assess the results of joint air operations.
- Perform the duties of the airspace control authority (ACA), if designated.
- Perform the duties of the area air defense commander (AADC), if designated.
- Perform the duties of the space coordinating authority, if designated.
- Perform the duties of the personnel recovery coordinator, as required.

Airspace Control Authority

The ACA is a commander designated by the JFC to assume overall responsibility for the operation of the airspace control system (ACS) in the airspace control area. Developed by the ACA and approved by the JFC, the airspace control plan establishes general guidance for the control of airspace and procedures for the ACS for the joint force operational area. The airspace control order implements specific control procedures for established time periods. It defines and establishes airspace for military operations as coordinated by the ACA and notifies all agencies of the effective time of activation and the structure of the airspace.

Area Air Defense Commander

The AADC is responsible for defensive counterair (DCA) operations, which include the integrated air

defense system for the joint operations area. DCA and offensive counterair operations combine as the counterair mission, which is designed to attain and maintain the degree of control of the air and protection desired by the JFC. In coordination with the component commanders, the AADC develops, integrates, and distributes a JFC-approved joint area air defense plan.

*Joint Air Operations
Command and Control
System*

Normally, the joint air operation C2 system will be built around the C2 system of the Service component commander designated as the JFACC. Each Service component has an organic system designed for C2 of their air operations. Whether it is the Air Force's theater air control system (TACS), the Army air-ground system (AAGS), the Navy's composite warfare commander (CWC)/Navy tactical air control system (NTACS), Marine air command and control system (MACCS), or the special operations air-ground system (SOAGS) that serves as the nucleus for C2 of joint air operations, the remainder will be integrated to best support the JFC's CONOPS.

Theater Air-Ground System (TAGS). When all elements of the TACS, AAGS, CWC/NTACS, MACCS with fire support coordination center hierarchy, and SOAGS integrate, the entire system is labeled the TAGS.

*Joint Force Air Component
Command Organization*

The JFACC should establish a close working relationship with the JFC to advise on the optimum use of joint air power. This working relationship should extend through the JFC and JFACC staffs, as well as the other component staffs that play a crucial role in supporting the JFC with air capabilities. The JFACC will normally operate from a joint air operations center (JAOC). The JAOC and the JFACC's staff should be manned with subject matter experts who reflect the capabilities/forces available to the JFACC for tasking and include appropriate component representation.

JAOC organizations may differ. Elements that should be common to all JAOCs are the strategy division; combat plans division; intelligence, surveillance, and reconnaissance division; air mobility division; and combat operations division.

Options available during contingency operations to establish a joint force air component command include designating a JFACC within a subordinate command (e.g., JTF or subordinate unified command), designating a theater JFACC operating in support of subordinate commands, or a combination of a theater and subordinate command JFACCs.

Joint Force Staff Option

In operations of limited scope, duration, or complexity, or in which air operations are a relatively small aspect of the overall joint force, the JFC may plan, direct, and control joint air operations with the assistance of the joint force staff. In this situation, the JFC would retain command authority and responsibility and would normally request augmentation from appropriate components to perform the C2 air function and assist in planning and coordinating joint air operations. In the joint force staff option, all previously discussed JFACC responsibilities will be accomplished by the joint force staff as directed by the JFC.

Liaisons

In addition to the JFC and staff, other component commanders and their staffs require continuous and ready access to the JFACC and the JFACC's staff. Principal means of accomplishing this are through personal contact, the established communications and information support system, and liaison personnel. **These liaisons work for their respective component commanders and work with the JFACC and staff.**

JFACC Basing and Transition

Procedures for joint air operations are designed to exploit the flexibility of air operations to achieve joint force objectives while providing support to component operations. Joint air operations scenarios may vary, and each scenario requires extensive planning when transition of JFACC responsibilities is necessary. Basing of the JFACC depends on the nature and scale of the operation and may shift as the operation or campaign progresses.

Communications System

Centralized control and decentralized execution requires a robust communications architecture. **Planning should anticipate the need for communications in degraded environments at all levels and phases of operations** and include considerations for alternate routing, redundant systems, use of other systems, protocols, and

message standards. Impaired/inadequate information exchange capability should be anticipated and incorporated into risk management considerations during air operations planning.

Command and Control of Joint Air Operations for Defense Support of Civil Authorities and Homeland Defense

Commander, United States Northern Command (USNORTHCOM), and Commander, United States Indo-Pacific Command (USINDOPACOM), share the primary mission for US homeland defense (HD) and defense support of civil authorities (DSCA) within their assigned areas of responsibility (AORs). The Commander, Pacific Air Forces, is the JFACC for the USINDOPACOM AOR. For US-only HD and DSCA air operations within the continental US, the Commander, Air Force North (1st Air Force) is designated the JFACC and is dual-hatted as the Commander, Continental United States North American Aerospace Defense Command Region. USNORTHCOM has established a subordinate unified command, Alaska Command, to facilitate operations in Alaska. North American Aerospace Defense Command (NORAD) is the bi-national command (United States and Canada) that conducts aerospace warning, control, and maritime warning in defense of North America. NORAD is divided into three regions: Continental NORAD Region, Alaskan NORAD Region, and Canadian NORAD Region. Each region commander is triple-hatted with duties as the JFACC, ACA, and AADC for executing DCA missions.

Planning and Executing Joint Air Operations

Joint Air Operations Planning

Planning for joint air operations begins with understanding the JFC's mission and intent. The JFC's estimate of the operational environment and articulation of the objectives needed to accomplish the mission form the basis for determining components' objectives. The JFACC uses the JFC's mission, commander's estimate and objectives, commander's intent, CONOPS, and the components' objectives to develop a course of action (COA). When the JFC approves the JFACC's COA, it becomes the basis for more detailed joint air operations planning—expressing what, where, and how joint air operations will affect the adversary or current situation. The JFACC's daily guidance ensures joint air operations effectively support the joint force objectives while retaining enough flexibility in execution to adjust to the dynamics of military operations.

The Joint Air Estimate

The joint air estimate is often produced as the culmination of the COA development and selection stages of the joint planning process. The joint air estimate reflects the JFACC's analysis of the various COAs that may be used to accomplish the assigned mission(s) and contains the recommendation for the best COA.

The Joint Planning Process for Air

The JFACC uses the joint planning process for air (JPPA) to develop a JAOP, which guides employment of air capabilities and forces made available to accomplish missions assigned by the JFC.

The JFACC uses the entire staff during planning to explore the full range of adversary and friendly COAs and to analyze and compare friendly air capabilities with the threat. The JFACC should ensure planning occurs in a collaborative manner with other components.

The JAOP is the JFC's plan to integrate and coordinate joint air operations and encompasses air capabilities and forces supported by, and in support of, other joint force components. The JFACC's planners should anticipate the need to make changes to plans (e.g., sequels or branches) in a dynamic and time-constrained environment.

JPPA follows the joint planning process found in Joint Publication (JP) 5-0, *Joint Planning*, with specific details for joint air operations. JPPA drives the production of the JAOP and supporting plans and orders. JPPA is used during planning to produce JAOPs that support operation plans or concept plans. JPPA may also be used as part of crisis planning. It is always tied closely to the overall joint planning being done by the JFC's staff and other Service or functional component staffs.

While the steps are presented in sequential order, work on them can be concurrent, sequential, or even recursive. Nevertheless, the steps are integrated and the products of each step should be checked and verified for coherence and consistency:

- **Step 1, Initiation.** Planning is usually initiated by direction of a JFC, but the JFACC may initiate planning in anticipation of a planning requirement not directed by higher authority but within the JFACC's authority.
- **Step 2, Mission Analysis.** Mission analysis results in the JFACC's final mission statement that describes the joint air component's essential tasks. It should include the "who, what, when, where, and why" for the joint air operation but seldom specifies "how."
- **Step 3, COA Development.** COA development is based on mission analysis and a creative determination of how the mission will be accomplished. The staff develops COAs. **A COA represents a potential plan the JFACC could implement to accomplish the assigned mission.** All COAs should meet the JFACC's intent and accomplish the mission.
- **Step 4, COA Analysis and Wargaming.** **COA analysis involves wargaming each COA against the adversary's most likely and most dangerous COAs.** Wargaming is a recorded "what if" session of actions and reactions designed to visualize the flow of the conflict or operation and evaluate each friendly COA in the light of adversary adaptation.
- **Step 5, COA Comparison.** Comparing air COAs against predetermined criteria provides an analytical method to identify the best employment options for air forces and capabilities. The same method used in JP 5-0, *Joint Planning*, is used in air COA comparison.
- **Step 6, COA Approval.** The staff determines the best air COA to recommend to the commander. The staff presents their recommended air COA usually in the form of a briefing. The air COA is identified, adjusted (if required), and selected by the JFACC for presentation to the JFC. Once the JFC approves an air COA, the JPPA contributes directly to JAOP preparation.

- **Step 7, Plan or Order Development.** For the joint air component, this step concentrates on the preparation of the JAOP. **The JAOP details how the joint air effort supports the JFC's overall operation or campaign plan.** JAOP development is a collaborative effort of the JFACC staff, the JFC staff, other joint force and Service component staffs, and outside agencies.

Joint Targeting

The joint targeting cycle is an iterative process that is not time-constrained, and steps may occur concurrently, but it provides a helpful framework to describe the steps required to successfully conduct joint targeting. The deliberate and dynamic nature of the joint targeting process is adaptable through all phases of the air tasking cycle. As the situation changes and opportunities arise, steps of the joint targeting process can be accomplished quickly to create the commander's desired effects. **There are six phases to the joint targeting cycle: end state and commander's objectives, target development and prioritization, capabilities analysis, commander's decision and force assignment, mission planning and force execution, and assessment.**

The Joint Air Tasking Cycle

The joint air tasking cycle begins with the JFC's objectives, incorporates guidance received during JFC and component coordination, and culminates with assessment of previous actions. The air tasking order (ATO) articulates the 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 normally establishes a 72- to 96-hour ATO planning cycle. The battle rhythm or daily operations cycle (schedule of events) articulates briefings, meetings, and report requirements. It provides suspense for targeting, air support requests, friendly order of battle updates, etc., to produce the air battle plan that includes the ATO message and other products.

Joint Air Tasking Cycle Stages. The joint air tasking cycle consists of six stages. Unlike the joint targeting cycle, the joint air tasking cycle is time-dependent, built around finite time periods to plan, prepare for, and conduct joint air operations. There are set suspenses for

product inputs and outputs for each stage of the joint air tasking cycle:

- Stage 1: Objectives, Effects, and Guidance.
- Stage 2: Target Development.
- Stage 3: Weaponing and Allocation.
- Stage 4: ATO Production and Dissemination.
- Stage 5: Execution Planning and Force Execution.
- Stage 6: Assessment. Assessment is performed by all levels of the joint force.

CONCLUSION

This publication provides fundamental principles and guidance for the conduct of joint air operations.

CHAPTER I INTRODUCTION

“The lesson from the last war that stands out clearly above all the others is that if you want to go anywhere in modern war, in the air, on the sea, on the land, you must have command of the air.”

**Fleet Admiral William F. “Bull” Halsey, Jr.,
Testimony to Congress following WWII**

1. General

a. This publication provides joint doctrine for the conduct of joint air operations and discusses the responsibilities of a joint force air component commander (JFACC). Command and control (C2) is established by the joint force commander (JFC) through command relationships among subordinate commanders as described in Joint Publication (JP) 3-0, *Joint Operations*. Although the JFC has several organizational options for C2 of joint air operations, a JFACC is often the first option for consideration.

b. **Air Domain.** The air domain is the atmosphere, beginning at the Earth’s surface, extending to the altitude where its effects upon operations become negligible. While domains are useful constructs for visualizing and characterizing the physical environment in which operations are conducted (the operational area), the use of the term “domain” is not meant to imply or mandate exclusivity, primacy, or C2 of any domain. Specific authorities and responsibilities within an operational area are as specified by the appropriate JFC.

c. **Control of the Air.** Historically, control of the air has been a prerequisite to success for modern operations or campaigns because it prevents enemy air and missile threats from effectively interfering with operations of friendly air, land, maritime, space, cyberspace, and special operations forces (SOF), facilitating freedom of action and movement. Dominance of the air cannot be assumed. In the air, the degree of control can range from no control, to a parity (or neutral) situation wherein neither adversary can claim any level of control over the other, to local air superiority in a specific area, to air supremacy over the entire operational area. Control may vary over time. It is important to remember, the degree of control of the air lies within a spectrum that can be enjoyed by any combatant. Likewise, that degree of control can be localized geographically (horizontally and vertically) or defined in the context of an entire theater. The desired degree of control will be at the direction of the JFC and based on the JFC’s concept of operations (CONOPS) and will typically be an initial priority objective of joint air operations.

d. Commanders at all levels should consider how space, cyberspace, and information-related activities can impact the effectiveness and execution of joint air operations. Proper recognition, integration, and protection of these force capabilities during planning and execution is essential.

“The inherent flexibility of air power is its greatest asset. This flexibility makes it possible to employ the whole weight of the available air power against selected areas in turn; such concentrated use of the air striking force is a battle winning factor of the first importance. Control of available air power must be centralized and command must be exercised through the air force commander if this inherent flexibility and ability to deliver a decisive blow are to be fully exploited.”

Field Manual 100-20, Command and Employment of Air Power, 1943

2. Organization of Forces

a. JFCs organize forces to accomplish missions based on their intent and CONOPS, developed in coordination with their component commanders and supporting organizations. Sound organization should provide for unity of command, centralized planning and direction, decentralized execution, and flexibility to meet the planned phases of the operation. JFCs provide direction and guidance to subordinate commanders and establish command relationships to enable effective spans of control, responsiveness, tactical flexibility, and protection.

b. The JFC’s air component should be organized for coordinated action through unity of command using the air capabilities of the joint force. Centralized control and decentralized execution are key C2 considerations when organizing for joint air operations. While JFCs have full authority, within establishing directives, to assign missions, redirect efforts, and direct coordination among subordinate commanders, they should allow Service tactical and operational groupings, as well as national groupings (allies and multinational partners as applicable), to generally function as they were designed. The intent is to meet the needs of the JFC while maintaining the tactical and operational integrity of the Service organizations.

See JP 3-0, Joint Operations, for further discussion on the organization of joint forces.

c. A JFC has three basic organizational options for C2 of joint air operations: designate a JFACC, designate a Service component commander, or retain C2 within the JFC’s headquarters. In each case, effectively and efficiently organizing the staff, C2 systems, and subordinate forces that will plan, execute, and assess joint air operations is key. Factors impacting selection of each option may include the overall mission, forces available, the ability to C2, and the desired span of control.

d. **When designated, the JFACC is the commander** within a combatant command (CCMD), subordinate unified command, or joint task force (JTF) responsible for tasking joint air forces, planning and coordinating joint air operations, or accomplishing such operational missions as may be assigned. The JFACC is given the authority necessary to accomplish missions and tasks assigned by the establishing commander.

See Chapter II, “Command and Control of Joint Air Operations,” for further detailed discussion of JFC options for C2 of joint air operations and the roles and responsibilities of the JFACC.

3. Joint Air Operations

a. Joint air operations are performed by forces made available for joint air tasking. Joint air operations do not include those air operations that a component conducts as an integral and organic part of its own operations. Though missions vary widely within the operational environment and across the range of military operations, the framework and process for the conduct of joint air operations should be consistent.

b. **Joint air operations are normally conducted using centralized control and decentralized execution** to achieve effective control and foster initiative, responsiveness, and flexibility. **Centralized control** is giving one commander the responsibility and authority for planning, directing, and coordinating a military operation or group/category of operations. Because of air power’s speed, range, flexibility, and generally limited assets, centralized control best facilitates the integration of forces for the joint air effort and maintains the ability to focus the impact of joint air forces as needed throughout the operational area. Contested and congested communications pathways may require the commander to distribute planning and coordination activities to subordinate C2 nodes to achieve the commander’s objectives. **Decentralized execution** is the delegation of execution authority to subordinate commanders. Decentralized execution is essential to generate the required tempo of operations and to cope with the uncertainty, disorder, and fluidity of combat in air operations.

(1) **Mission command** is the conduct of military operations through decentralized execution based upon mission-type orders and is a key component of the C2 function. Commanders delegate decisions to subordinates wherever possible, which minimizes detailed control and empowers subordinates’ initiative to make decisions based on the commander’s guidance rather than constant communications. While philosophically consistent with historical C2 of air operations, modern joint air operations demand a balanced approach to C2. This approach is best codified in centralized control and decentralized execution.

(2) Factors such as mission requirements, air capabilities, tempo, and scale of operations drive the level of centralized control and decentralized execution required for joint air operations. Close air support (CAS), personnel recovery (PR), and support to special operations missions typically have a high degree of uncertainty and complexity and, therefore, require greater latitude in mission tasking and a higher degree of decentralized execution. Large-scale combat operations will also require greater decentralized execution to meet the wide range of mission tasking. Conversely, highly sensitive strike missions against long-range strategic targets will generally require a higher level of detailed planning and more centralized control. Low-intensity and small-scale operations, which may include very restrictive rules of engagement (ROE), may also require a higher level of centralized control.

(3) Over-controlling joint air operations can reduce tactical flexibility, taking away initiative from operators. Insufficient guidance may result in failure to capitalize on joint force integration or may degrade operational-level flexibility, such as shifting JFC priorities, thus reducing effectiveness. A balanced approach to C2 of joint air operations using centralized control and decentralized execution can best meet the needs of the JFC.

(4) Recent advances in technology and communication have provided commanders with a much greater ability to exercise highly centralized control and even, potentially, centralized execution. Commanders should be cautious in exercising such capability except for very limited and highly sensitive missions. No single commander or headquarters can have the necessary situational awareness or maintain the tempo of operations required to effectively execute tactical operations in a highly dynamic combat environment.

c. Because joint air operations for a particular operation or campaign are often conducted theater-wide, the JFC will normally delegate some theater-wide authorities and responsibilities to the air component. To ensure proper force integration, all Service and functional components should support the development of the joint air operations plan (JAOP). This includes adherence to the JFC's approved guidance provided by the ROE, airspace control plan (ACP), airspace control order (ACO), area air defense plan (AADP), and special instructions (SPINS) located in the air tasking order (ATO). This will greatly aid in maximizing combat effectiveness, minimizing the risk of friendly fire incidents and collateral damage, assuring deconfliction, and achieving the JFC's overall objectives.

d. Joint air operations may be complicated by civilian use of airspace and require coordination with other United States Government (USG) departments and agencies, international organizations, nongovernmental organizations (NGOs), and/or integration of host nation or multinational air forces. For example, the requirements for joint air operations may exceed the host nation's airspace control structure and require the joint force to establish or augment that structure. Close coordination, deconfliction, and liaison with all participating military, government, and nonmilitary and non-US entities are essential to effect unity of effort in the conduct of joint air operations. The civil-military operations directorate, if established, in conjunction with the logistics directorate, can directly assist with deconfliction of civil and military transportation systems.

See Chapter III, "Planning and Execution of Joint Air Operations," for detailed discussion of the processes and products for planning and executing joint air operations.

CHAPTER II COMMAND AND CONTROL OF JOINT AIR OPERATIONS

“If we lose the war in the air, we lose the war and we lose it quickly.”

Field Marshal Bernard Montgomery, 1887-1976

SECTION A. ESTABLISHING COMMAND AND CONTROL

1. Joint Force Commander

a. **Authority.** The JFC has the authority to organize both assigned and attached forces to best accomplish the assigned mission. The JFC establishes subordinate commands, assigns responsibilities, establishes or delegates appropriate command relationships, and establishes coordinating instructions for subordinate commanders. When organizing joint forces, simplicity and clarity are critical.

b. **C2 Options.** When contemplating C2 options for joint air operations within the operational area, the JFC can choose to exercise C2 through a functional component commander by designating a JFACC, one of the Service component commanders, or the joint force staff. Many factors will weigh on the JFC’s selection—most notably the type and availability of forces and capabilities to accomplish the assigned mission. Other factors for consideration in determining which C2 option to use include:

(1) **Span of control** is the JFC’s ability to effectively manage the actions of subordinates. Span of control is based on the number of subordinates, number of activities, range of weapon systems, force capabilities, and the size and complexity of the operational area.

(2) When **joint air operations are the only operations or the duration and scope of air operations are of a very limited nature**, the JFC may elect to plan, direct, and control joint air operations through the joint forces staff.

(3) **Expertise** in effective and efficient employment of joint air assets to accomplish the JFC’s mission is available. If the JFC elects to conduct joint air operations through the joint force staff, the staff must be properly manned and adequately equipped with both the personnel expertise and the C2 equipment and processes necessary to direct and control the joint air effort.

(4) If the scope or complexity of the operations is significant, the JFC should consider designating a JFACC. This provides the JFC time to focus on the overall operation or campaign vice spending it on directing joint air operations.

c. **Theater-Level Considerations.** The geographic combatant commander (GCC) will weigh the operational circumstances and decide if available air forces/capabilities can be most effectively employed at the GCC level, the subordinate JFC level, or some

combination thereof. This decision requires careful consideration after a thorough dialogue among the joint and Service component/force commanders. Theater-level considerations may also require the GCC to coordinate and conduct cross-area of responsibility (AOR) boundary operations.

2. Joint Force Air Component Commander

a. **Designation.** The JFC normally designates a JFACC to establish unity of command and unity of effort for joint air operations. The JFC will normally assign JFACC responsibilities to the component commander having the preponderance of forces to be tasked and the ability to effectively plan, task, and control joint air operations. **However, the JFC will always consider the mission, nature, and duration of the operation, force capabilities, and the C2 capabilities in selecting a commander.**

b. **Authority.** The JFC delegates the JFACC the authority necessary to accomplish assigned missions and tasks. The JFACC will normally exercise tactical control (TACON) over forces made available for tasking. Service component commanders will normally retain operational control (OPCON) over their assigned and attached Service forces. Since the JFC will normally designate one of the Service component commanders as the JFACC, the dual-designated Service component commander/JFACC will exercise OPCON over their own Service forces as the Service component commander and TACON over other Services' forces made available for tasking. The JFC may also establish support relationships between the JFACC and other components to facilitate operations. **The JFACC conducts joint air operations in accordance with the JFC's intent and CONOPS.**

c. The JFC may designate the JFACC as the supported commander for strategic attack; air interdiction; PR; and airborne intelligence, surveillance, and reconnaissance (ISR) (among other missions). As such, the JFACC is responsible to the JFC for planning, coordinating, executing, and assessing these missions. Other component commanders may support the JFACC in accomplishing these missions, subject to the demands of their own JFC-assigned missions or as explicitly directed by the JFC. Normally, the JFACC is the supported commander for the JFC's overall air interdiction effort and the land and maritime forces commanders are supported commanders for interdiction in their designated area of operations (AO) and have the authority to designate target priority, effects, and timing of fires within their AOs.

d. **Responsibilities.** The responsibilities of the JFACC are assigned by the JFC. These include, but are not limited to:

(1) **Develop a JAOP** in coordination with the other Service and functional components to best support the JFC's CONOPS or operation plan (OPLAN) (see example in Appendix C, "Joint Air Operations Plan Template").

(2) **Recommend air apportionment priorities to the JFC** that should be devoted to the various air operations for a given period of time, after considering objective, priority, or other criteria and consulting with other component commanders.

(3) **Allocate and task** the joint air capabilities and forces made available by the Service components based on the JFC's air apportionment decision.

(4) **Provide the JFACC's guidance** in the air operations directive (AOD) for the use of joint air capabilities for a specified period that is used throughout the planning stages of the joint air tasking cycle and the execution of the ATO. The AOD may include the JFC's apportionment decision, the JFACC's intent, objectives, weight of effort, and other detailed planning guidance that includes priority of joint air support to JFC and other component operations (see Appendix D, "Air Operations Directive Template").

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

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

(7) Perform the duties of the **airspace control authority (ACA)**, if designated.

For further detailed discussion of the ACA, see JP 3-52, Joint Airspace Control.

(8) Perform the duties of the **area air defense commander (AADC)**, if designated.

For more information on the AADC, see JP 3-01, Countering Air and Missile Threats.

(9) Perform the duties of the **space coordinating authority (SCA)**, if designated. The SCA is responsible for planning, integrating, and coordinating space operations support in the operational area, to include ascertaining space requirements within the joint force. If the individual designated to be the JFACC is also designated the SCA, the individual will normally designate a senior subject matter expert, typically the director of space forces (if the commander, Air Force forces [COMAFFOR], is the JFACC) to execute the daily actions associated with SCA. SCAs for a joint force will normally coordinate their requirements for space effects with the CCMD SCA (if established) or United States Strategic Command's (USSTRATCOM's) Joint Force Space Component Command.

For further detailed discussion of the SCA, see JP 3-14, Space Operations.

(10) Perform the duties of the **PR coordinator**, as required.

For further detailed discussion of PR, see JP 3-50, Personnel Recovery.

(11) In concert with the above responsibilities, perform tasks within various mission areas to include, but not limited to:

(a) Defensive counterair (DCA) and offensive counterair (OCA).

- (b) CAS.
- (c) Airborne ISR and incident awareness and assessment.
- (d) Air mobility operations.
- (e) Strategic attack.
- (f) Air interdiction.

3. Airspace Control Authority

a. The ACA is a commander designated by the JFC to assume overall responsibility for the operation of the airspace control system (ACS) in the airspace control area. Developed by the ACA and approved by the JFC, the ACP establishes general guidance for the control of airspace and procedures for the ACS for the joint force operational area (see Figure II-1). The ACO implements specific control procedures for established time periods. It defines and establishes airspace for military operations as coordinated by the ACA and notifies all agencies of the effective time of activation and the structure of the airspace. The ACO is normally published either as part of the ATO or as a separate document and provides the details of the approved requests for coordination measures such as airspace coordinating measures, air defense measures, and fire support coordination measures (FSCMs). All air missions are subject to the ACO and the ACP. The ACO and ACP provide direction to integrate, coordinate, and deconflict the use of airspace within the operational area. (Note: This does not imply any level of command authority over any air assets.) Methods of airspace control vary by military operation and level of conflict from positive control of all air assets in an airspace control area to procedural control of all such assets or any effective combination (see Figure II-2).

b. **Airspace Control Considerations.** Airspace control is provided to reduce the risk of friendly fire incidents, enhance air defense operations, and permit greater flexibility of operations. The JFC will determine the degree of airspace control required in the joint operations area (JOA). Depending on the mission, ROE, and weapons engagement zones, the degree of control of air assets may need to be rigorous, close, and restrictive, especially

Airspace Control Procedures Objectives

- Enhance effectiveness in accomplishing the joint force commander's objectives.
- Prevent mutual interference.
- Facilitate air defense identification.
- Safely accommodate and expedite the flow of all air traffic in the operational area.
- Prevent friendly fire incidents.

Figure II-1. Airspace Control Procedures Objectives

in an operational environment that can transition quickly from combat to noncombat and back again.

(1) Airspace control may require a combination of positive control, procedural control, and real-time joint battle management to control the operational activity of the joint force including strict constraints on the forces, weapons, and tactics employed. Additionally, airspace control planning should include contingency plans to mitigate potential interference. Such interference, whether intentional or unintentional, may inhibit positive control. In such a scenario, procedural control measures should be used, such as setting a coordinating altitude for designated airspace in the JOA. No matter what methods the JFC chooses, the methods need to be continually evaluated for effectiveness and efficiency as the environment and mission change.

(2) As a matter of controlling joint air operations, the JFC may require **all air missions, including fixed-wing, rotary-wing, tiltrotor, and unmanned aircraft systems (UASs) (except Group 1 and 2 systems, unless their planned operating altitude would conflict with other airborne operations), to appear on the appropriate ATO and/or flight plan.** Also, all aircrew and unmanned aircraft (UA) operators adhere to approved operational procedures. Typically, these procedures are promulgated by the JFACC in the SPINS annex of the ATO. The mix of friendly, adversary, and neutral aircraft and mission constraints may require the JFC to strictly control flights in the operational area. In such situations, the JFACC may elect to augment forward theater air-ground system (TAGS) elements with additional planning personnel, training, and capabilities.

c. **ACA Responsibilities.** The ACA achieves airspace control through positive or procedural methods. This includes centralized direction of the ACP, with the authority of the ACOs, supplemented by coordination measures, and coupled with an ACS. The ACA should coordinate with joint force components' liaisons prior to commencement of

Methods of Airspace Control	
<p>Positive Control</p> <p>Positively identifies, tracks, and directs air assets using:</p> <ul style="list-style-type: none"> • Radars • Other sensors • Identification, friend or foe • Selective identification feature • Digital data links • Other elements of the communications system 	<p>Procedural Control</p> <p>Relies on previously agreed to and distributed control procedures and measures such as:</p> <ul style="list-style-type: none"> • Comprehensive air defense identification procedures and rules of engagement • Airspace coordinating measures • Aircraft identification maneuvers • Fire support coordination measures • Maneuver control measures • Communications between aircraft and airspace control elements

Figure II-2. Methods of Airspace Control

operations. **The ACA integrates and coordinate the airspace requirements of all the components.** The ACA does not have the authority to approve or disapprove combat operations. That authority is only vested in operational commanders. The ACA assumes responsibility for the ACS in the designated operational area. Subject to the authority and approval of the JFC, the broad responsibilities of the ACA include:

- (1) Coordinate and integrate the use of the airspace control area.
 - (2) Develop broad policies and procedures for airspace control and for the coordination required among all users of airspace within the airspace control area.
 - (3) Establish an ACS that provides for integration of host and other affected nations' constraints and requirements.
 - (4) Coordinate and deconflict airspace control area user requirements.
 - (5) Promulgate ACS policies and procedures via the JFC-approved ACP.
- d. A key responsibility of the ACA is to provide the flexibility needed within the ACS to meet contingency situations that necessitate rapid employment of forces, as well as dynamic changes made by component staffs. The ACO is published either as part of the ATO or as a separate document.

For further detailed discussion of the ACA, see JP 3-52, Joint Airspace Control.

4. Area Air Defense Commander

a. **The AADC is responsible for DCA operations, which include the integrated air defense system for the JOA.** DCA and OCA operations combine as the counterair mission, which is designed to attain and maintain the degree of control of the air and protection desired by the JFC. In coordination with the component commanders, the AADC develops, integrates, and distributes a JFC-approved joint AADP. Typically, for forces made available for DCA, the AADC retains TACON of air sorties, while surface-based air and missile defense forces (e.g., Patriot missile systems) may be provided in support from another component commander. As such, the Army air and missile defense command (AAMDC) should be collocated with the joint air operations center (JAOC), if established, and conduct collaborative intelligence preparation of the battlespace (IPB), planning, and execution control. In distributed operations, the AAMDC may not be in the JAOC but is still functionally tied to it. The Navy component commander (NCC) (or joint force maritime component commander [JFMCC], if designated) exercises OPCON of maritime multi-mission and missile defense ships. When designated, these air and missile defense capabilities are in direct support of the AADC for C2 and execution of air defense.

b. **Area Air Defense Considerations.** DCA operations are integrated with other air operations within the operational area through the AADP. The AADC normally develops an integrated air defense system by integrating the capabilities of different

components with a robust C2 architecture. **Because of their time-sensitive nature, DCA operations require streamlined coordination and decision-making processes, facilitated by the AADP.** The AADP is the integration of active air defense design, passive defense measures, and the C2 system to provide a comprehensive approach to defending against the threat. It should address command relationships, the adversary and friendly situations, the AADC's intent, CONOPS, and logistics and C2 requirements, as well as detailed weapons control and engagement procedures. Weapons control procedures and airspace control procedures for all air defense weapon systems and forces must be established. These procedures facilitate DCA operations while minimizing the risk of friendly fire incidents. Planners will routinely be required to modify the AADP due to the dynamic nature of joint counterair operations. The AADP should also be integrated with the ACP to ensure airspace control areas/sectors are synchronized with air defense regions/sectors. Ideally, as the JFC's operation/campaign progresses and the AADP is refined, the combination of DCA and OCA operations should diminish the enemy's ability to conduct air and missile attacks, reducing the requirement for DCA operations and the threat to the JFC's freedom of action.

c. **AADC responsibilities** include the planning, integration, synchronization, and coordination of DCA operations with other tactical operations throughout the JOA. This may be facilitated by the JFC's designation of regional and sector air defense commanders to enhance decentralized execution of DCA. Additional AADC responsibilities include:

(1) Develop, integrate, and distribute a JFC-approved AADP in coordination with Service and functional components.

(2) Appoint a deputy AADC, as required, to advise on how to integrate and synchronize Service component DCA capabilities and assets.

(3) Develop and execute a detailed plan to disseminate timely air and missile warning and cueing information to components, forces, multinational partners, and civil authorities, as appropriate, in coordination with the intelligence directorate of a joint staff (J-2), the operations directorate of a joint staff (J-3), and the communications system directorate of a joint staff.

(4) Develop and implement identification and engagement procedures that are appropriate to the air and missile threats.

(5) Establish timely and accurate track reporting procedures among participating units to provide a consistent common tactical picture.

(6) Make DCA recommendations after consultation with DCA representatives from the joint force components.

(7) Make OCA attack operations recommendations to help counter the air and missile threat.

For further detailed discussion, see JP 3-01, Countering Air and Missile Threats.

SECTION B. EXERCISING COMMAND AND CONTROL

5. Joint Air Operations Command and Control System

a. **Joint Air Operations C2 System.** The C2 system for joint air operations will vary depending on the operational area and specific missions. Given the flexibility of modern C2 capabilities, geographic considerations have less of an impact on organizational structure today than in the past. The entire C2 system may be spread across the operational area or concentrated in a specific location, either in close proximity to the fight or far from it. Ultimately, there is no standard template for C2 design.

(1) Normally, the joint air operation C2 system will be built around the C2 system of the Service component commander designated as the JFACC. Each Service component has an organic system designed for C2 of their air operations. Whether it is the Air Force's theater air control system (TACS), the Army air-ground system (AAGS), the Navy's composite warfare commander (CWC)/Navy tactical air control system (NTACS), Marine air command and control system (MACCS), or the special operations air-ground system (SOAGS) that serves as the nucleus for C2 of joint air operations, the remainder will be integrated to best support the JFC's CONOPS.

(2) **TAGS.** When all elements of the TACS, AAGS, CWC/NTACS, MACCS with fire support coordination center hierarchy, and SOAGS integrate, the entire system is labeled the TAGS. Technology has improved the JFACC's ability to C2 joint air operations. The speed of modern warfare and the precision of today's weapons dictate close coordination in the operational area among the JFC's components. The JFACC ensures the C2 architecture supports joint air operations by primarily relying upon assigned subordinate C2 elements (e.g., Air Force forces TACS). Other TAGS elements may be made available for tasking to enhance C2 of joint air operations if required. The other components' elements facilitate C2 of their component's operations as an integrated part of the TAGS and do not receive directions/tasking directly from the JFACC or JAOC unless made available to support/augment the JFACC's ability to C2 joint air operations or accomplish other JFC delegated authorities. TAGS elements roles, responsibilities, and authorities should be clearly spelled out in theater-wide documents such as the AADP, ACP, SPINS, etc., particularly when tasks exceed their component commander's normal scope of operations.

b. Air Force

(1) **The COMAFFOR uses TACS** to C2 component air and space operations. It consists of airborne and ground elements to conduct **tailored C2 of air and space operations during military operations**, including air defense, airspace control, and coordination of space mission support not resident within theater. The structure of the TACS should reflect sensor coverage, component liaison elements, and the communications systems required to provide adequate support. As an organic Air Force system, elements of the TACS remain under OPCON of the COMAFFOR. In

multinational commands, the name and function of certain TACS elements may differ; however, multinational air components have similar capabilities.

(2) **The air operations center (AOC) is the senior C2 element of the TACS** and includes personnel and equipment of necessary disciplines to ensure the effective planning and conduct of component air and space operations (e.g., communications, operations, ISR). The AOC is designed to expand with joint augmentation to form the JAOC when the COMAFFOR is designated by the JFC as the JFACC.

(3) **Air Support Operations Center (ASOC).** The ASOC is the primary control agency of the TACS for execution of air operations in direct support of land operations. Its primary mission is to control air operations short of the fire support coordination line (FSCL) or in its assigned area. Normally collocated with the senior Army fires element, the ASOC coordinates and directs air support for land forces. The ASOC is directly subordinate to the AOC and is responsible for the coordination and control of air component missions in its assigned area.

(a) The tactical air control party (TACP) is an air liaison unit collocated with ground maneuver units. TACPs are subordinate to the ASOC and have two primary missions: advise ground commanders on the capabilities and limitations of air operations and provide the joint terminal attack controllers that perform primary control of CAS attack aircraft. A forward air controller (airborne) is an extension of the TACP and is a specially trained and qualified aviation officer who exercises control of CAS aircraft while airborne.

(b) Air Force ASOC and TACP personnel at the Army division will normally be integrated with the division fires cell and airspace element to form a joint air-ground integration center, which fully integrates and coordinates fires and air operations over and within the division commander's AO.

(4) Other elements of the TACS include the control and reporting center (CRC) and the Airborne Warning and Control System (AWACS). Both provide battle management, early warning and surveillance, weapons control, and data link management. The CRC is a ground-based mobile radar while AWACS is an airborne radar system. Finally, the joint surveillance target attack radar system is an airborne, wide-area, surveillance, ground-moving target indicator and synthetic aperture radar. It provides battle management, early warning, and surveillance of ground targets, weapons control, and ISR support.

c. Army

(1) **AAGS.** The AAGS is the Army's control system to synchronize, coordinate, and integrate air and ground operations with the ground commander's CONOPS. AAGS provides the framework to initiate and process air support requests (AIRSUPREQs), collection requirements, airspace coordination, joint fires, air and missile defense, and exchange of liaisons. It is used to deconflict airspace users (including air and missile defense and fires) and other warfighting functions with the Army ground commander's

scheme of maneuver. The Army depends on its joint partners for capabilities that do not reside within the Army. Other elements, such as the TACP, ASOC, and air naval gunfire liaison company, belong to different Services. They function as a single entity to plan, coordinate, and integrate air support operations with unified land operations. The Army and Air Force routinely operate in this capacity, and it is referred to as TACS-AAGS (see Figure II-3).

(2) The AAGS provides interface between Army and air support agencies of other Services to plan, evaluate, process, and coordinate air support requirements and operations. Utilizing organic staff members and communications systems, the AAGS works in conjunction with the TACS to coordinate and integrate Air Force and/or joint air support with Army maneuver and fires. Airspace control is also part of the AAGS. The AAGS helps ground commanders and staffs integrate and synchronize Army airspace users with the other airspace users in the operational area. The Army's application of airspace control is to coordinate assigned and supporting airspace user requirements as an integral part of the operations process. Airspace control is an Army commander's responsibility and is part of risk management. Airspace elements are at the senior Army echelon and extend down through all tactical command levels to maneuver units. Corps/division airspace elements are responsible for airspace control within their assigned airspace, regardless of whether the airspace has been further subdivided. When a corps/division partitions its assigned airspace, subordinate brigades may be delegated some airspace management responsibilities. The air defense airspace management/brigade aviation element (ADAM/BAE) cell is located in the brigade combat team. The ADAM/BAE coordinates airspace requirements with higher headquarters as well as other affected joint forces.

d. Navy

(1) The **maritime operations center (MOC)** provides the commander (numbered fleet commander, NCC, or JFMCC) with a functionally organized staff and C2 systems, to include collaborative air planning tools such as the theater battle management core system (TBMCS). Operational-level air planning occurs in the MOC. The MOC conducts planning for naval strike, air interdiction, Tomahawk land attack missile operations, naval surface fire support, missile defense, maritime patrol and reconnaissance aircraft operations, and PR missions. Maritime air operations' planning is collaborative involving the MOC, the JAOC, and Navy task force commanders and other subordinate staffs. The JFMCC/NCC will typically establish a naval and amphibious liaison element (NALE) to coordinate with the JAOC on matters pertaining to Navy and Marine amphibious, maritime, and air operations and to serve as the MOC's primary point of contact in the AOC. The NALE director is the JFMCC/NCC's personal representative to the JFACC and will act as the interface between the JFMCC/NCC and the JFACC. The JFMCC/NCC provides overall operational-level guidance and planning. Tactical air planning is conducted largely by subordinate forces at sea.

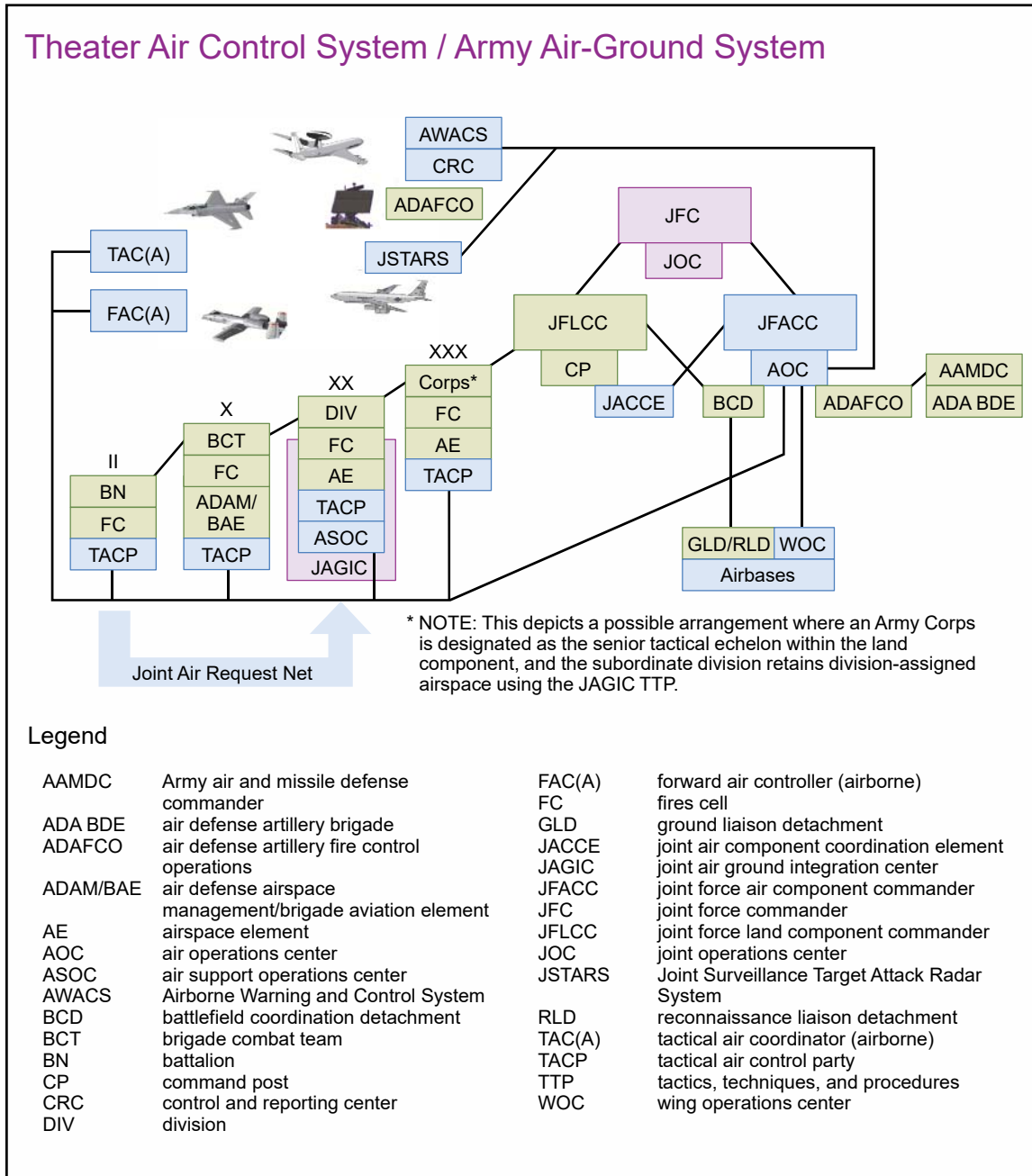


Figure II-3. Theater Air Control System / Army Air-Ground System

(2) CWC doctrine enables the officer in tactical command (OTC) of a naval force to conduct combat operations against air, surface, and subsurface threats, while contributing to the JFC's overall operation or campaign. The OTC (typically the JFMCC/NCC in AOs with multiple task forces) may delegate authority to a CWC to conduct some or all of the offensive and defensive functions of the maritime force. Critical air operations positions under the CWC include the strike warfare commander, air and missile defense commander, ACA, and air resource element coordinator. The warfare commanders normally exercise TACON over assigned assets. If there are multiple carrier

strike groups, expeditionary strike groups, and/or amphibious ready groups operating within a maritime AO, more than one CWC may be designated.

(3) During amphibious operations, NTACS is the Navy system to control and coordinate all air operations within an amphibious objective area (AOA) or AO. Its counterpart is the MACCS. The NTACS comprises the Navy tactical air control center (Navy TACC) and tactical air direction center(s). The Navy TACC is the primary air control agency within the amphibious operations area from which all air operations supporting the amphibious task force are controlled.

e. Marine Corps

(1) The MACCS consists of various air C2 agencies designed to provide the Marine air-ground task force (MAGTF) commander the ability to C2 aviation assets in the application of the six functions of Marine aviation: anti-air warfare, offensive air support, assault support, electronic warfare, aerial reconnaissance, and the control of aircraft and missiles.

(2) **Marine Tactical Air Command Center (Marine TACC).** The aviation combat element (ACE) commander exercises air operations authority through the MACCS. The Marine TACC is the senior MACCS agency. It is the operational wing command post from which the ACE commander and his staff plan, supervise, coordinate, and execute MAGTF air operations (this includes the planning and execution of all ATOs and the execution of the current ACE operation order or fragmentary order). It integrates the six functions of Marine aviation with the MAGTF command element through linkage with the MAGTF combat operations center and the force fires coordination center/fires and effects coordination center. The Marine TACC provides functional interface for employment of MAGTF aviation in joint and multinational operations. The Marine TACC is similar to the Air Force AOC. The Marine TACC uses subordinate agencies to facilitate the centralized command and decentralized control of the MAGTF's air assets. These agencies follow:

(a) **Direct Air Support Center (DASC).** The DASC is the MACCS's principal air control agency responsible for the direction of air operations directly supporting ground forces. The DASC processes immediate AIRSUPREQs; coordinates aircraft employment with other supporting arms; manages terminal control assets supporting the ground combat element (GCE) and logistics combat element forces; and procedurally controls assigned aircraft, UASs, and itinerant aircraft transiting through DASC-controlled airspace. The DASC controls and directs air support activities that affect the GCE commander's focus on close operations and those air missions requiring integration with the ground combat forces (CAS, assault support, and designated air reconnaissance). It is similar to the Air Force ASOC.

(b) **Tactical Air Operations Center (TAOC).** The TAOC performs three primary functions within the MACCS: air surveillance, air direction, and air control. As the MAGTF's only air surveillance agency, the TAOC uses its organic radars and tactical

data links to create a recognized air picture for the MAGTF, as well as joint and multinational forces. Management of the air picture is conducted through detailed coordination with higher and adjacent MAGTF and joint surveillance platforms. This shared air picture provides situational awareness and contributes to force protection through its use by a wide variety of C2 systems including missile defense platforms. The TAOC also performs positive and procedural air control under a variety of delegated air direction functions, including coordination and deconfliction of airspace, anti-air warfare, tanker management, asset management, routing of itinerant aircraft, and coordination and control of fires in deep areas of the AO and/or JOA. The TAOC is similar to the Air Force CRC.

(c) **Early Warning Center Detachment.** Provides air surveillance and control of friendly aircraft and surface-to-air weapons in support of offensive air support and anti-air warfare, continuous all-weather radar, non-radar, airspace management, and meteorological and oceanographic services in support of the MAGTF.

(d) Marine air traffic control (ATC) personnel and equipment provide the MAGTF a scalable and adaptable means to provide expeditionary airfield services at every level of operations. A fully staffed and equipped Marine ATC detachment provides all weather radar and non-radar approach, departure, en route, and tower ATC services to friendly aircraft. It is the principle terminal ATC organization with the MACCS and serves as the ATC interface with other military C2 agencies and civilian agencies, to include the Federal Aviation Administration (FAA) and the International Civil Aviation Organization.

f. **Special Operations**

(1) Theater special operations are normally under the control of the commander, theater special operations command (TSOC), special operations joint task force (SOJTF), or a joint special operations task force (JSOTF). The commander of a TSOC may also function as the joint force special operations component commander (JFSOCC) for a joint force. The commander of a TSOC or the JFSOCC may designate a joint special operations air component commander (JSOACC) to control SOF aviation. The JSOACC is normally for planning and executing joint special operations air activities. If a JSOACC is not designated, then SOF aviation is normally controlled by a Service component within the joint force special operations command. The SOAGS serves as the nucleus for C2 of special operations air activities. Principal organizations and personnel that support the SOAGS are the JSOACC (along with the air component planning staff), special operations liaison element (SOLE), special tactics teams, and terminal attack control special operations personnel. Whether operating autonomously or in conjunction with conventional forces, special operations must be synchronized and closely coordinated with other air operations conducted in theater. To coordinate and deconflict operations, the JFSOCC and the JFACC exchange liaison teams.

(2) The SOLE is a team provided by the JFSOCC to the JFACC or appropriate Service component air C2 organization to coordinate, deconflict, and synchronize special operations air and surface operations with conventional air operations. The SOLE director

works directly for the JFSOCC as a liaison and has no command authority for mission tasking, planning, and execution. The SOLE provides coordination for the visibility of SOF operations in the ATO and the ACO. The SOLE also coordinates appropriate coordination measures between the JAOC and the SOF headquarters to help prevent friendly fire incidents.

For more information on the TAGS, see Army Techniques Publication (ATP) 3-52.2 (Field Manual [FM] 3-52.2)/Marine Corps Reference Publication (MCRP) 3-25F/Navy Tactics, Techniques, and Procedures (NTTP) 3-56.2/Air Force Tactics, Techniques, and Procedures (AFTTP) 3-2.17, Multi-Service Tactics, Techniques, and Procedures for the Theater Air-Ground System.

6. Joint Force Air Component Command Organization

a. The JFACC should establish a close working relationship with the JFC to advise on the optimum use of joint air power. This working relationship should extend through the JFC and JFACC staffs, as well as the other component staffs that play a crucial role in supporting the JFC with air capabilities. **The JFACC will normally operate from a JAOC.** The JAOC and the JFACC's staff should be manned with subject matter experts who reflect the capabilities/forces available to the JFACC for tasking and include appropriate component representation. This representation will provide the JFACC with the knowledge and experience required. JFACC staff billets requiring specific expertise or individuals should be identified, staffed accordingly, trained, and employed during peacetime exercises to ensure their preparedness for military operations. To be most effective, the JFACC should incorporate appropriate component representation throughout the JAOC and staff, rather than just limiting them to liaison positions.

Note: The JAOC staff is under the command of the JFACC. This staff should not be confused with organizational liaisons that remain under the command of their parent organization. See paragraph 8, "Liaisons," for more on liaisons to the JAOC.

b. **JAOC Organization. The JAOC is structured to operate as a fully integrated command center and should be staffed by members of all participating components, to include key staff positions, to fulfill the JFACC's responsibilities.** A JAOC provides the capability to plan, coordinate, allocate, task, execute, monitor, and assess the activities of assigned or attached forces. Through the JAOC, the JFACC monitors execution of joint air operations and directs changes as the situation dictates. As a synchronizing C2 mechanism of the TAGS and focal point for ATO execution, the JAOC should have secure and redundant communications with operations, logistics, weather, and intelligence centers and higher and lateral headquarters, as well as subordinate units to preclude degradation in its ability to control joint air forces. It should ensure plans and processes are in place and rehearsed to mitigate any degradation in that ability.

(1) **JAOC organizations may differ. Elements that should be common to all JAOCs are the strategy division (SD); combat plans division (CPD); intelligence, surveillance, and reconnaissance division (ISR); and air mobility division (AMD); and**

combat operations division (COD). Divisions, cells, or teams within the JAOC should be established as needed (see Appendix E, “Joint Air Operations Center Divisions and Descriptions,” for JAOC divisions and descriptions). The JAOC director is responsible to the JFACC for integrating the planning, coordinating, allocating, tasking, executing, and assessing tasks for all joint air operations. The JAOC director coordinates with the director of mobility forces (DIRMOBFOR) to meet airlift and tanker priorities with support of United States Transportation Command (USTRANSCOM) mobility forces. Similarly, the JAOC director coordinates space operations and space support requests with the SCA and/or US Air Force component’s director of space forces. Planning future joint air operations and assessing the effectiveness of past operations is usually the responsibility of the SD, while the CPD is usually devoted to near-term planning and drafting of the daily ATO. Execution of the daily ATO is carried out by the COD and closely follows the action of current joint operations, shifting air missions from their scheduled times or targets, and making other adjustments as the situation requires. The AMD integrates intertheater and intratheater airlift, aerial refueling, and aeromedical evacuation (AE) into air plans and tasking orders and coordinates with the JFC’s movement requirements and control authority and Air Mobility Command’s 618th Air Operations Center (Tanker Airlift Control Center) (618 AOC [TACC]). The ISRD provides the JFACC with predictive and actionable intelligence, targeting support, and collection management expertise to support the air tasking cycle. Each of the JAOC’s major activities relies on expertise from **liaisons** (e.g., battlefield coordination detachment [BCD], AAMDC liaison team, NALE, Air Force liaison element [AFLE], SOLE, Marine liaison element [MARLE]) to coordinate requests or requirements and maintain a current and relevant picture of the other component operations. For more on liaisons, see Appendix F, “Liaison Elements within the Joint Air Operations Center.”

For further detail on air mobility, see Chapter III, “Planning and Execution of Joint Air Operations,” paragraph 8, “Air Mobility Considerations,” and JP 3-17, Air Mobility Operations.

(2) **Functional Area and Mission Experts.** Functional area experts (such as force protection, intelligence, meteorological and oceanographic, logistics, legal, airspace, plans, and communications personnel) provide the critical expertise in support, plans, execution, and assessment functions. Mission experts in air-to-air, air-to-ground, ground-to-air, space operations, cyberspace operations (CO), information activities, intelligence, air refueling, PR, and other areas provide the technical warfighting expertise required to plan for joint air operations and employ capabilities/forces made available by the components. Functional and mission experts from all components will provide manning throughout the JAOC and at all levels of command and may be organized in special teams. Reachback capability can be used for technical issues related to planning, targeting, collateral damage estimates, joint intelligence preparation of the operational environment (JIPOE), and force protection. Examples of organizations that can provide reachback support include the Defense Threat Reduction Agency National Countering Weapons of Mass Destruction Technical Reachback Enterprise for weapons of mass destruction (WMD) or chemical, biological, radiological, and nuclear (CBRN) support and the National Geospatial-Intelligence Agency for geospatial and national intelligence support.

(3) **Preparation.** The nucleus of the JFACC's staff should be formally educated and trained to perform fundamental operational activities in joint air operations and be representative of the joint force. Staff augmentation with manning as identified above ensures joint representation throughout the JAOC. The JFACC, in coordination with other component commanders, will determine specific manning requirements based on the size and scope of the operation, force list, and personnel availability.

(4) **The role of intelligence is extremely important** and is an integral part of the daily functions of the JAOC. Intelligence personnel monitor and assess adversary capabilities and intentions, especially WMD threats, and provide assistance in target, weapon, fuse, and platform selection, including UA recommendations, and WMD response. In coordination with the SD's operational assessment team, they also conduct an assessment of the effectiveness of combat operations and provide an up-to-date picture of the enemy, expected enemy operations, and the status and priority of assigned targets to assist in execution day changes.

c. The JFACC may establish one or more joint air component coordination elements (JACCEs) with other commanders' headquarters to better integrate joint air operations with their operations. When established, the JACCE is a component-level liaison that serves as the direct representative of the JFACC. The JACCE does not perform any C2 functions and the JACCE director does not have command authority over any air forces. The JACCE is established by the JFACC to better integrate with other component's senior deployed headquarters. JACCE may also be assigned to the supported JTF headquarters (if the theater JFACC is designated in support to a JTF) to better integrate air component operations within the overall joint force. When established, the JACCE acts as the JFACC's primary representative to the respective commander and facilitates interaction among the respective staff to communicate, advise, coordinate, and support effective integration. JACCE expertise should include plans, operations, ISR, space, cyberspace, airspace management, air mobility, and administrative and communications support.

See Appendix G, "The Joint Air Component Coordination Element," for JACCE responsibilities and notional organization.

d. Tasking Component Forces

(1) The JFC directs and controls the joint air effort by providing broad guidance, prioritized objectives, targeting priorities, procedures, and assigning appropriate authorities to subordinate commanders. Each component commander may be tasked to support other components and/or to provide support to the joint force as a whole. The JFACC, in consultation with other component commanders, is responsible for the air apportionment recommendation to the JFC who makes the air apportionment decision.

(a) Forces are tasked by the JFACC based on the JFC's approval of the JFACC's air apportionment recommendation. In the case of a theater JFACC, the GCC

will decide what air capabilities/forces are provided to each subordinate JFC. The air apportionment decision referenced here is made by each subordinate JFC.

(b) Component forces must comply with the ROE, ACP, ACO, AADP, and SPINS. The ATO includes all scheduled and prospective aircraft (e.g., alert, medical evacuation, PR) that may fly during that ATO day, even if not apportioned to the JFACC. The overarching intent is to identify all potential flights to airspace managers and users in the JOA. The inclusion of air assets in the ATO does not imply any change in command relationships or tasking authority over them, nor does it restrict component commanders' flexibility to respond to the dynamics of the operational environment.

(2) **Army forces (ARFOR) conduct land operations in an assigned AO.** The Army identifies air support requirements to the supporting air component or JFACC. Likewise, the JFACC may require mutual support and ARFOR may be made available to the JFACC in a support relationship. The integration of Army assets/forces, to include UASs, aviation, and fires, with the air component's operations requires detailed planning and coordination.

(3) **Marine Corps Aviation Assets.** The MAGTF commander will retain OPCON of organic air assets. The primary mission of the MAGTF ACE is to support the MAGTF GCE. During joint operations, the MAGTF aviation assets will normally be in support of the MAGTF mission. The MAGTF commander will make sorties available to the JFC for tasking through the JFACC for air defense, long-range air interdiction, and long-range reconnaissance. Sorties in excess of MAGTF direct support requirements will be provided to the JFC for tasking through the JFACC for the support of other components of the joint force or the joint force as a whole.

Note: Sorties provided for air defense, long-range interdiction, and long-range reconnaissance are not "excess" sorties and will be covered in the ATO. These sorties provide a distinct contribution to the overall joint force effort. The JFC exercises integrated control of air defense, long-range reconnaissance, and long-range interdiction aspects of the joint operation or campaign, and these sorties provide a distinct contribution to the joint force effort.

(4) **Navy Aviation Assets.** Navy assets normally are retained for employment in support of the assigned joint maritime missions, including sea control, deterrence, and maritime power projection within the operational area. Assets include sea- and land-based naval aircraft, as well as cruise missiles. Navy assets not required for assigned joint missions or for fleet defense will normally be made available for tasking via the joint air tasking process.

(5) **Air Force Air and Space Assets.** The air expeditionary task force (AETF) is the primary means by which the Air Force presents forces to a JFC during contingency operations. AETFs are sized and tailored to meet the JFC's specific mission requirements. Air Force assets include bombers, specialized reconnaissance, C2 air and ground platforms and centers, air mobility aircraft, single- and multi-role fighters, and UASs. Air Force

capabilities also include intertheater and intratheater airlift, air-to-air refueling, ISR, PR/combat search and rescue, and extensive space assets. To plan, execute, and assess air and space operations, the Air Force has developed tailored Air Force AOCs to exercise C2 of the full range of Air Force air, space, and cyberspace capabilities for a joint force. These AOCs may be further tailored to address changing operational environments and may be augmented by operations centers anywhere else in the world. With the exception of certain national assets, special operations, and intertheater air mobility assets, the COMAFFOR will normally have OPCON over Air Force assets in the operational area. In most cases, Air Force assigned or attached aircraft are made available for employment as directed by the JFACC.

(6) **SOF Assets.** The TSOC/SOJTF/JSOTF, as appropriate, will exercise OPCON of SOF aviation assets, to include United States Special Operations Command (USSOCOM)-sourced ISR, as an integral part of the joint special operations mission, usually through a JSOACC. Theater SOF aviation assets are typically only sufficient to support special operations mission requirements. Assets and aircrews not represented on the daily ATO are routinely planning or being prepared for subsequent special operations. The TSOC/SOJTF/JSOTF commander, through the JSOACC, will make sorties available to the JFC for tasking through the JFACC in support of conventional air operations, as feasible. The TSOC/SOJTF/JSOTF commander, through the JSOACC, will make excess sorties available to the JFC for tasking through the JFACC. Command relationships, launch authority, and other coordination measures between the components should specifically address situations where the same SOF aviation assets may be tasked to conduct missions for both components during the same ATO period. JFACC coordination is normally accomplished through the SOLE located in the JAOC. The JACCE coordinates with the SOF organization, representing the JFACC's needs in either a supporting or supported role.

e. **Options for Establishing a Joint Force Air Component Command.** Options available during contingency operations to establish a joint force air component command include: designating a JFACC within a subordinate command (e.g., JTF or subordinate unified command), designating a theater JFACC operating in support of subordinate commands, or a combination of a theater and subordinate command JFACCs. The organization of the air component in many recent operations, characterized by a theater-level JFACC, were driven by key force structure and organizational decisions. The additional options listed below detail alternative methods to execute C2 of joint air operations and still implement the tenet of centralized control and decentralized execution. Multiple factors, such as available force structure, mission type, breadth of the operational area, and contested environments, are JFC considerations in organizing the air component.

(1) **Designated JFACC for JTF or Subordinate Unified Commands.** When a GCC establishes a subordinate JTF to conduct operations and air forces are attached, with specification of OPCON to the subordinate JFC, the JFC has the option of designating a JFACC. This option will place dedicated air assets and independent C2 capability under the OPCON of the JFC for whom they are performing the mission. It provides unity of command over the forces employed within the assigned JOA and greater direct control and

predictability as to which air assets are available. When there is only one JTF in a given theater, this is normally the preferred option.

(2) **Theater JFACC.** When a GCC establishes multiple JTFs within the AOR, the GCC will normally retain C2 of joint air forces at the GCC level. Joint air forces will be controlled to support the multiple JTF commanders according to the JTF commanders' objectives and the GCC's AOR-wide priorities. In this situation, joint air forces are controlled at the theater level, under the direction of the "theater JFACC," subordinate to the GCC. The theater-level JFACC provides flexibility in managing limited air assets to meet the requirements of the GCC and multiple JTFs. When there are multiple JTFs in one GCC's AOR, this is normally the preferred option.

(a) The theater JFACC will be the supporting commander to the GCC's subordinate JTF commanders' joint air operations within their respective JOAs. An establishing directive should be promulgated to clearly delineate support command relationships. Unless limited by the establishing directive, the supported JTF commanders will have the authority to exercise general direction of the supporting effort. General direction includes the designation and prioritization of targets or objectives, timing and duration of the supporting action, and other instructions necessary for coordination and efficiency.

(b) The theater JFACC, as the supporting commander, determines the forces, tactics, methods, procedures, and communications to be employed in providing this support. The JFACC will advise and coordinate with the supported JTF commanders on matters concerning the employment and limitations (e.g., logistics) of such support, assist in planning for the integration of such support into the supported JTF commanders' efforts as a whole, and ensure support requirements are appropriately communicated within the JFACC's organization. When the JFACC cannot fulfill the needs of the supported JTF commander, the GCC will be notified by either the supported JTF commander or JFACC. The GCC is responsible for determining a solution. For their operations, these JTF commanders—as JFCs—will exercise approval authority for products normally generated for "JFC approval" (including products generated by the theater JFACC for their JOA).

(c) The theater JFACC may deploy one or more JACCEs to the JTF headquarters and other component headquarters as needed to ensure they receive the appropriate level of joint air support (see Appendix G, "The Joint Air Component Coordination Element," for a more detailed description of JACCE). The JACCE will provide on-hand air expertise to the JTF commanders and the direct link back to the theater JFACC and the JAOC.

(3) **Combination Theater and Subordinate Command-Level JFACCs.** There may be a theater and subordinate command JFACC. While in some cases, this may be the most operationally desirable option, it is also the most demanding on available C2 resources (manpower and equipment).

(4) Beyond the three options presented, there are several potential organizational variations. While it is impossible to assemble a complete list of all potential C2 arrangements, the following two additional options are presented for consideration:

(a) **Multiple JFACCs Sharing a Theater JAOC.** Typical arrangements of this nature have been driven by unforeseen, short-term incidents outside the scope of the original JAOC establishment. This case requires sufficient manning and infrastructure to support each of the individual JFACC missions prior to establishing such an arrangement. Appropriate authorities should clearly detail, prioritize, and apportion limited air and C2 assets.

(b) **Theater JFACC or JTF's JFACC to operate concurrently with a JSOACC** assigned to a commander, joint special operations task force (CDRJSOTF). This is a possible arrangement, although not commonly used, when a JSOTF is formed and air assets not being used at a given time by the CDRJSOTF may be made available to the JFACC for tasking.

(5) The organizational options discussed above describe combatant commander (CCDR) and subordinate command relationships. JFC plans and orders should clearly detail these command relationships. Approval authority is inherent in command; therefore, it is imperative subordinate JFCs exercise approval authority over those processes affecting operations within their JOAs regardless of whether the products are developed by resources allocated to that commander or by other headquarters. This includes, but is not limited to: air apportionment decision, targeting products, joint air estimates, JAOP, AOD, ATO, ACP, ACO, and AADP.

(6) It should be noted that theater manning limitations and force protection concerns, coupled with advanced communications capabilities and C2 systems, have driven and enabled JFACCs to conduct distributed operations more frequently. JFACC distributed operations are when independent or interdependent forces, some which may be outside the JOA, participate in operational planning, decision making, or operations. Examples include portions of headquarters planning staffs (e.g., targeting, intelligence) being geographically separated from the main headquarters or combat forces being based outside the JOA. While this construct affords many advantages, it also presents challenges in ensuring command relationships and authorities are clearly detailed and understood by all participants to ensure unity of effort.

7. Joint Force Staff Option

a. In operations of limited scope, duration, or complexity, or in which air operations are a relatively small aspect of the overall joint force, the JFC may plan, direct, and control joint air operations with the assistance of the joint force staff. In this situation, the JFC would retain command authority and responsibility and would normally request augmentation from appropriate components to perform the C2 air function and assist in planning and coordinating

joint air operations. In the joint force staff option, all previously discussed JFACC responsibilities will be accomplished by the joint force staff as directed by the JFC.

b. The joint force staff operates out of the joint operations center (JOC). Under the JFC staff option, the JOC also functions as the C2 node for joint air operations. The composition of a joint force staff should reflect the composition of the subordinate joint forces to ensure those responsible for employing forces have a thorough knowledge of their capabilities and limitations. The presence of liaisons on a single-Service staff does not transform that Service staff into a joint force staff. The joint force staff should be composed of appropriate members in key positions of responsibility from each Service or functional component having significant forces assigned to the command. The same general guidelines for joint force staffs apply to multinational operations. Key staff positions ought to be a representative mix of US and multinational officers with shared responsibilities and trust.

c. **JFC's Staff Authority and Responsibilities.** The JFC's staff derives its authority from the JFC. JFC staff relationships and responsibilities should be specified early in the planning process. Although command authority for tasking subordinate commanders is retained by the JFC, the JFC may assign responsibility for coordinating joint air operations

COMMAND AND CONTROL OF AIR OPERATIONS DURING OPERATION ODYSSEY DAWN

On 3 March, 2011, USAFRICOM [United States Africa Command] was directed to establish a JTF [joint task force] under the command of Admiral Samuel Locklear, USN [United States Navy], Commander US Naval Forces Africa, initially to facilitate a noncombatant evacuation operation, provide humanitarian assistance as required, and transport Egyptian civilians from Tunisia to Egypt in support of the US Department of State. This mission soon expanded to include enforcement of maritime exclusion and no-fly zones, and offensive operations to protect the Libyan civilian population. JTF Odyssey Dawn included naval assets from the US 6th Fleet and air assets from both USAFE [United States Air Forces in Europe] and 17 AF [Air Force] (AFAFRICA).

USAFE and 17 AF (AFAFRICA) headquarters were both located at Ramstein Air Base, Germany. As the AF component to USAFRICOM, the 17 AF (AFAFRICA) commander was designated the JFACC [joint force air component commander] supported by 17 AF's 617th AOC [Air Operations Center]. However, 17 AF (AFAFRICA) was organized and resourced primarily for logistics and lift operations, not combat operations. The JFACC received heavy augmentation from the more broadly staffed USAFE and 3 AF's 603rd AOC facility. For Operation Odyssey Dawn, these two staffs in effect merged under the leadership of the 17 AF (AFAFRICA) commander operating out of the 603rd AOC, providing increased capacity for the JFACC.

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to a staff directorate (e.g., J-3), a specific staff officer (e.g., J-3 air officer), or a special staff.

(1) **Planning.** The JFC staff prepares the JAOP to support the JFC's objectives. They may also prepare the ACP, AADPs, and defended asset list.

(2) **Coordination.** The JFC's staff coordinates joint air activities with other operations in the operational area. As appropriate, subordinate commanders and coordinating agencies furnish liaison elements and augmentation personnel to the JFC's staff to coordinate with the joint force.

(3) **Execution.** The JFC's staff monitors the execution of joint air operations by subordinate commanders tasked through the ATO. This may include redirecting sorties, as directed by the JFC, to accomplish joint force objectives.

(4) **Supporting Operations.** Joint air operations may require support (e.g., suppression of enemy air defenses, ground-based air defense) from resources other than aircraft. The JFC may direct components to support joint air operations with assets, capabilities, or forces, in addition to the air capabilities/forces provided.

8. Liaisons

a. In addition to the JFC and staff, other component commanders and their staffs require continuous and ready access to the JFACC and the JFACC's staff. Principal means of accomplishing this are through personal contact, the established communications and information support system, and liaison personnel. These **liaisons work for their respective component commanders and work with the JFACC and staff.** Each component normally provides liaison elements (BCD, SOLE, NALE, MARLE, AFLE, AAMDC, and others, as appropriate) that work within the JAOC. These liaison elements consist of trained personnel who provide component planning and tasking expertise and coordination capabilities. They help integrate and coordinate their component's operations with joint air operations. If the JFC retains the functions normally given to a JFACC, then the liaisons would work directly with the JFC's staff responsible for joint air operations. In all such arrangements, the JFC must clearly define the roles, responsibilities, and interorganizational decision authorities for liaison personnel.

b. **Component Liaisons.** Component liaisons serve as conduits for coordination between the JFACC and their respective component commanders. Functional or Service component commanders should delegate appropriate authority to their liaisons to effectively participate in the JAOC environment and processes. Component commanders should determine liaison responsibilities and authorize direct coordination with specified commanders and staff. They should be equipped and authorized to communicate directly with their respective component commander. The liaisons have the responsibility of presenting component perspectives and considerations regarding planning and executing joint air operations. Component liaisons should be familiar with the details of all

component air, surface, and subsurface missions to coordinate their impact on joint air operations and understand its possible impact upon their respective missions.

c. **Other Liaisons.** Other USG departments and agencies, international organizations, and NGOs conduct activities near or in areas of military operations. CCDRs must be cognizant of these organizations and their actions. To the extent possible, commanders should ensure these organizations' efforts and military efforts are coordinated and complementary (or at least not in conflict). Commanders should establish coordination and mutual support mechanisms, as needed, to eliminate or mitigate conflict and support US goals in the region. Liaisons from these organizations to the JFACC may be appropriate. Multinational partners, particularly in operations being conducted in conjunction with or in close proximity to those of partner nations, may provide liaisons that work with the JFACC to ease coordination between forces. They work with the JFACC to coordinate the activities of their sending organizations. In addition, the JFACC should consider sending liaisons to appropriate organizations, for example, multinational force intelligence collection, air defense, homeland defense (HD), and airborne-related functions.

See Appendix F, "Liaison Elements within the Joint Air Operations Center."

9. Joint Force Air Component Commander Basing and Transition

a. Procedures for joint air operations are designed to exploit the flexibility of air operations to achieve joint force objectives while providing support to component operations. Joint air operations scenarios may vary, and each scenario requires extensive planning when transition of JFACC responsibilities is necessary. Basing of the JFACC depends on the nature and scale of the operation and may shift as the operation or campaign progresses.

b. **Land-Based JFACC.** In large-scale air operations, land-based JFACCs and JAOCs are normally desired because of the enhanced logistics and communications provided by additional equipment and workspaces that may not be available on sea-based facilities.

c. **Sea-Based JFACC.** The JFACC and JAOC may be sea-based when any one of the following conditions are present:

(1) Maritime forces provide the preponderance of air assets and have the organizational construct, operating experience, and management functions capability to effectively plan, task, and control joint air operations.

(2) Land-based facilities or sufficient infrastructure does not exist.

(3) A secure land-based area is not available, and ground support forces are forced to withdraw.

d. **JFACC Transition.** Effective joint air operations planning should include provisions to transition JFACC responsibilities between components of the joint force and/or JFC's staff. The JFACC transition should be identified in the JAOP.

(1) **Planned Transition.** The JFACC should develop a plan for transition of JFACC duties to another component or location. Planned JFACC transitions are possible as a **function of buildup or scale down of joint force operations.** During transition of JFACC responsibilities, the component passing responsibilities should continue monitoring joint air planning, tasking, and control systems and remain ready to reassume JFACC responsibilities until the gaining component has achieved full operational capability.

(2) **Unplanned Transition.** During unplanned shifts of JFACC responsibility, as a possible result of battle damage or major C2 equipment failure, a smooth transition is unlikely. Therefore, **the JFC should predesignate alternates** (both inter- and intracomponent) and establish preplanned responses/options to the temporary or permanent loss of primary JFACC capability. Frequent backup and exchange of databases is essential to facilitate a rapid resumption of operations should an unplanned transition occur.

(3) **Transition Events.** The following events may cause the JFACC responsibilities to shift:

(a) Establishment of a subordinate JTF with delegated joint air operations responsibilities and attachment of forces to that JTF.

(b) Coordination requirements, related to ATO planning and execution, exceed the component capability.

(c) Buildup or relocation of forces shifts preponderance of the air capabilities/forces and the ability to effectively plan, task, and control joint air operations to another component commander, and the JFC decides the other component is in a better position (location, C2 capability, or other considerations) to accomplish the JFACC responsibilities.

(d) C2 systems become unresponsive or unreliable.

(4) **Considerations.** Considerations to aid in JFACC transition planning and decisions include:

(a) Continuous, uninterrupted, and unambiguous guidance and direction for joint air operations are the primary objective of any JFACC transition.

(b) Appropriate communications system capabilities to ensure shift of JFACC duties is as transparent to the components as possible.

(c) Specific procedures for coordinating and executing planned and unplanned shifts of JFACC should be published in the JAOP.

(d) The relieving component must have adequate communications, connectivity, manning, intelligence support, and C2 capability prior to assuming JFACC responsibilities.

(e) Continuous planning supports both the expansion and transition of the communications system to support the JFC's CONOPS for future operations.

(f) The ability to plan, publish, and disseminate an ATO and SPINS.

(g) The JFC's objectives to conduct supporting joint air operations.

(h) Established timely, reliable, and secure communications links with all appropriate coordination cells to facilitate continuous and dynamic exchange of information.

(i) Complete familiarity with the AADP and ACPs.

(j) Complete, current, and sufficiently interoperable databases to expedite the transition.

e. **Transition of C2 for Joint Air Operations.** The JFC may choose to assign C2 of joint air operations to a JFACC when the duration and scope of joint air operations exceed the JFC's span of control. Additionally, the JFC may transfer designated mission experts and functional area augmentees from the JFC staff to the JFACC's JAOC to assist in the transition and coordination of joint air operations. Conversely, a transition from JFACC to JFC staff may also be directed when the JFC determines that operational requirements warrant such a change.

10. Communications System

a. **The JFACC is responsible for identifying and validating joint air requirements that affect the JFC's mission and support accomplishment of the JFC's directives.**

b. The ability to exchange information via reliable secure communications with the JFC, joint force staff, other component commanders, and tactical units is a key factor to the successful integration of the joint air effort. Planning should address the following areas:

(1) **Data exchange requirements** should be promulgated as early as possible to ensure each component can meet interoperable interface requirements. Every effort should be made to confirm data exchange connectivity requirements during planning.

(2) Planning for all information exchange requirements and procedures **should consider the cybersecurity elements of Department of Defense (DOD) information network operations affecting confidentiality, availability, and integrity of networks used for air operations.**

(3) **The best mix of computer-aided systems should be available for data transmission.** The JAOC and liaison elements depend on secure, reliable, beyond-line-of-sight communications and data exchange equipment to respond to joint force requirements. For example, the TBMCS is often used. The use of ATO generation and dissemination software portions of TBMCS has been standardized. This ATO feature enables the JAOC to be interoperable with other force-level Service systems.

(4) Centralized control and decentralized execution requires a robust communications architecture. **Planning should anticipate the need for communications in degraded environments at all levels and phases of operations** and include considerations for alternate routing, redundant systems, use of other systems, protocols, and message standards. Impaired/inadequate information exchange capability should be anticipated and incorporated into risk management considerations during air operations planning.

For additional information on communication systems, see JP 6-0, Joint Communications System. For additional information on CO, see JP 3-12, Cyberspace Operations.

11. Command and Control of Joint Air Operations for Defense Support of Civil Authorities and Homeland Defense

a. Commander, United States Northern Command (USNORTHCOM), and Commander, United States Indo-Pacific Command (USINDOPACOM), share the primary mission for US HD and defense support of civil authorities (DSCA) within their assigned AORs. Commander, Pacific Air Forces, is the JFACC for USINDOPACOM AOR. For US-only HD and DSCA air operations within the continental US, Commander, Air Force North (1st Air Force), is designated the JFACC and is dual-hatted as Commander, Continental United States North American Aerospace Defense Command Region. USNORTHCOM has established a subordinate unified command, Alaska Command, to facilitate operations in Alaska. North American Aerospace Defense Command (NORAD) is the bi-national command (United States and Canada) that conducts aerospace warning, control, and maritime warning in defense of North America. NORAD is divided into three regions: Continental NORAD Region, Alaskan NORAD Region, and Canadian NORAD Region. Each region commander is triple-hatted with duties as the JFACC, ACA, and AADC for executing DCA missions.

b. C2 of joint air operations during Operation NOBLE EAGLE (ONE) and most DSCA operations is conducted under peacetime rules. When there are no combat operations, a civil organization provides air traffic service, with plenary authority to regulate the national airspace system. For the US, this agency is the FAA and for Canada it is NAV CANADA. These agencies are charged by their respective nations with managing airspace and may request the assistance of their military or NORAD to support airspace control. ONE is the ongoing operation covering aerospace warning and control for the US and its territories.

c. During DSCA operations, at the request of the lead federal agency and with approval of the Secretary of Defense, the appropriate JFACC, working in support of the

FAA, assists in developing procedural control rules for safe use of the airspace by the multitude of participating agencies. Joint forces will coordinate all DSCA air operations with the JFACC to facilitate unity of effort, even while other air activities may be occurring elsewhere in the nation. USNORTHCOM's JAOC typically establishes and activates an unclassified and voluntary scheduling system to prevent overtaxing fragile or limited control systems. USG departments and agencies can then identify their necessary flight operations to enable collaborative deconfliction.

(1) The Department of Homeland Security (DHS) has overall responsibility for US homeland security (HS), and DOD may be asked to provide support to DHS for HS operations. DHS has peacetime oversight of the US Coast Guard. In HS operations, it is possible for the JFACC to have the preponderance of military air assets but not the preponderance of USG air assets to coordinate. During HS operations with a threat emanating from United States Southern Command's (USSOUTHCOM's) AOR, DOD may direct USSOUTHCOM to lead DOD support to DHS, with the Air Force Southern Command commander designated as the JFACC.

(2) Although numerous interagency partners are responsible for DSCA mission accomplishment, most air operations fall under the FAA or are impacted by FAA authority. For instance, aerial search and rescue may be accomplished by state (e.g., Army National Guard, Air National Guard, or state police helicopters), federal (e.g., Air Force or Coast Guard), or civil (e.g., Civil Air Patrol) agencies, but all still operate within the procedures established by the FAA.

(3) DSCA support is often provided by National Guard forces, either federalized under Title 10, United States Code (USC); Title 32, USC; or state active duty status. Each state, territory, and the District of Columbia has the latitude to develop aviation C2 procedures pursuant to the appropriate governor's directives. Often, these C2 architectures will incorporate many joint concepts. To enhance unity of effort during emergencies, USNORTHCOM's JAOC has pre-coordinated airspace C2 procedures with both the FAA and through the National Guard Bureau as the channel of communications with the numerous state adjutants general. During DSCA operations, the state governors typically retain C2 of civil and National Guard air assets and execute operations through National Guard joint force headquarters-state or the state's emergency operations center.

d. As the nation moves from peacetime to hostilities, the FAA, NAV CANADA, USNORTHCOM, NORAD, and USINDOPACOM coordinate to provide military support to the civil airspace control agencies. The FAA provides liaisons to USNORTHCOM and USINDOPACOM to collaborate and minimize conflicts during mission execution. In the event the FAA is unable to perform airspace control responsibilities, the appropriate JFACC should be prepared to take over the airspace control role. This may occur at pre-coordinated points, where air defense and some airspace control is accomplished by the military agencies on behalf of the government through the application of emergency security control of air traffic and the declaration of various air defense emergencies. Close cooperation and coordination with interagency partners, including FAA and DHS, is essential.

For additional detailed information on DSCA, see JP 3-28, Defense Support of Civil Authorities. For additional detailed information on HD, see JP 3-27, Homeland Defense.

CHAPTER III

PLANNING AND EXECUTING JOINT AIR OPERATIONS

“It is improbable that any terrorization of the civil population which could be achieved by air attack would compel the government of a great nation to surrender. In our own case, we have seen the combative spirit of the people roused, and not quelled, by the German air raids. Therefore, our air offensive should consistently be directed at striking the bases and communications upon whose structure the fighting power of his armies and fleets of the sea and air depends.”

Winston Churchill (1917)

SECTION A. PLANNING AND EXECUTING JOINT AIR OPERATIONS

1. Joint Air Operations Planning

While the discussion in this chapter assumes the JFC has designated a JFACC, if the JFC retained control of joint air operations, the JFC’s designated staff would plan and execute joint air operations and should follow a similar process. Planning for joint air operations begins with **understanding the JFC’s mission and intent**. The JFC’s **estimate** of the operational environment and articulation of the objectives needed to accomplish the mission form the basis for determining components’ objectives. The JFACC uses the JFC’s mission, commander’s estimate and objectives, commander’s intent, CONOPS, and the components’ objectives to develop a course of action (COA). When the JFC approves the JFACC’s COA, it becomes the basis for more detailed joint air operations planning—expressing what, where, and how joint air operations will affect the adversary or current situation. The JFACC’s daily guidance ensures joint air operations effectively support the joint force objectives while retaining enough flexibility in execution to adjust to the dynamics of military operations (see Figure III-1).

2. The Joint Air Estimate

The joint air estimate is described as a process of reasoning by which the air component commander considers all the circumstances affecting the military situation and decides on a COA to be taken to accomplish the mission. The joint air estimate is often produced as the culmination of the COA development and selection stages of the joint planning process. The joint air estimate reflects the JFACC’s analysis of the various COAs that may be used to accomplish the assigned mission(s) and contains the recommendation for the best COA. Figure III-2 shows a joint air estimate overview format.

See Appendix B, “Joint Air Estimate of the Situation Template,” for more information.

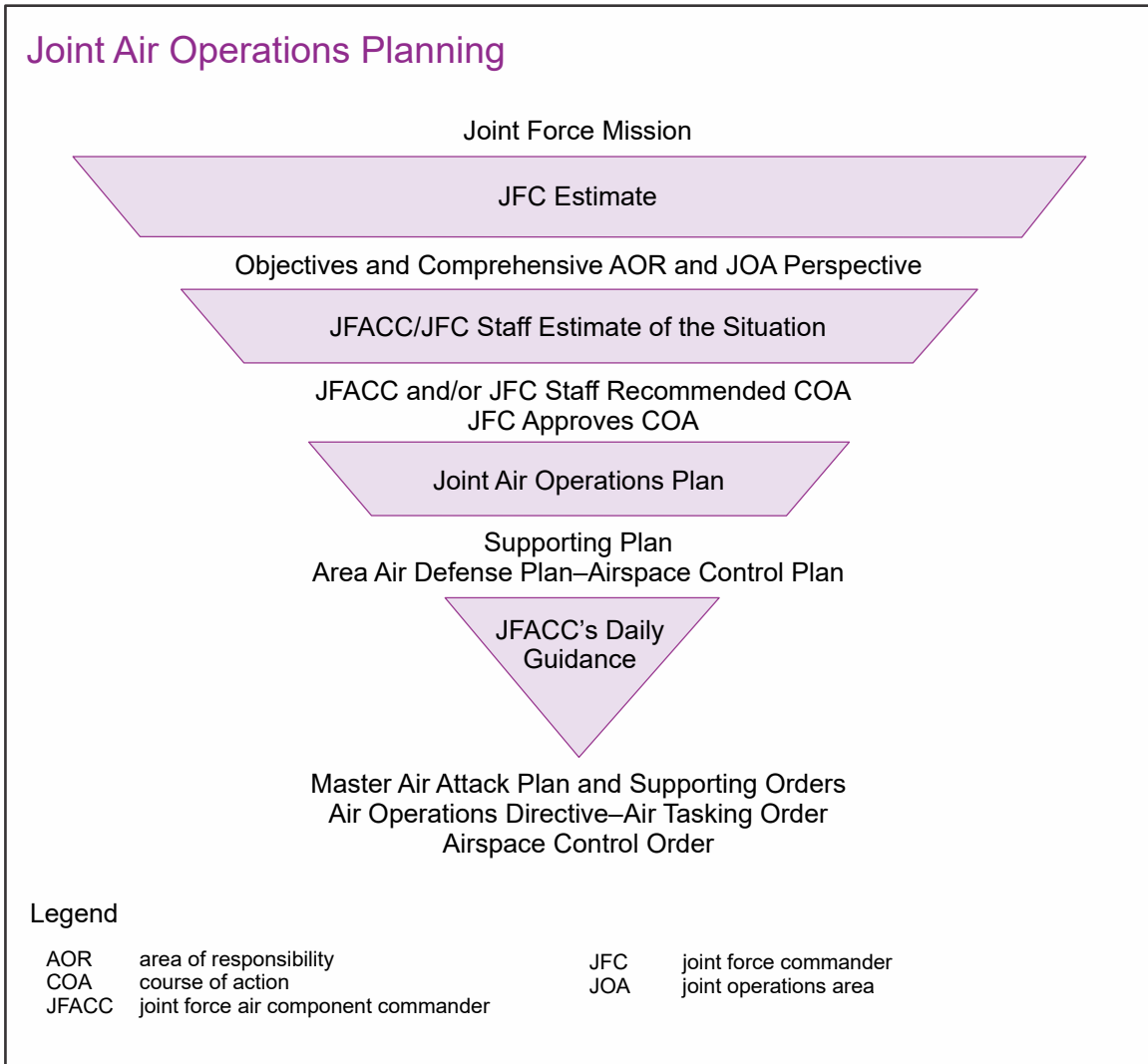


Figure III-1. Joint Air Operations Planning

3. The Joint Planning Process for Air

a. The JFACC uses the joint planning process for air (JPPA) to develop a JAOP, which guides employment of air capabilities and forces made available to accomplish missions assigned by the JFC.

b. **JFACC Planning Responsibilities.** The JFACC’s role is to plan joint air operations. In doing so, the JFACC provides focus and guidance to the JAOC staff. The amount of direct involvement depends on the time available, preferences, and the experience and accessibility of the staff. The JFACC uses the entire staff during planning to explore the full range of adversary and friendly COAs and to analyze and compare friendly air capabilities with the threat. **The JFACC should ensure planning occurs in a collaborative manner with other components.** Joint air planners should meet on a regular basis with the JFC’s planners and with planners from other joint force components

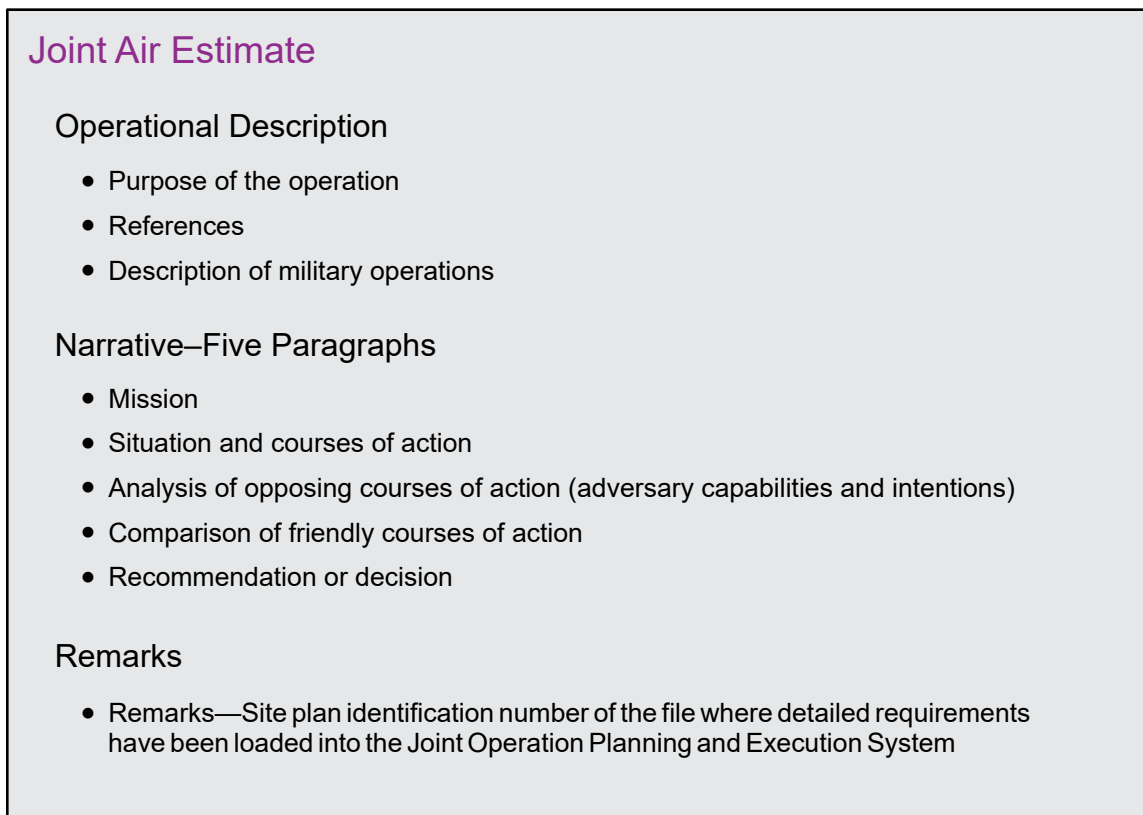


Figure III-2. Joint Air Estimate

to integrate operations across the joint force. Planning is a continuous process and only ends with mission accomplishment.

c. **The JAOP is the JFC’s plan to integrate and coordinate joint air operations** and encompasses air capabilities and forces supported by, and in support of, other joint force components. The JFACC’s planners should anticipate the need to make changes to plans (e.g., sequels or branches) in a dynamic and time-constrained environment. Planners should include representatives from all components providing air capabilities or forces to enable their effective integration. Expertise requirements may include, but are not limited to, those listed in Figure III-3.

d. **JPPA follows the joint planning process** found in JP 5-0, *Joint Planning*, with specific details for joint air operations. JPPA drives the production of the JAOP and supporting plans and orders. JPPA is used during planning to produce JAOPs that support OPLANs or concept plans. JPPA may also be used as part of crisis planning. It is always tied closely to the overall joint planning being done by the JFC’s staff and other Service or functional component staffs. While the steps are presented in sequential order, work on them can be concurrent, sequential, or even recursive. Nevertheless, the steps are integrated and the products of each step should be checked and verified for coherence and consistency. Figure III-4 illustrates the seven steps of JPPA and key inputs and outputs.

(1) Step 1. Initiation

Example Subject Matter Expertise for Joint Air Planning

1. Logistics
2. Air mobility (airlift, air drop, and air refueling) planning
3. Targeting
4. Command and control
5. Intelligence, surveillance, and reconnaissance
6. Air and missile defense planning
7. Airspace control
8. Political-military affairs
9. Religious-cultural affairs
10. Information activities
11. Cyberspace operations
12. Space operations
13. Service and component liaisons
14. Weapon system capabilities
15. Mission planning/air tactics
16. Public affairs
17. Legal
18. Modeling and simulation
19. Electronic warfare, to include counter-improvised explosive device operations
20. Personnel recovery, to include combat search and rescue
21. Meteorological and oceanographic
22. Aeromedical evacuation/medical care
23. Administrative support
24. Munitions maintenance management
25. Counter chemical, biological, radiological, and nuclear planning
26. Force protection
27. Assessment

Figure III-3. Example Subject Matter Expertise for Joint Air Planning

(a) Planning is usually initiated by direction of a JFC, but the JFACC may initiate planning in anticipation of a planning requirement not directed by higher authority but within the JFACC's authority. Joint air operations should be coordinated with all relevant lines of operation (LOOs) and lines of effort (LOEs). Military air options are normally developed in combination with the other military and nonmilitary options so the JFC can appropriately respond to a given situation.

(b) The JFACC and staff perform an assessment of the initiating directive to determine how much time is available until mission execution, the current status of

Joint Planning Process for Air Inputs, Steps, Outputs

Key Inputs	JPPA Steps	Key Outputs
Tasking from JFC Guidance from JFACC	Initiation	Initial planning time line JFACC's initial guidance
JFC mission and intent Friendly situation JIPOE Facts and assumptions JFACC tasks/guidance	Mission Analysis	Enemy COAs Mission analysis brief Essential tasks JFACC mission statement JFACC initial operational approach, planning guidance and intent
JFACC operational approach and guidance Enemy COAs Staff estimates supporting JFACC's COAs	COA Development	Support concepts to friendly air COAs JFACC objectives Narratives and graphics
Support concepts to friendly air COAs Enemy most likely/dangerous COAs Coordinated wargame method Coordinated evaluation criteria Coordinated critical events/actions	COA Analysis and Wargaming	Refined, valid air COAs with support concepts Strengths and weaknesses Branch/sequel requirements JFACC decision points and CCIRs
Coordinated evaluation criteria Wargame results Coordinated comparison method	COA Comparison	Decision matrix Preferred COAs
Decision briefing	COA Approval	Selected air COA Summary of operational design/approach JFACC refinement JFC-approved air COA
Approved air COA Staff estimates	Plan/Order Development	Refined and approved JFACC OPLAN/OPORD with appropriate annexes

Legend

CCIR	commander's critical information requirement	JPPA	joint planning process for air
COA	course of action	OPLAN	operation plan
JFACC	joint force air component commander	OPORD	operation order
JFC	joint force commander		
JIPOE	joint intelligence preparation of the operational environment		

Figure III-4. Joint Planning Process for Air Inputs, Steps, Outputs

intelligence products and staff estimates, and other relevant factors that influence the planning situation. The JFC and JFACC typically provide initial guidance that may specify time constraints, outline initial coordination requirements, authorize movement of key capabilities within the commanders' authority, and direct other actions as necessary. The JFACC may produce an initial commander's intent during this step. Refer to Appendix A,

“Sample Mission Statement and Commander’s Intent,” to see a sample JFACC mission statement and commander’s intent.

(2) Step 2. Mission Analysis

(a) Mission analysis is critical to ensure thorough understanding of the task and subsequent planning. It results in the JFACC’s final mission statement that describes the joint air component’s essential tasks. It should include the “who, what, when, where, and why” for the joint air operation but seldom specifies “how.” (See Figure III-5.) At the end of mission analysis, the JFACC should issue a commander’s intent for the overall joint air operation, that is, the JFACC’s contribution to the JFC’s military end state. The JFACC’s intent should express the end state to be attained by joint air operations and the purpose for reaching it. It should also include the JFACC’s assessment of where and how much risk is acceptable during the operation (see Figure III-6). Commander’s intent is a concise expression of the purpose of the operation and the desired end state. While the commander’s intent for the overall operation is needed at the end of mission analysis, the JAOP will eventually contain the commander’s intent for each phase of the operation, and the AODs will contain the JFACC’s intent for a specific ATO or period of time. Hence the commander’s intent articulates a desired set of conditions for a given point in time and the purpose those conditions will support.

Sample Joint Force Air Component Commander’s Mission Statement

When directed, the joint force air component commander (JFACC) will conduct joint air operations to deter aggression and protect deployment of the joint force.

Should deterrence fail, the JFACC, on order, will gain and maintain air superiority to enable joint operations within the operational area. Concurrently, the JFACC will support the joint force land component commander (JFLCC) in order to prevent enemy seizure of vital areas (to be specified).

On order, the JFACC, in conjunction with the JFLCC and joint force maritime component commander (JFMCC), will render enemy fielded military forces combat ineffective and prepare the operational environment for a counteroffensive. Concurrently, the JFACC will support the JFMCC in gaining and maintaining maritime superiority. The JFACC, on order, will support JFLCC and joint force special operations component commander ground offensive operations, degrade the ability of enemy national leadership to rule the country as directed, and destroy enemy weapons of mass destruction in order to restore territorial integrity, eliminate the enemy military threat to the region, support legitimate friendly government, and restore regional stability.

Figure III-5. Sample Joint Force Air Component Commander’s Mission Statement

Sample Joint Force Air Component Commander's Intent Statement

- Purpose

The purpose of this joint air operation will be initially to deter enemy aggression. Should deterrence fail, I will gain air superiority, render enemy fielded forces ineffective with joint airpower, degrade enemy leadership and offensive military capability as directed, and support joint group and special operations forces in order to restore territorial integrity and ensure the survival or restoration of legitimate government in a stable region.

- End State

At the end state of this operation: Enemy military forces will be capable of limited defensive operations, will have ceased offensive action, and will have complied with war termination conditions. The succeeding state will retain no weapons of mass destruction capability; I will have passed air traffic control to local authorities, territorial integrity will be restored, and joint force air component commander operations will have transitioned to support of a legitimate and stable friendly government.

Figure III-6. Sample Joint Force Air Component Commander's Intent Statement

(b) Anticipation, prior preparation, and a trained staff are critical to timely mission analysis. Staff estimates generated during mission analysis are continually revisited and updated during the course of planning, execution, and assessment.

(c) Mission analysis includes developing a list of critical facts and assumptions. Facts are statements of known data concerning the situation. Assumptions are suppositions on the current situation or a presupposition on the future course of events, either or both assumed to be true in the absence of positive proof, necessary to enable the commander in the process of planning to complete an estimate of the situation and make a decision on the COA. Assumptions may also become commander's critical information requirements or drive the development of branch plans to mitigate the risks of a wrong assumption. Assumptions must be continually reviewed to ensure validity. Once an assumption is proven correct, it becomes a fact or, if proven incorrect, a new fact or assumption is determined. They are necessary to enable a commander to complete an estimate of the situation, influence commander's critical information requirements, drive branch planning, and make decisions on COAs.

1. IPB should identify and analyze adversary and friendly centers of gravity (COGs) at the operational and tactical levels and contribute to the JIPOE. JIPOE is the analytical process used by joint intelligence organizations to produce intelligence assessments, estimates, and other intelligence products in support of the JFC's decision-making process. The process is used to analyze the physical domains; the information environment; political, military, economic, social, information, and infrastructure systems; and all other relevant aspects of the operational environment and to determine an adversary's capabilities to operate within that environment. The IPB effort should be fully coordinated, synchronized, and integrated with the JIPOE effort of a joint intelligence center. A COG is a source of power that provides moral or physical strength, freedom of

action, or will to act. In coordination with the JFC, the joint air component may focus on strategic and operational COGs, in addition to tactical-level details of adversary forces, because air operations can often directly affect COGs through application of capabilities to create strategic and operational effects.

See JP 2-01.3, Joint Intelligence Preparation of the Operational Environment, for greater detail on JIPOE.

2. The JFACC and staff prioritize the analyzed adversary and friendly critical vulnerabilities (CVs) associated with COGs based on their impact on achieving the objectives most effectively, in the shortest time possible and at the lowest cost. The analyses of **adversary and friendly** CVs are incorporated into the various COAs considered during COA development.

(d) The JFACC, supported by the staff, determines the joint air objectives and the specified, implied, and essential tasks. The JFACC typically includes essential tasks in a mission statement. Essential tasks are specified or implied tasks the JFACC must perform to accomplish the mission.

(e) The JFACC and staff examine readiness of all available air capabilities and forces to determine if there is enough capacity to perform all the specified and implied tasks. **The JFACC identifies additional resources needed for mission success to the JFC.** Factors to consider should include all available forces (including multinational contributions), command relationships (joint force, national, and multinational), force protection requirements, ROE, law of war, applicable treaties and agreements (including existing status of force agreements), base use (including land, sea, and air), overflight rights, logistics information (what is available in theater ports, bases, depots, war reserve material, host-nation support), and what can be provided by other theaters and organizations.

(f) The **end state** is the set of required conditions that defines achievement of the commander's objectives and specific criteria for mission success. By articulating the joint air component's purpose, the JFACC provides an overarching vision of how the conditions at the end state support the joint operation and follow-on operations.

(3) Step 3. COA Development

(a) COA development is based on mission analysis and a creative determination of how the mission will be accomplished. The staff develops COAs. **A COA represents a potential plan the JFACC could implement to accomplish the assigned mission.** All COAs should meet the JFACC's intent and accomplish the mission.

(b) A COA consists of the following information: what type of military action will occur, why the action is required (purpose), who will take the action, when the action will begin and how long it will last (best estimate), where the action will occur, and how the action will occur (method of employment of forces). COAs may be broad or

detailed, depending on available planning time and JFACC's guidance. The staff should assess each COA to estimate its success against all possible adversary COAs. The staff converts the approved COA into a CONOPS. COA determination consists of four primary activities: COA development, analysis and wargaming, comparison, and approval. Air COAs will often require input from other component commanders to synchronize them with land and maritime operations.

(c) When time is limited, the JFACC should determine how many COAs the staff will develop and which adversary COAs to address. A complete COA should consider, at a minimum:

1. The JFACC's mission and intent (purpose and vision of military end state).
2. Desired end state.
3. Commander's critical information requirements.
4. C2 structure.
5. Essential tasks.
6. Available logistics support.
7. Available forces.
8. Available support from agencies and organizations.
9. Transitions between each phase.
10. Decision points.

(d) COAs should include the following specifics:

1. Operational and tactical objectives and effects and their related tactical tasks, in order of accomplishment.
2. Forces required and the force providers.
3. Force projection concept.
4. Employment concept.
5. Sustainment concept.

(e) The speed, range, persistence, and flexibility of air assets are their greatest advantages, and their employment location and purpose may change in minutes. Air strategists and planners deal with objective sequencing and prioritization, operational phasing, employment mechanisms, and weight of effort. In addition, COAs may vary by the phase in which an objective is achieved or the degree to which an objective is achieved in each phase.

(f) Air COAs may be presented in several ways. They may be presented as text and may discuss the priority and sequencing of objectives. Air COAs may also be depicted graphically—displaying weights of effort, phases, decision points, and risk. One helpful way to depict an air COA graphically is to depict it as one or more logical LOOs or LOEs, as described in JP 5-0, *Joint Planning*. Any quantitative estimates and assessment criteria presented should clearly indicate common units of measurement to make valid comparisons between COAs. For example, a sortie is not a constant value for analysis—one F/A-18 sortie does not equate to one B-2 sortie. Air COAs should avoid numerical presentation. Ultimately, the JFACC will direct the appropriate style and content of the COA.

(g) The first step in COA development is to determine the measures that will accomplish the JFACC's mission and support achievement of the JFC's objectives. The framework of objectives, effects, and tasks provides a clear linkage of overall strategy to task. While the JFC normally provides operational objectives to the JFACC, they may also emerge through mission analysis or COA development, developed by the JFACC and the JAOC SD staff in consultation with the JFC. An objective should be clearly defined, decisive, and state an attainable goal. JFACC support to other components should also be expressed in terms of objectives. Resulting objectives can then be prioritized with other JFACC objectives in accordance with the JFC's CONOPS. **Supporting objectives should describe what aspect of the adversary's capability the JFC or other component wants to affect.** For example, the joint force land component commander's (JFLCC's) attack may require disrupting the enemy's operational reserve. Supporting JFACC objectives could be expressed as "render enemy's operational reserve unable to conduct counterattacks on JFLCC forces" or "destroy enemy's operational reserve's offensive capability." Clearly defined objectives prevent confusion over what the force is trying to accomplish and reduce the risk of mission failure.

(h) Commanders plan joint operations by developing objectives supported by measurable effects and assessment indicators. Analysis of effects (desired and undesired) and determination of measures of effectiveness (MOEs) during planning for joint air operations are usually conducted by the JAOC strategy plans and operational assessment teams, assisted by all other planning elements of the JAOC.

(i) Specifically, objectives **prescribe** friendly goals. Effects **describe** system behavior in the operational environment. Desired effects are the conditions related to achieving objectives. Tasks, in turn, **direct** friendly action. Objectives and effects are assessed through MOEs. Empirically verifiable MOEs may help ensure the JFACC knows when objectives have been achieved. Accomplishment of friendly tasks is assessed

through measures of performance (MOPs). MOEs help answer the questions, “Are we doing the right things?” or “Are alternative actions required?” MOEs also help focus component operational assessment efforts; inform processing, exploitation, and dissemination (PED) priorities; and identify ISR requirements. MOPs help answer the questions, “Are we doing things right?” and “Were the tasks completed to standard?” Figure III-7 depicts the relationship of objectives, effects, and tasks and their associated assessment measures.

(j) Once strategists and planners define the joint air objectives and supporting effects and tasks, they further refine potential air COAs based on the objective priority, sequence, phasing, weight of effort, and matched resources. This is one method of differentiating COAs. Other methods include varying time available, anticipated adversary activities, friendly forces available, and higher-level guidance. For air planning, a single COA may be developed with several branches and sequels that react to possible adversary activities.

(k) Planners should determine the validity of each air COA based on suitability, feasibility, acceptability, distinguishability, and completeness.

Linking Objectives, Effects, and Tasks Examples

Objective: Gain and maintain air superiority over Sector X.
 Effect 1: Multinational air forces capable of conducting air operations over Sector X without prohibitive interference from Red counter-air forces.
 MOE: Proportion of multinational air missions ineffective due to prohibitive interference from Red counter-air forces.

Task: Destroy all Red SAM radars covering Sector X.
 MOP: Proportion of known Red force SAM radars covering Sector X destroyed.
 Task: Degrade Red air C2 capacity by 90%.
 MOP: % of Red air C2 links severed.

Effect 2: Coalition ground forces capable of conducting operations in Sector X without prohibitive interference from Red forces air or missile attack.
 MOE: % of coalition ground force phase objectives achieved without delay or losses from Red air or missile attack.

Task: Destroy known fixed Red SRBM launch facilities within range of Sector X.
 MOP: Proportion of known Red SRBM launch facilities within range of Sector X destroyed.
 Task: Deny Red attack aircraft sortie generation.
 MOP: Proportion of Red attack airfields denied sortie generation capability.

Legend

C2	command and control	SAM	surface-to-air missile
MOE	measure of effectiveness	SRBM	short-range ballistic missile
MOP	measure of performance		

Figure III-7. Linking Objectives, Effects, and Tasks Examples

(l) The relationship between resources and COA development is critical. **COA development must take into account the resource constraints of the joint force at large** (see Figure III-8). Competing requirements for limited airlift will often result in deployment orders less than ideal for all components but optimal for the joint force as a whole. The JFC must ensure the time-phased force and deployment data (TPFDD) reflects the priorities and requirements of the joint force. Planners ensure the COA developed adheres to deployment considerations across the force and does not assume away potential mobility and distribution system pitfalls.

(m) During air COA development, the **JFACC and staff help the commander identify risk areas that require attention**. These will vary based on the specific mission and situation and may be divided into two broad areas: combat support and operational considerations. Combat support includes TPFDD planning that will critically affect the joint force strategy and execution. Also considered with the TPFDD are basing, access, logistic support available, and force protection requirements (see Figure III-9). However, since TPFDD execution, basing, and logistics support are the responsibility of the JFC and Service components, the JFACC's planning effort needs to focus on the operational limitations imposed by them.

(n) Decisions related to operational assumptions may drive changes in how the JFACC operates. These changes range from JPPA process changes to targeting and weaponeering methods. **One of the first considerations for the JFACC is air superiority**. The JFACC is responsible for considering the risk related to air defense planning when designated as the AADC. The commander's operational assumptions will determine the resources committed, force posturing, and structure of the air and missile defense plan.

(o) The individual designated to be the JFACC may also be designated the SCA within a joint force to coordinate joint space operations and integrate space capabilities. This responsibility may entail the coordination and integration of the capabilities of other Services' and national agencies' space assets to maintain space

Combat Support Considerations

- Basing
- Force protection
- Petroleum, oils, and lubricants availability
- Armaments/precision-guided munitions availability
- After action report planning
- Reachback
- Out of theater staging
- Long-range assets
- Sustainment (airlift and sealift)
- Communications systems
- Aerial port and seaport of debarkation location

Figure III-8. Combat Support Considerations

Risk Management: Combat Support Factors

- Time-phased force and deployment data
- Basing
- Regional access
- Logistics support
- Airbase defense requirements
- Reachback operations
- Just-in-time logistic considerations
- Bandwidth
- Host-nation support
- Communications networks
- Force protection

Figure III-9. Risk Management: Combat Support Factors

superiority and exploit space capabilities to create effects across the operational environment to achieve JFC objectives. Space considerations should be fully integrated with operations in the operational environment and should be fully incorporated into COA development.

(p) The JFC’s assumptions will also affect the operational assumptions made by the joint force air strategists and planners. The joint force structure and campaign or OPLAN directly influence the JFACC’s risk estimate and guidance.

(q) Minimizing the risk of friendly fire incidents and collateral damage are operational factors in risk management (see Figure III-10) and the commander must balance these with mission success. When the risk becomes unacceptable, the commander should consider changes in operational employment.

(4) Step 4. COA Analysis and Wargaming

(a) **COA analysis involves wargaming each COA against the adversary’s most likely and most dangerous COAs.** Wargaming is a recorded “what if” session of actions and reactions designed to visualize the flow of the conflict or operation and evaluate

Risk Management: Operational Factors

- Joint force commander assumptions concerning the operation
- Friendly fire incidents
- Collateral damage
- Force protection
- Cybersecurity
- Multinational considerations
- Command and control architecture

Figure III-10. Risk Management: Operational Factors

each friendly COA in the light of adversary adaptation. Wargaming is a valuable step in the planning process because it stimulates ideas and provides insights that might not otherwise be discovered. It also provides initial detailed planning while determining the strengths and weaknesses of each COA. This may alter or create a new COA based on unforeseen critical events, tasks, or problems identified. Wargaming is often a sequential process, but planning groups should adjust their wargame style based on JFACC guidance, time available, situation, and staff dynamics. Wargaming begins by assembling all the tools and information planners require and establishing the general rules to follow. Recording the activity is vital and directly contributes to identifying the advantages and disadvantages of a COA and providing sufficient detail for future JAOP development. Planners may use a synchronization matrix to detail the results of wargaming.

(b) Time permitting, the staff should:

1. Consider all facts and assumptions in each proposed COA and their possible effects on the action.

2. Consider active and passive measures to decrease the impact of adversary counteractions.

3. Consider conflict termination issues and the end state.

4. Think through one's own actions, adversary reactions, and friendly counteractions.

(c) COA analysis and wargaming conclude when planners have refined each COA in detail and identified the advantages and disadvantages of each. Automation in the planning process and joint analysis centers may provide additional modeling support to wargaming, increasing the accuracy and speed of COA analysis.

(5) **Step 5. COA Comparison**

(a) Comparing air COAs against predetermined criteria provides an analytical method to identify the best employment options for air forces and capabilities. The same method used in JP 5-0, *Joint Planning*, is used in air COA comparison.

(b) Another technique for air COA comparison involves developing an objective-risk timeline. LOOs and LOEs may help to elucidate the relationships between objectives, effects, time, and risk. In LOOs and LOEs, objectives, decisive points, or other significant events are plotted against a timeline that identifies when certain objectives or actions will occur. Risk for each air COA based on the LOO or LOE is identified. The resulting graphical representation may form the basis for the staff's recommendation and presentation to the JFACC.

(6) **Step 6. COA Approval.** The staff determines the best air COA to recommend to the commander. The staff presents their recommended air COA usually in

the form of a briefing. This briefing includes a summary of the operational design and planning process that led to the recommended air COA. Ideally, the JFACC should be involved in the process, especially in the early operational design stages. Depending on the level of JFACC involvement and the degree of parallel planning the commander accomplishes, **air COA selection will vary from choosing among various alternatives to directly approving the staff-recommended air COA.** The air COA is identified, adjusted (if required), and selected by the JFACC for presentation to the JFC. Once the JFC approves an air COA, the JPPA contributes directly to JAOP preparation.

(7) Step 7. Plan or Order Development

(a) For the joint air component, this step concentrates on the preparation of the JAOP. **The JAOP details how the joint air effort supports the JFC's overall operation or campaign plan.** JAOP development is a collaborative effort of the JFACC staff, the JFC staff, other joint force and Service component staffs, and outside agencies. Once the total force structure is determined, force availability, deployment, timing, basing availability, and sustainment requirements are matched with logistic and planning requirements. With this information, the JFACC's ability to accomplish the assigned mission is reevaluated and adjusted as necessary. The JAOP should accomplish the following:

1. Integrate the efforts of joint air capabilities and forces and, where applicable and appropriate, space and cyberspace capabilities and/or support mechanisms/enablers.

2. Identify objectives, effects, and tasks.

3. Identify MOEs and indicators used to determine whether air operations are creating desired effects and achieving objectives.

4. Account for adversary COAs.

5. Integrate and synchronize the phasing of operations with the JFC's plan.

6. Indicate what capabilities and forces are required to achieve joint air objectives. In addition to air capabilities and forces, planners should include land, maritime, space, cyberspace, and information-related activities required to meet joint air objectives.

7. Develop specific procedures for allocating, tasking, exercising, and transitioning C2 of joint air capabilities and forces.

(b) **In addition to building the plan for the employment of air forces,** the JAOP should also include considerations for phase transitions, decision points, conflict termination, redeployment (if applicable), and procedures to capture lessons learned.

Incomplete planning for conflict termination and the end state can result in the waste of valuable resources, aggravate a tenuous peace, cause a return to hostilities, or lead to numerous other unintended consequences. The list of considerations for conflict termination is specific to each situation and is never formulated in a vacuum or without extensive consultations with national leadership. This part of the plan should also address the prospect of the “surge” of air forces to accomplish phases of the operation, based on projected operating tempo.

For information on the joint planning process, see JP 5-0, Joint Planning.

4. Joint Targeting

a. **Targeting is the process of selecting and prioritizing targets and matching the appropriate response to them, considering operational requirements and capabilities.** Targeting is both a joint- and component-level function and requires a continuous, analytic process to identify, develop, and affect targets to create specific desired effects that achieve the JFC’s objectives. **Targeting is complicated by the requirement to deconflict unnecessary duplication of target nominations by different forces or different echelons within the same force and to integrate the attack of those targets with other components of the joint force.** An effective and efficient target development process coupled with the joint air tasking cycle is essential for the JFACC to plan and execute joint air operations. The joint targeting process should integrate the intelligence databases, analytical capabilities, and data collection efforts of national agencies, CCMDs, subordinate joint forces, and component commands. Targeting helps integrate and synchronize fires with other joint functions.

b. The joint targeting cycle is an iterative process that is not time-constrained, and steps may occur concurrently, but it provides a helpful framework to describe the steps required to successfully conduct joint targeting. The deliberate and dynamic nature of the joint targeting process is adaptable through all phases of the air tasking cycle. As the situation changes and opportunities arise, steps of the joint targeting process can be accomplished quickly to create the commander’s desired effects. **There are six phases to the joint targeting cycle: end state and commander’s objectives, target development and prioritization, capabilities analysis, commander’s decision and force assignment, mission planning and force execution, and assessment.**

For more detailed information on targeting and joint fires, see JP 3-60, Joint Targeting; and JP 3-09, Joint Fire Support.

c. **JFC Targeting Responsibilities.** The JFC’s primary targeting responsibility lies in integrating, synchronizing, and establishing the objectives component commanders will achieve throughout the operational environment with their forces (assigned, attached, and supporting). With the advice of subordinate component commanders, JFCs set priorities and provide clear targeting guidance. The JFC normally establishes a joint targeting coordination board (JTCCB), and may establish a joint fires element (JFE) and joint targeting working group (JTWG), directing their composition and specific responsibilities.

(1) **JTCB.** Targeting integration and coordination tasks are normally accomplished through the JFC-established JTCB or like body. To provide the appropriate level of experience and focus, the JFC normally appoints the deputy JFC, J-3, or a component commander to chair the JTCB. When a JTCB is not established and the JFC decides not to delegate targeting oversight authority to a deputy or subordinate commander, the JFC performs this task at the joint force headquarters, with the assistance of the J-3. The JFC ensures this is a joint effort involving applicable subordinate commands, other agencies, and multinational partners, as appropriate. If the JFC delegates authority for joint target planning, coordination, and deconfliction to a subordinate commander, that commander should possess or have access to a sufficient C2 infrastructure, adequate facilities, and joint planning expertise to effectively manage and lead the JFC's joint targeting operations. The JTCB typically reviews the joint integrated prioritized target list (JIPTL) for JFC approval. The JFC may use a JTWG to review targeting integration before the JTCB.

(2) **JFE.** The JFC may approve the formation of a JFE within the J-3. The JFE is an optional staff element comprised of representatives from the J-3; the components; liaisons; and other elements of the JFC's staff, to include the J-2 targeting staff, logistics directorate of a joint staff (J-4), plans directorate of a joint staff, and others as required. The JFE is an integrating staff element that synchronizes and coordinates planning and coordination on behalf of the JFC.

(3) **JTWG.** To assist in the coordination and integration throughout the joint targeting process, the JFC may approve the formation of a JTWG. The JTWG supports the JTCB by reviewing, as required, initial collection, consolidation, and prioritization of targets and synchronization of target planning and coordination on behalf of the JFC. The JTWG is an action officer-level venue, chaired by the JFE chief, J-2 (chief of targets), or similar representative. When the JFACC has been delegated targeting oversight authority, the JAOC targeting effects team (TET) may function as the JTWG.

d. The JFACC develops a JAOP that includes the objectives directed by the JFC. The JAOP also includes a strategy to task methodology that links the JFACC's operational objectives to tactical objectives to tactical tasks. **Integration, synchronization, deconfliction, allocation of air capabilities and forces, and matching appropriate weapons against target vulnerabilities are essential targeting functions for the JFACC.** National agencies; higher headquarters; JTFs; and task forces subordinate to the JFC, supporting unified commands, and functional/Service components may nominate targets to the JFC for processing and inclusion on the JIPTL through a target nomination list (TNL). **Targets scheduled for attack by component air capabilities and forces should be included on an ATO for deconfliction and coordination.** All component commanders within the joint force should have a basic understanding of each component's mission and general scheme of maneuver. All components should provide the JFACC a description of their air plan to minimize the risk of friendly fire incidents, assure deconfliction, avoid duplication of effort, and provide visibility to all friendly forces. This basic understanding allows for integration of targeting efforts between components and within the JFC staff and agencies.

For more information on the JTCB, JFE, JTWG, and TNL, see JP 3-60, Joint Targeting.

e. To enhance targeting integration, some CCMDs use an integrated ATO, which compiles air, space, and cyberspace taskings and may also include other component targeting actions. An integrated ATO does not change C2 authorities; rather, it enables integration, coordination, synchronization, and deconfliction between supporting components and CCMDs during execution.

5. The Targeting Effects Team

a. The TET is one of typically four functional teams of the CPD. While varied, the TET's responsibilities are essential to the targeting process. The TET validates targets to be engaged by joint air forces per the JFC's targeting guidance, links targets to appropriate tactical tasks in the AOD, weaponeers targets to create desired effects, and verifies MOEs/MOPs. It also deconflicts and coordinates target nominations based on estimates of what targets can be attacked and provides other targeting support requiring component input at the JFACC level. If the JFC delegates joint targeting coordination authority to the JFACC, the TET receives all target nominations that have not been addressed by other components, and prioritizes them in accordance with the objectives and tactical tasks set forth in the AOD to form the draft JIPTL.

b. Additionally, the TET provides the SD with apportionment recommendations based on a munitions expenditure/joint desired point of impact prosecution requirements calculation.

c. **Draft JIPTL Construction.** The draft JIPTL is formed from a prioritized listing of targets based on JFC and component target priorities. To be a true integrated target list, the TET presents the JFACC with a draft JIPTL that includes targets and associated desired effects for engagement by all available means. In the case of a theater JFACC supporting multiple JFCs (e.g., two or more JTF commanders), the draft JIPTL should be constructed to meet the requirements of each supported JFC. Members consider the estimated available capabilities and their ability to engage the targets on the list. A draft JIPTL "cut line" is normally established. The draft JIPTL "cut line" should reflect which nominated targets will most likely be serviced (barring technical problems with aircraft, weather, retasking for higher-priority targets, or other operational circumstances) with the projected apportionment of assets assigned or made available to the JFACC. Component liaison officers (LNOs) and JAOC staff members should be ready to justify and/or prioritize target nominations among all the priorities of the joint operation. **The JFACC may also recommend to the JFC that additional assets from other components be used against targets on the draft JIPTL.** However, only the JFC can approve the use of other components' assets and forces. Close coordination continues with the development of the JIPTL and with the development of the joint integrated prioritized collection list (JIPCL) to ensure effective and efficient use of assets that may be used to address targets on both the JIPTL and/or the JIPCL.

6. The Joint Air Tasking Cycle

a. The joint air tasking cycle provides for the effective and efficient employment of joint air capabilities and forces made available. This process provides an iterative, cyclic process for the planning, apportionment, allocation, coordination, and tasking of joint air missions and sorties within the guidance of the JFC. **The cycle accommodates changing tactical situations or JFC guidance, as well as requests for support from other component commanders.** The joint air tasking cycle is an analytical, systematic cycle that **focuses joint air efforts on accomplishing operational requirements.** Much of the day-to-day tasking cycle is conducted through an interrelated series of information exchanges and active involvement in plan development, target development, air execution, and assessment (through designated component LNOs and/or messages), which provide a means of requesting and scheduling joint air missions. **A timely ATO is critical**—other joint force components conduct their planning and operations based on a prompt, executable ATO and are dependent on its information. Figure III-11 shows typical JFACC air tasking process responsibilities.

b. **The joint air tasking cycle begins with the JFC's objectives, incorporates guidance received during JFC and component coordination, and culminates with assessment of previous actions.** The ATO articulates the 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 normally establishes a 72- to 96-hour ATO planning cycle. The battle rhythm or daily operations cycle (schedule of events) articulates briefings, meetings, and report requirements. It provides suspense for targeting, AIRSUPREQs, friendly order of battle updates, etc., to produce the air battle plan (ABP) that includes the ATO message and other products. The battle rhythm is essential to ensure information is available when and where required to provide products necessary for the synchronization of joint air operations with the JFC's CONOPS and supporting other components' operations. Nonetheless, air operations must be responsive to a dynamic operational environment and the joint air tasking cycle must be flexible and capable of modification during ATO execution. The net result of the tasking process is a series of ATOs and related products in various stages of progress at any time (see Figure III-12). The primary factor that drives the daily schedule for the development of the ATO is the battle rhythm. The battle rhythm is a detailed timeline that lists a series of briefings, meetings, etc., to produce specific products by a specified time to support decision making.

c. The full joint air tasking cycle, from JFC guidance to the start of ATO execution, is dependent on the JFC's and JFACC's procedures. A 72-hour cycle, starting with objectives, effects, and guidance, is fairly standard. The precise time frames should be specified in the JFC's OPLAN or the JFACC's JAOP. Long-range combat air assets positioned outside the theater but operating in the JOA may be airborne before ATO publication or execution. These assets require the most current ATO information and updates. The JAOC, however, possesses the capability to retask such missions even during execution. Intertheater air mobility missions may not necessarily operate within the established tasking cycle. The AMD is an AOC division that assists the CPD with intertheater and intratheater air mobility missions that should be integrated into the ATO.

Joint Force Air Component Commander Air Tasking Process Responsibilities

- Plan, integrate, coordinate, allocate, task, and direct the joint air effort in accordance with the joint force commander's (JFC's) guidance and joint force objectives.
- Develop a joint air operations plan derived from the JFC's broader operation or campaign objective and guidance regarding the objectives, effects, tasks, and responsibilities of joint air capabilities and forces.
- After consulting with other component commanders, recommend apportionment of the joint air effort by priority that should be devoted to various air operations for a given period of time.
- Translate air apportionment into allocations and develop targeting guidance into the air operations directive and air tasking order.
- Direct and ensure deconfliction of joint air operations.
- Synchronize joint air operations with space and cyberspace operations.
- Coordinate with the appropriate components' agencies or liaison elements for integration and deconfliction with land and maritime operations.
- Coordinate with the appropriate components' agencies or liaison elements for tasking of the air forces and capabilities made available.
- Coordinate with the joint force special operations component commander's special operations liaison element for integration, synchronization, and deconfliction with special operations.
- Monitor execution and redirect joint air operations as required.
- Compile component target requirements and prioritize targets based on JFC guidance, if delegated the responsibility.
- Accomplish tactical and operational assessment, and support higher-headquarters assessments.
- Establish a process for reporting of surface fire engagements, combat damage to air assets, and combat casualties from these events.

Figure III-11. Joint Force Air Component Commander Air Tasking Process Responsibilities

d. 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 to assist with overall coordination and deconfliction. The other component air missions that appear on the ATO may not be under the control of the JFACC, and the JFACC will coordinate changes with all affected components.

e. **Joint Air Tasking Cycle Stages.** The joint air tasking cycle consists of six stages (see Figure III-13). The joint air tasking cycle receives products from information developed during the joint targeting cycle and other joint force processes. Both the joint targeting cycle and joint air tasking cycle are systematic processes to match 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, built around finite time periods to plan, prepare for, and conduct joint air operations. There are set suspenses for

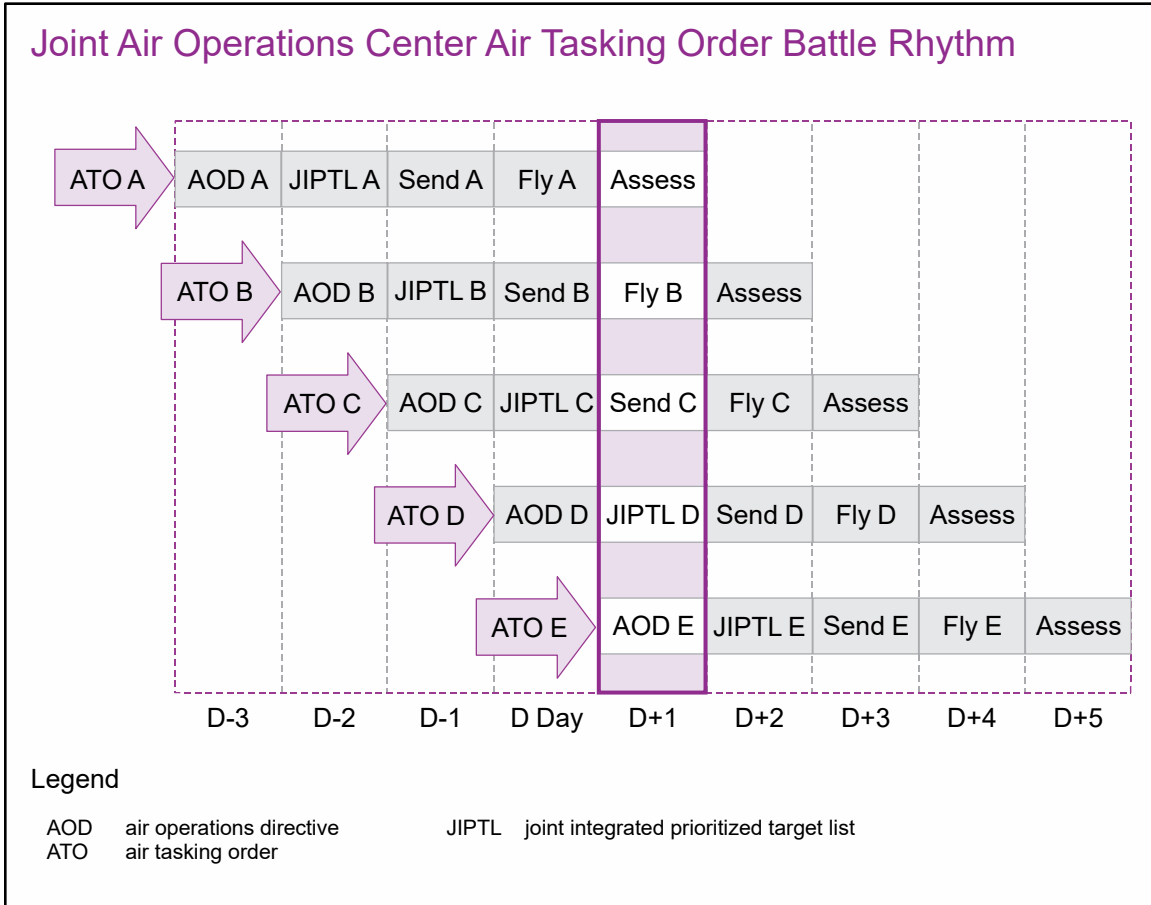


Figure III-12. Joint Air Operations Center Air Tasking Order Battle Rhythm

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 on joint air planning and apportionment for future operations** (The use of the term “meeting” is notional; other methods of information exchange can also be used). This meeting may review JFC objectives and guidance; assess and analyze results of joint force operations and consider changes to ongoing joint air operations; review adversary capabilities and COAs, COGs, decisive points, CVs, and key targets; and discuss updates to the JIPTL, based on JFC guidance. The JFACC should provide objectives and guidance to the staff for joint air operations to achieve the JFC’s objectives, recommend an air scheme of maneuver, review joint capabilities and forces available to execute assigned tasks, refine requirements for capabilities and forces from other components, and, in consultation with 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

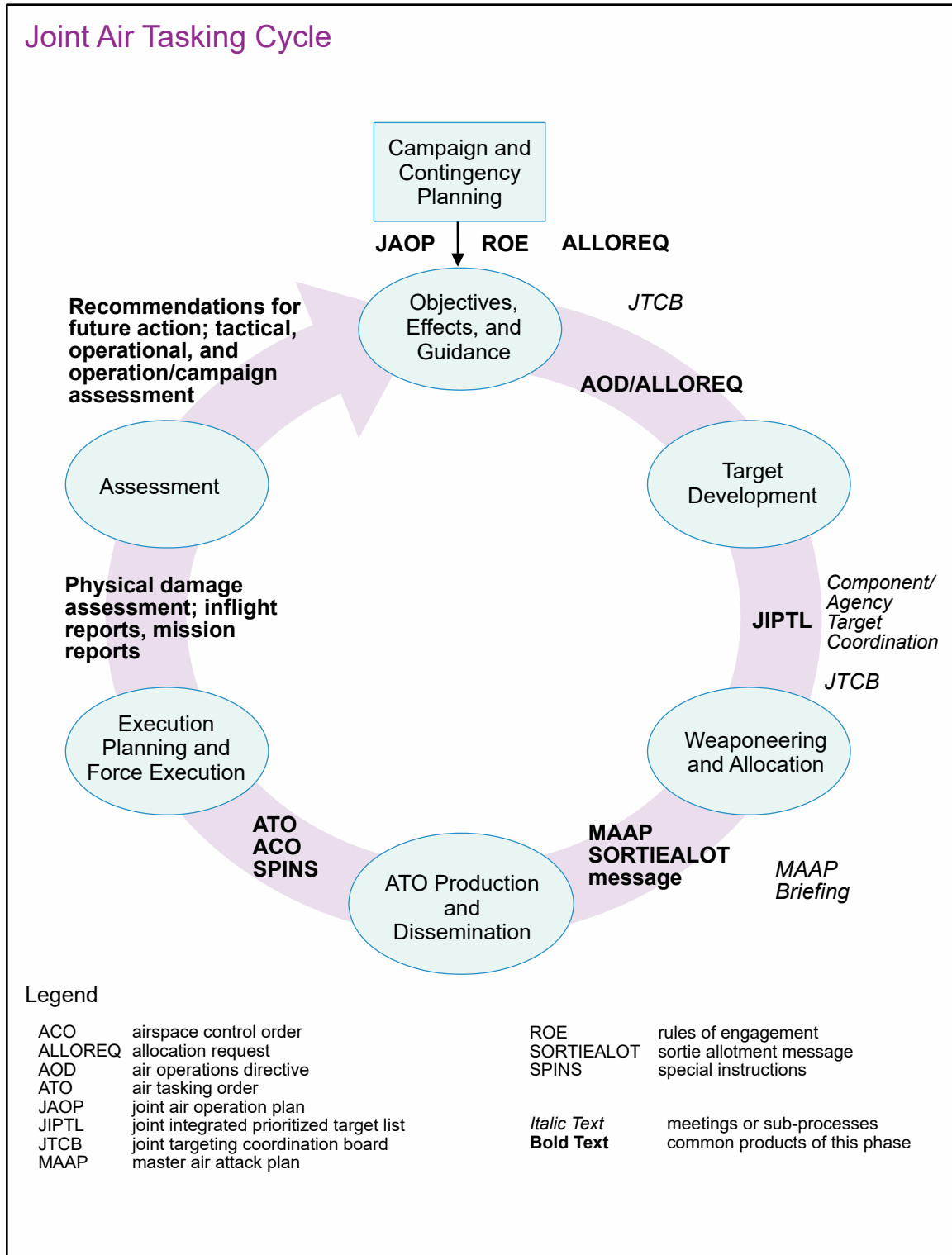


Figure III-13. Joint Air Tasking Cycle

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 enables the JFC to ensure the priority of the joint air effort is consistent with campaign or operation phases and objectives. Given the many functions joint air forces can perform, its operational area-wide application, and its ability to rapidly shift from one function to another, JFCs pay 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 SD formulates the air apportionment recommendation 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 JTCB for coordination and approval by the JFC. In the case of a theater JFACC supporting multiple JFCs (e.g., two or more JTF commanders), the air apportionment recommendation 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.** At this point in the joint targeting cycle and intelligence process, after analysts from other organizations have incorporated all-source intelligence reports into a targeting database, the joint air targeting cycle focuses on relating target development to air taskings, selecting target aimpoints, and submitting these and other data to the TET. The TET correlates target nominations to the tactical tasks in the AOD for that ABP period. It screens nominated targets, ensuring once attacked, they create the desired effects that meet JFC guidance as delineated in the AOD and verifies chosen MOEs will accurately evaluate progress and can be collected against. It prioritizes nominated targets based on the best potential for creation of 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 of the employment of all available means, to include air, maritime, land, space, cyberspace, and information-related activities, against prioritized targets to create desired lethal and nonlethal effects.** The JIPTL provides the basis for weaponeering assessment activities. All approved targets are weaponeered, to include recommended aimpoints, weapon systems and munitions, fusing, target identification and description, desired direct effects of target attack, probability of creating the desired effect, and collateral damage concerns. **The final prioritized targets are developed and are then provided to the master air attack plan (MAAP) team.** The TET may provide the MAAP team a draft JIPTL to begin initial planning. Once the JIPTL is approved by the JFC, the

MAAP team can finalize force allocation (sortie flow plan). The force application cell can complete coordination with the supporting force enhancement cell to satisfy mission requirements to ensure the prioritized targets are planned to produce effects to achieve objectives while maximizing the combat effectiveness of joint air assets. **The resulting MAAP is the plan for employment that forms the foundation of the ATO.** The MAAP is normally a graphic depiction of capabilities required for a given period. The development of the MAAP includes review of JFC and JFACC guidance, component plans and their AIRSUPREQs, updates to targets, availability of capabilities and forces, 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, and accounts for air refueling requirements, suppression of enemy air defenses requirements, air defense, ISR, and other factors affecting the plan.

(b) **Air Allocation.** Following the JFC's air apportionment decision, **the JFACC translates that decision into a 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 (normally not less than 36 hours prior to the start of the ATO execution period, thus coinciding with the beginning of the MAAP process). ALLOREQ messages report (from other components to the JFACC):

1. 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 normally direct what missions those assets are capable of conducting.

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

(c) **Allotment.** The sortie allotment message (SORTIEALOT) 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 back to the components as required, in accordance with established operations plans guideline. The SORTIEALOT addresses three basic requirements:

1. 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.

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

3. Revisions to mission data for component AIRSUPREQs.

(4) **Stage 4: ATO Production and Dissemination.** The ATO production team constructs, publishes, and disseminates the daily ATO and applicable SPINS to appropriate forces. The ATO production team disseminates the ATO. They develop and maintain a comprehensive address list of approved ATO recipients and coordinate redundant procedures for timely ATO dissemination and receipt. The air operations database (AODB) manager is an experienced ATO production technician who oversees the AODB update and change process. The AODB consists of the friendly order of battle that includes bases, units, aircraft, mission types, call signs, etc. 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 finalize the ATO, SPINS, and ACO. **Planners should develop airspace control and air defense instructions in sufficient detail for components to plan and execute all air missions listed in the ATO.** These directions should enable operations without undue restrictions, balancing combat effectiveness with the safe, orderly, and expeditious use of airspace. Instructions should provide for quick coordination of task assignment and reassignment (redirection, retargeting, or change of type of mission) and must direct aircraft identification and engagement procedures and ROE appropriate to the nature of the threat. These instructions should also 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 as required. 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 multi-component 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 the execution of 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 support of 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 only with the approval of the respective component commander or JFC. 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 during the execution of the ATO.** In-flight reports, discovery of time-sensitive targets (TSTs), and an initial assessment (such as battle damage assessment [BDA]) may cause a redirecting of joint air capabilities and forces before launch or a redirection once airborne.

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

Note: Care must be taken when redirecting sorties from one target to another to ensure the proper weapons and fuses are available for the new target.

(c) Due to the dynamic nature of joint operations, **the JFACC may be required to make changes to planned joint air operations during execution.** Employment of joint air assets against emerging targets requires efficient, timely information sharing and decision making among components. It is critical that procedures be established, coordinated and promulgated by the JFC 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 deconfliction of targets and to ensure those forces are out of danger relative to the new target area(s).

(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, that the JAOC be notified of all redirected missions.

(6) **Stage 6: Assessment. Assessment is performed by all levels of the joint force.**

(a) The JFC should establish a dynamic system to conduct assessment throughout the joint force and to ensure all components are contributing to the overall joint assessment effort. Normally, the joint force J-3 coordinates assessment, assisted by the J-2. Assessment is a continuous process that measures the overall effectiveness of employing joint force capabilities during operations. It determines progress toward accomplishment of tasks, creation of effects, and achievement of objectives. **The JFACC should continuously 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) Within the joint force, assessment of joint air operations is conducted at both the tactical and operational levels. At the tactical level, assessment is essential to ATO development and execution. It evaluates tactical tasks and their contribution to achieving tactical objectives. Air planners should determine MOPs to evaluate task accomplishment and MOEs to assess any changes in system behavior and/or capability or in 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 process. They should also ensure they identify intelligence collection management and other intelligence collection requirements as part of the planning process. The tactical assessment process continues over days and weeks to evaluate the effectiveness of weapons and tactical engagements as additional information and analysis become available from sources within and outside the operational area. This includes a determination and assessment of actual collateral damage.

(c) **At the operational level, assessment is concerned with gathering information on the broader objectives achieved by joint air operations and planning for future operations.** The assessment process at the tactical level provides one of the major sources of information for performing assessment at the operational level. Tactical inputs, along with a wide assortment of other information, aid in the development of the air component's operational-level assessment. Just as with tactical assessments, it is imperative planners determine useful MOPs and MOEs at the operational level and ensure there are logical links between operational air objectives and tasks. The operational-level assessment is then used to recommend changes to JFACC strategy and guidance, develop or recommend changes to measures and indicators, determine additional assessment information requirements, and assess the overall effectiveness of operations to achieve JFACC and JFC operational objectives and attain end state conditions.

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

(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 aiding processes throughout that cycle.

SECTION B. OTHER CONSIDERATIONS

7. Intelligence, Surveillance, and Reconnaissance Considerations

a. The GCC J-2 may retain collection management authority (CMA) to establish, prioritize, and validate theater collection requirements; establish sensor tasking guidance; and develop theater-wide collection policies. CMA may reside at the JTF level or may be delegated to components. The J-2 retains full CMA (i.e., to validate, to modify, or to nonconcur) over all intelligence collection requirements within the AOR. The J-2 and J-3 jointly develop an overall collection strategy and posture for ISR. The J-2 reviews, validates, and prioritizes all intelligence requirements for the JFC. Users requesting airborne ISR support should make a concerted effort to request a clear identification of their required information or ISR product and not a specific ISR platform to perform a mission. For example, many different aircraft can provide imagery and data. Depending on the request, there might be more than one type of asset available to support a mission. Airborne ISR aircraft are typically high-demand assets due to mission duration, with the ability to quickly respond to TST requests and support multiple users. Retasking an airborne ISR asset during mission execution requires careful consideration. Dynamic retasking of ISR assets should be done by the appropriate commander after evaluating the full impacts of diverting the capability from the current mission and the impact to operational success or consequences without the asset. Dynamic ISR retasking priorities and procedures must be clearly specified in the ROE and SPINS.

b. **The JFACC will normally be the supported commander for the airborne ISR effort.** The JFC will normally delegate collection operations management for joint airborne ISR to the JFACC to authoritatively direct, schedule, and control collection operations for use by the J-2 in associated processing, exploitation, and reporting. The JAOC should request ISR support from the JFC or another component if available assets cannot fulfill specific airborne ISR requirements. It is imperative the JFACC remains aware of all surveillance and reconnaissance capabilities that can be integrated into joint air operations. ISRD collection managers build a daily collection plan, the reconnaissance, surveillance, and target acquisition annex, as a commonly understood plan which tasks airborne ISR platforms sensors and PED nodes. This product is an annex to the ATO and is available to the entire joint force. It is completed by ISR personnel in the MAAP.

c. National and non-DOD ISR resources are not normally placed under OPCON of the JFC. These resources may provide direct support to the JFC or one of the components, either full-time or on-call, but are normally shared with other commands or components. The supported commander will be provided with liaison teams upon request. These teams will normally be the points of contact for coordinating their specific ISR resources and associated capabilities with the supported commander's ISR operators. ISR operators forward the requirements to the appropriate command authority for approval.

d. ISR personnel are integrated into the JAOC. The complexity of integrating airborne ISR will normally determine whether the function is handled by a specialty team, cell, or division within the JAOC. The JFACC's ISR collection managers and operations planners will work with the joint force staff and other components to effectively coordinate national and theater ISR objectives. The ISR collection elements will manage and satisfy the JFACC's information requirements.

e. The JFACC provides integrated airborne ISR for the JFC. The JAOC provides the force integrated information from the JFACC's available airborne ISR support.

See JP 2-01, Joint and National Intelligence Support to Military Operations, for further information.

f. ISR systems undergoing the acquisition and research and development process, particularly the advanced concept technology demonstration phase, are normally requested through military development organizations and involve the applicable contractor. In such cases, the contractor is often requested to provide technical representatives in the JAOC and/or at the national or theater intelligence agency.

8. Air Mobility Considerations

a. Air mobility missions are integral to the success of joint operations. **Both airlift and air refueling are critical for deployment, air operations, airdrop, AE, sustainment, and redeployment.** Commander, USTRANSCOM, normally retains OPCON of intertheater air mobility assets due to their global mission and nature. A support relationship is typically established between Commander, USTRANSCOM, and other CCDRs. Intratheater airlift and theater refueling assets may be attached to a joint force,

with OPCON normally delegated down to the appropriate Service component commander (usually the COMAFFOR). Integrating air mobility planning into the JAOP and monitoring mission execution is normally the responsibility of the AMD chief supported by a team of mobility specialists in the JAOC.

b. The DIRMOBFOR is normally a senior officer who is familiar with the AOR and possesses an extensive background in air mobility operations. The DIRMOBFOR may be sourced from the theater's organizations or from USTRANSCOM. Operationally, the DIRMOBFOR exercises coordinating authority for air mobility with commands and agencies within and external to the joint force for USTRANSCOM supporting missions. Specifically, the DIRMOBFOR coordinates with the Air Force forces staff, JAOC director, 618 AOC (TACC), and joint movement center (JMC)/joint deployment and distribution operations center (JDDOC) to expedite the resolution of air mobility issues. The DIRMOBFOR may also be supported by an Air Mobility Command LNO who collaborates with the DIRMOBFOR and AMD chief on USTRANSCOM-tasked movements. Additionally, the DIRMOBFOR, when designated, advises the JFACC and JAOC director, and assists the AMD chief, to ensure the effective integration of intertheater and intratheater air mobility operations. While the DIRMOBFOR should be collocated with the AMD to maximize effectiveness, the JAOC AMD remains under control of the JAOC director who manages execution of air mobility operations for the JFACC through the AMD chief.

c. **The DIRMOBFOR also has distinct responsibilities in relation to JFC staffs.** Air mobility requirements do not originate in the JAOC. They originate at the component level and are validated by either the JDDOC, the theater JMC (when established), or by the GCC's J-3 in coordination with the J-4. This may vary slightly in different theaters. Consequently, **an essential role for the DIRMOBFOR is to serve as the principal interface between the JAOC, the theater's J-4, and the JMC/JDDOC** to ensure appropriate prioritization of air mobility tasks while balancing requirements and air mobility capability.

d. When a joint force is formed, command relationships for air mobility forces will be established in accordance with the *Unified Command Plan* and the global force management process. Command of these forces will be as established by the JFC and normally exercised through the COMAFFOR and/or JFACC with the advice and assistance of the DIRMOBFOR. The JAOC director is charged with the effectiveness of joint air operations and focuses on planning, coordinating, allocating, tasking, executing, and assessing air operations in the operational area based on JFACC guidance and DIRMOBFOR coordination. While the JAOC director provides direction to all AOC divisions, to include the AMD, the DIRMOBFOR coordinates directly with the AMD to focus on the integration of USTRANSCOM forces to meet JFACC guidance, requirements, and prioritization as published in the AOD.

For more detailed information, see JP 3-17, Air Mobility Operations.

9. Unmanned Aircraft Systems Considerations

a. Friendly UAS Operations

(1) **General Considerations.** UAS technology can provide commanders with critical capabilities to enhance their situational awareness to make informed decisions, protect forces, reduce collateral damage, and achieve objectives. For planning and execution, **UASs should be treated similarly to manned systems with regard to the established doctrinal warfighting principles.** Like manned aircraft, the operation of a UAS should adhere to the guidance contained in this and other joint and multi-Service publications. While the JFC retains the authority to determine the use and control of UAS forces, there are some unique issues for planners and commanders to consider when employing these systems.

Note: Because of the wide range in UASs' size and operating characteristics, it is helpful to address them by categories, based primarily on weight and flight characteristics (see Figure III-14). The Air Force refers to its Groups 4 and 5 UASs as remotely piloted aircraft to differentiate its operators who have been trained to similar standards as manned aircraft pilots.

(2) **Unique Characteristics Associated with C2 of UASs.** While the C2 processes for UASs are similar to those for manned assets, **several characteristics of UASs can make C2 particularly challenging.**

(a) UAS communication links are generally more critical than those required for manned systems. Although UASs can be programmed to return to base upon loss of communication, they rely on a nearly continuous stream of communications (for both flight control and payload) to successfully complete a mission. Therefore, coordinated spectrum management and **communications security, specifically emission security** (from both friendly interference and adversary action), **is imperative.**

(b) UASs may be capable of transferring control of the aircraft and/or payloads to multiple operators while airborne. Clear transfer of authority and close coordination amongst all potential operators and supporting units is required.

(c) Most larger UASs have **considerably longer endurance times** than comparable manned systems. This may allow these UASs to be used to support multiple taskings during a single mission. Planners should exploit this capability, if available, when tasking UAS assets.

(d) Compliance with the ACO is critical. Unlike manned aircraft, UASs cannot typically "see and avoid" other aircraft. Additionally, UASs generally have small radar and visual signatures and may not have identification, friend or foe capability. Both positive and procedural airspace control procedures will likely be required for UAS control and deconfliction.

Unmanned Aircraft Systems Categorization Chart

UA Category	Maximum Gross Takeoff Weight (lbs)	Normal Operating Altitude (ft)	Speed (KIAS)	Representative UAS
Group 1	0-20	< 1200 AGL	100 kts	WASP III, TACMAV RQ-14A/B, Buster, Nighthawk, RQ-11B, FPASS, RQ16A, Pointer, Aqua/Terra Puma
Group 2	21-55	< 3500 AGL	< 250	ScanEagle, Silver Fox, Aerosonde
Group 3	< 1320	< 18,000 MSL	< 250	RQ-7B Shadow, RQ-15 Neptune, XPV-1 Tern, XPV-2 Mako
Group 4	> 1320		Any Airspeed	MQ-5B Hunter, MQ-8B Fire Scout, MQ-1C Gray Eagle, MQ-1A/B/C Predator
Group 5	> 1320	> 18,000 MSL	Any Airspeed	MQ-9 Reaper, RQ-4 Global Hawk, RQ-4N Triton

Legend

AGL	above ground level	lbs	pounds
FPASS	force protection aerial surveillance system	MSL	mean sea level
ft	feet	TACMAV	tactical micro air vehicle
KIAS	knots indicated airspeed	UA	unmanned aircraft
kts	knots	UAS	unmanned aircraft system

Figure III-14. Unmanned Aircraft Systems Categorization Chart

(e) A supporting UAS LNO/subject matter expert can facilitate the flow of information between UAS operators and the supported unit to ensure the supported unit understands UAS capabilities and limitations.

(f) Many UASs are sensitive to and impacted by adverse weather conditions, such as thunderstorms, strong winds, precipitation, and icing, which will limit their employment. Depending on the type of UAS and mission being conducted, planners and operators may have to consider the weather in four separate and widely dispersed locations (satellite relay, launch and recovery base, transit route[s], and anticipated target location). Weather considerations should also include space environmental monitoring, as solar activity may adversely affect satellite communications.

(g) Some larger UASs may be employed using remote split operations (RSO). RSO refers to the geographical separation of the launch and recovery crew from the mission crew who employ the aircraft at a location other than where the aircraft is based. Advantages of this construct are typically reduced forward footprint, more rapid deployment, and potential flexibility in asset allocation between other JOAs. However, this construct also presents unique C2 challenges. Command relationships and tasking and support authorities must be clearly articulated and understood by all participating forces.

(3) **Mission Planning Considerations.** Current doctrinal planning considerations for manned aircraft are generally applicable to UASs.

(a) **Allocation of UASs in Joint Operations.** The JFC process for allocating UAS assets to the JFACC will be the same as the manned aircraft allocation decision process. Transferring C2 of UASs within a Service or functional component can be accomplished through Service or functional command structures.

(b) **C2 of Theater-Capable UASs.** Theater-capable UASs can range the theater of operations and support multiple users. They can be used to support the JFC (UASs made available by component commanders), a component commander's operations (organic UASs), other component commanders, or potentially GCC's in adjacent AORs. As these low-density assets can be in high demand, the JFC and JFACC should carefully consider apportionment and allocation decisions. The JFC should ensure the JFACC has the assets needed to execute JFC-assigned, JOA-wide operations, while attempting to meet the organic needs of the other component commanders. As with any joint-capable asset, the JFC retains the authority to use any UAS asset to meet the needs of the JFC mission. How theater-capable UAS operations are managed and planned will vary based on the type and phase of an operation.

(c) **Flight Planning.** All UA flights, regardless of the size of the UA, the mission profile, or the flight location, should follow approved planning, guidance, and procedures as prescribed in the AOD, ACO, ATO, and SPINS, as applicable. Typically, it is not necessary to include Groups 1-2 UASs on the ATO **unless their planned operating altitudes could cause a conflict with other airborne operations.** All other UASs (Groups 3-5) should be included in the ACO, ATO, and SPINS. The ACA may establish specific flight routes, altitudes, and coordination measures to deconflict UAS operations. These should be published in the ACO.

(d) **UAS Emergency Planning.** The unique requirements of UAS data links require detailed planning for lost link and emergency recoveries. UAS emergency procedures may be more complicated than those of manned platforms. Detailed planning for lost link; lost positioning, navigation, and timing (PNT) self-awareness (typically due to Global Positioning System [GPS] signal interference); and other emergency procedures and recoveries are required due to the dependence on PNT information and the control data link. Planned lost link and emergency profiles must be safe and consistent with all airspace requirements, follow ACO guidance, and deconflict with other airspace users. Emergency planning must also consider the possible recovery of UA, potentially armed, into an

emergency divert base. The divert base must incorporate a compatible launch and recovery element to ensure safe UA recovery.

(4) **Employment Considerations.** Effective UAS employment requires an in-depth knowledge of, and compliance with, theater SPINS, ROE, ACP, ACO, and ATO, as well as UAS capabilities and limitations.

(a) **Tasking UASs**

1. For UASs made available to the JFACC for tasking, units requesting support should not request a specific UAS asset. Requests should follow standard theater request procedures for either ISR (see paragraph 7, “Intelligence, Surveillance, and Reconnaissance Considerations”), strike, or direct support missions (e.g., CAS, armed overwatch) with the desired effect. Depending on the desired effect, there may be more than one type of manned or unmanned asset available to support a particular requirement. Requests are generally categorized as preplanned or dynamic.

a. **Preplanned.** Requests for support of a preplanned mission should be requested using the forms and procedures established for the theater, such as Department of Defense Form 1972, *Joint Tactical Air Strike Request*, or the *Air Support Request*. Requests should attempt to be made in accordance with standard ATO tasking cycle timelines. Requests made inside the ATO cycle may still be accommodated but require close coordination with JAOC planning staffs.

b. **Dynamic.** Dynamic requests entail redirecting UASs from an existing mission to a new mission based on published priorities and criteria. Historically, reasons for retasking include troops in contact, high-priority target opportunities, and PR. Procedures and decisions for dynamic retasking of UAS assets in-flight to meet an immediate support request are governed by the plan/order, ROE, and/or SPINS.

2. **Retasking a preplanned UAS mission** must be carefully considered. Dynamic retasking of a UAS should be done by the governing C2 agency and only after evaluating the full impact of diverting the capability from the current mission and the impact to operational success or consequences without the asset. Issues such as JFC priorities, transit time, and required PED must be considered and coordinated when dynamically retasking UASs.

(b) **UAS C2 for Dynamic Targeting.** Recent operations have demonstrated that UASs can be highly effective for dynamic targeting missions prosecuting targets of opportunity (unscheduled, unanticipated). UAS controlling agencies should follow established procedures for executing dynamic targeting operations. Specific tasks for the UASs may include target acquisition/marketing, terminal guidance of ordnance, providing precision coordinates for GPS-aided munitions, delivery of onboard precision-guided ordnance, tactical assessment, BDA, and retargeting (i.e., “shoot-look-shoot”). In the dynamic targeting role, UASs are routed, controlled, and deconflicted in the same manner as tiltrotor, fixed-wing, and rotary-winged manned aircraft, as outlined in joint doctrine.

b. **Counter-UAS.** Adversaries are also developing and acquiring UASs, with the same capabilities and missions described above. Planners must consider the capabilities and processes to counter adversary UASs and incorporate them into counterair and air defense planning.

(1) Larger adversary UASs (Groups 4 and 5) can generally be countered with existing counterair capabilities. It is generally the low, slow, and smaller UASs (Groups 1, 2, and some 3) that pose a challenge to detect, track, identify, and engage. New capabilities are being developed to counter these systems and must be considered and integrated into the overall counterair planning and JOA integrated air defense system.

(2) **It is imperative C2 and DCA nodes are able to identify enemy small UA, some of which may be similar or identical to friendly UAs.** Complicating this is the increasing use of small UAs by other government agencies and/or by private or commercial entities. Friendly UAS operators must follow prescribed airspace control and air defense identification procedures closely to help prevent friendly fire incidents. Adversaries may attempt to exploit airspace “gaps,” so these should be kept to a minimum when developing ACPs. Positive control of airspace is generally most effective for airspace control and air defense, but many smaller UASs are not capable of positive control. The use of coordinating altitudes and other coordinating measures should be employed for efficient and timely use of the airspace, and to aid air defense operators differentiate between friend and foe UA.

For further details on counter-UAS procedures, refer to JP 3-01, Countering Air and Missile Threats.

10. Personnel Recovery Considerations

Since PR often relies on air assets to accomplish some of the PR execution tasks, coordination between the joint personnel recovery center (JPRC) and JAOC is essential. The JPRC provides the information that goes into the PR portion of the ATO SPINS. The JFACC should ensure the ATO includes air assets sufficient to accomplish PR tasks. Deconfliction of PR missions from other air missions is accomplished through the ATO. If the JPRC is not collocated and integrated into the JAOC, it is essential the JPRC director establish a liaison element within the JAOC to facilitate tasking of dedicated PR assets in the ATO, coordinate tasking or redirection of air assets to support PR mission execution, monitor ATO and PR mission execution, coordinate changes to PR information in the ATO SPINS, assess the effectiveness of PR, and recommend changes to JFC/JFACC guidance for PR. Service components should establish a personnel recovery coordination cell (PRCC)/rescue coordination team (RCT) to coordinate all component PR activities. When the JFACC is the supported commander for PR, the PRCC/RCT and associated communications structure may be collocated and form the nucleus of the JPRC. In this case, the PRCC/RCT, when augmented by other members of the joint force, is normally designated as the JPRC and the JPRC director is tasked with coordinating all PR joint activities. Coordination of PR missions, employing JFACC assets, requires integration with the J-3 and COD. The details for PR can usually be found in annex C (Operations), appendix 5 (Personnel Recovery) of the JAOP.

For additional information on joint PR, see JP 3-50, Personnel Recovery.

11. Chemical, Biological, Radiological, and Nuclear Environments

CBRN hazards (from any source) have the potential to affect air operations planning, C2, and mission execution. Planning should identify, assess, and estimate the adversary's CBRN capabilities, intentions, and most likely COAs and provide recommendations to senior commanders to protect against, counter, and/or mitigate their effects. Options for generating and executing missions in a CBRN environment, including airspace control issues, must be assessed. Intelligence collection missions may more likely encounter CBRN hazards and, in some cases, their objective will be to locate and characterize CBRN threats and hazards. As such, taskings should consider specific platform CBRN contamination avoidance or CBRN hazard survivability capabilities/limitations.

For more detailed information on operations in a CBRN environment, see JP 3-11, Operations in Chemical, Biological, Radiological, and Nuclear Environments.

12. Operations Near International Borders

Near border operations are particularly difficult because the violation of a border could complicate an operation. Near border operations require close coordination between the ACA, AADC, Service component commanders, CCDR, US Department of State, multinational partners, and other organizations as necessary. Staffs, including public affairs and the staff judge advocate, must be prepared to deal effectively with the anticipated and unanticipated outcomes of near border operations.

13. Command and Control of Space Forces

a. Commander, United States Strategic Command (CDRUSSTRATCOM), exercises combatant command (command authority) over assigned space forces and assets to ensure availability of space capabilities to the joint warfighter. CDRUSSTRATCOM typically delegates TACON of assigned space units to the USSTRATCOM Joint Force Space Component Commander. CDRUSSTRATCOM provides general and direct support to other JFCs. Supported commanders identify priorities to ensure there is clear guidance on the supported commander's intent, integrate space capabilities into planning and operations, and consider the impact if space capabilities are unavailable. GCCs may designate a SCA and delegate appropriate authorities for planning and integrating space requirements and support for the theater.

b. USSTRATCOM provides direct and general support to CCMDs for space operations. However, a GCC may require OPCON or TACON of specified space forces for an operation, based on the situation or mission. In this case, forces may be transferred with the specification of OPCON and/or TACON as appropriate, to the GCC (with Secretary of Defense approval), depending on the ability of the GCC to C2 space operations, as well as other factors like the nature and duration of the operation and the degree of integration (particularly timing and tempo) with non-space assets that is required.

For more information on the C2 of space forces, see JP 3-14, Space Operations.

14. Integration of Cyberspace Operations and Considerations

a. Commander, United States Cyber Command (CDRUSCYBERCOM), integrates, synchronizes, and conducts day-to-day global CO. Typically, CO require coordination between theater and global operations, creating a dynamic C2 environment. CO are integrated and synchronized by the supported commander into their CONOPS, detailed plans and orders, and specific joint offensive and defensive operations. The GCCs are generally the supported commander for CO conducted in support of operations in their AORs. However, functional CCMDs with a global responsibility are also supported. Similarly, CDRUSCYBERCOM is generally the supported commander at the global or transregional (across AOR boundaries) level and will provide global synchronization of CO planning and execution.

b. Like operations in the physical domains, CO create offensive and defensive effects that can enable the air component to achieve strategic, operational, and tactical objectives. Because CO can produce effects within or across AORs, integrating CO in the air component scheme of maneuver requires coordination and synchronization with multiple entities, which may include the JFC's CO planning staff, the associated cyberspace operations-integrated planning element (CO-IPE), a CO JTF, or other planning and operational components associated with the Cyber Mission Force C2 structure. To effectively synchronize with other CO elements, the JAOC should have representative offensive and defensive cyberspace expertise in the strategy, combat plans, combat operations, and ISR divisions. Additionally, the JFACC should consider including personnel with CO experience in JACCes at theater and other component headquarters.

For more information on the C2 of cyberspace forces, see JP 3-12, Cyberspace Operations.

15. Air Operations in Maritime Surface Warfare

Air operations in maritime surface warfare are missions involving air assets conducting maritime surface warfare. Seamless integration of joint air assets conducting maritime surface warfare enables effective joint and multinational air participation to plan and execute five specific missions: surface surveillance coordination, armed reconnaissance/strike coordination and reconnaissance, war-at-sea strike, counter fast attack craft/fast inshore attack craft, and airborne maritime mining.

For more information, refer to ATP 3-04.18/MCRP 3-25J/NTTP 3-20.8/AFTTP 3-2.74, Multi-Service Tactics, Techniques, and Procedures for Air Operations in Maritime Surface Warfare.

APPENDIX A

SAMPLE MISSION STATEMENT AND COMMANDER'S INTENT

The initiation or mission analysis stages of JPPA should produce a mission statement and a statement of the commander's intent, both approved by the JFACC.

1. Sample Mission Statement

When directed, JFACC-West conducts joint air operations in the Pacific region to protect the deployment of the joint force and to deter aggression. Should deterrence fail, JFACC-West, on order, gains air superiority to enable multinational military operations within the operational area. Concurrently, JFACC-West supports JFLCC-West to prevent seizure of NV Pacifica mineral fields. On order, JFACC-West shapes the operational environment for a joint counteroffensive, supports JFMCC-West for maritime superiority and JFLCC-West for ground offensive operations, degrades conventional military power, and destroys WMD long/medium delivery capability to defeat the military forces in the region.”

2. Sample Statement of Commander's Intent:

a. **Purpose.** The purpose of the joint air operation is to deter aggression. Should deterrence fail, I will gain and maintain air superiority, conduct joint offensive air operations, and support the JFLCC counteroffensive to restore the territorial integrity and ensure the establishment of a legitimate government in a stable Pacifica region.

b. **Military End-State.** At the end of this operation:

(1) Enemy military forces will be capable of limited defensive operations, have ceased offensive combat operations, and complied with multinational war termination conditions.

(2) Enemy will retain no WMD capability.

(3) Allied territorial integrity will be restored.

(4) JFACC-West will have passed ATC to local authorities.

(5) JFACC-West will have been disestablished.

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APPENDIX B JOINT AIR ESTIMATE OF THE SITUATION TEMPLATE

1. Introduction

The JFACC's estimate of the situation is often produced as the culmination of the air COA development and selection stages of JPPA. It can be submitted in response to or in support of creation of a JFC's estimate of the situation. It should also be used to assist in creation of the JAOP and daily AODs (as required). It reflects the JFACC's analysis of the various air COAs that may be used to accomplish the assigned mission(s) and contains the recommendation for the best air COA. The estimate may contain as much supporting detail as needed to assist further plan development, but if the air estimate is submitted to the JFC or CCDR for a COA decision, it will generally be submitted in greatly abbreviated format, providing only the information essential to the JFC for arriving at a decision. The following is an example of a joint air estimate. Use of the format is desirable, but not mandatory and may be abbreviated or elaborated where appropriate. It is often published in message format.

For additional information on commander's estimates, see Chairman of the Joint Chiefs of Staff Manual (CJCSM) 3130.03, Adaptive Planning and Execution (APEX) Planning Guidance and Formats.

2. Joint Air Estimate of the Situation Template

a. **Mission.** State the assigned or deduced mission and its purpose.

(1) JFC's mission statement (from the JFC's estimate) or other overarching guidance if the latter is unavailable.

(2) JFACC's mission statement. Include additional language indicating how overarching guidance will be supported, as required.

b. **Situation and COAs**

(1) Commanders' Intent:

(a) JFC's intent statement, if available (or other overarching guidance stipulating the end state, as required).

(b) JFACC's intent statement (see Appendix A, "Sample Mission Statement and Commander's Intent").

(2) Objectives. Explicitly state air component objectives and the effects required to support their achievement. Include as much detail as required to ensure each objective is clear, decisive, achievable, and measurable.

(3) Summary of the Results of JIPOE. Include a brief summary of the major factors pertaining to the characteristics of the operating environment and the relative capabilities of all actors within it that may have a significant impact on alternative air COAs.

(4) Adversary Capability. Highlight, if applicable, the adversary capabilities and psychological characteristics that can seriously affect the accomplishment of the mission, giving information that would be useful in evaluating the various air COAs. This section should describe, at a minimum, the enemy's most likely and most dangerous potential COAs.

(5) Force Protection Requirements. Describe potential threats to friendly forces, including such things as the threat of terrorist action prior to, during, and after the mission that can significantly affect accomplishment of the mission.

(6) Own COAs. List air COAs that offer suitable, feasible, and acceptable means of accomplishing the mission. If specific air COAs were prescribed in the warning order, they must be included. For each air COA, the following specific information should be addressed:

(a) Combat Forces Required. List capabilities needed, and, if applicable, specific units or platforms. For each, list the following, if known:

1. Force provider.
2. Destination.
3. Required delivery date(s).
4. Coordinated deployment estimate.
5. Employment estimate.
6. Strategic lift requirements, if appropriate.

(b) ISR Capabilities Required. List capabilities needed, and, if applicable, specific units or capabilities.

(c) PR Capabilities Required. List capabilities needed, and, if applicable, specific units or organizational capabilities.

(d) Support Forces Required. List capabilities needed, and, if applicable, specific units or capabilities.

c. **Analysis of Opposing COAs.** Highlight adversary capabilities and intent (where known) that may have significant impact on friendly COAs.

d. **Comparison of Own COAs.** For submission to the JFC, include only the final statement of conclusions and provide a brief rationale for the favored air COA. Discuss the relative advantages and disadvantages of the alternative air COAs if this **will assist the JFC in arriving at a decision.**

e. **Recommended COA.** State the JFACC's recommended COA.

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APPENDIX C JOINT AIR OPERATIONS PLAN TEMPLATE

The JAOP format generally follows the same format as the JFC's OPLAN, detailing air operations support to that OPLAN. Each air operations plan will differ with the JOA, situation, and capabilities of the joint force. A sample template follows:

Copy No.
Issuing Headquarters
Place of Issue
Date/Time Group of Signature

JOINT AIR OPERATIONS PLAN: (Number or Code Name)

REFERENCES: Relevant documents, maps, and charts. This should generally include CJCSM 3130.03, *Planning and Execution Planning Formats and Guidance*.

1. SITUATION

Briefly describe the situation that the plan addresses (see the JFC's estimate and the following template as a guide). Related OPLAN(s) should be identified, as appropriate.

a. **General Guidance.** Summarize the operational environment and overall JFC mission, guidance, intent, prioritized effects, operational limitations, and specified tasks for the JFACC and established support relationships among components that are relevant to that guidance.

b. **Area of Concern.** Description of and applicable boundaries of the operational area(s), area(s) of interest, etc. Include maps as appropriate.

c. **Deterrent Options.** Describe air operations role in these JFC options, if applicable.

d. **Enemy Forces.** Overview of the hostile threat, to include:

(1) Composition, location, disposition, and movement of major enemy forces and capabilities that can influence action in the operational environment.

(2) Enemy strategic concept (if known): should include enemy's perception of friendly vulnerabilities and enemy's intention regarding those vulnerabilities.

(3) Major enemy objectives (strategic and operational).

(4) Enemy commanders' motivations, thought patterns, idiosyncrasies, and doctrinal patterns (to the extent known).

(5) Operational and sustained capabilities (all relevant enemy forces, not just air and counterair).

(6) Enemy COGs and decisive points.

(a) Analysis of critical capabilities (CCs), critical requirements (CRs), and critical vulnerabilities (CVs) for each.

(b) Description using LOOs and LOEs, if appropriate.

e. **Friendly Forces.** Overview of friendly (US and multinational partner), to include:

(1) Forces available according to TPFDD considerations.

(2) Forces required, based on employment CONOPS. Highlight shortfalls.

(3) Intent of higher, adjacent, and supporting US and multinational forces and commands.

(4) Friendly COGs.

(a) Analysis of CCs, CRs, and CVs.

(b) Steps to be taken to protect friendly CVs.

f. **Assumptions.** List, as required.

g. **Legal Considerations.** List those of critical importance to operations, such as legal restrictions and guidance on targeting. Refer to annexes, as required.

2. MISSION

JFACC's Mission Statement

3. EXECUTION

a. **CONOPS for Joint Air Operations.** A statement of the JFACC's intent, objectives, desired effects, and broad employment concepts, to include LOOs and LOEs for the desired end state. Phase plans for each phase of the operation.

(1) Operational concept for the phase, including objectives (ongoing and specific to the phase), intent, desired effects, risk, LOOs, LOEs, plan of operations, timing, and duration.

(2) General guidance for subordinate units and component's supported and supporting requirements. Ensure all subordinates' missions are complementary.

(3) Forces or capabilities required by objective.

(4) “Be prepared to” missions; phase branches.

(5) Reserve capabilities and/or forces, if applicable—reserve in this sense meaning capabilities held in operational reserve, not Reserve Component elements of the joint force.

(6) Mobility considerations, such as transportation, lines of communications, overflight, and basing, that are unique to the phase of the operation.

(7) Information-related activities that contribute to military deception, military information support operations, and operations security, that are unique to the phase of the operation.

(8) CO considerations, such as DOD information network operations, offensive CO, and defensive CO, that are unique to the phase.

b. **Tasks.** State the component’s supporting and supported requirements for the operation in general. Include implied tasks and guidance to subordinates that are not specific to a given phase of the operation.

c. **Coordinating Instructions.** Explain the operational terms required for complete understanding of the operation.

d. **Exchange of LNOs.** Explain and direct any liaison requirements here, including the role of the JACCE.

4. ADMINISTRATION AND LOGISTICS

a. **Concept of Sustainment.** A broad statement of the functional areas of logistics, transportation, personnel policies, and administration, if required.

b. **Logistics.** Broad sustainment concept for air operations. Phase considerations (synchronized with execution phases—may not be required if already explained in phase plans).

(1) Basing and Overflight. Explain any unique clearance and buildup requirements in this section, if not already explained in phase plans.

(2) Lines of Communications. Explain any requirements relevant to the operation.

(3) Base Opening and Development. Explain any general base opening requirements for the operation. Information may also be included in phase plans.

(4) Maintenance and Modification. Use as required.

(5) Host-Nation Considerations. Explain any unique requirements for the operation.

(6) Reconstitution of Forces. Use as required.

(7) Inter-Service, Interagency, and Inter-Component Requirements. Use as required.

(8) Foreign Military Assistance. Use as required.

(9) Operational Contract Support. Identify known, required capabilities being satisfied through contracted support.

c. **Personnel.** Use as required.

d. **Public Affairs.** Identify key public affairs requirements necessitated by major event (may also be identified in phase plans).

e. **Civil Affairs.** Use as required.

f. **Meteorological and Oceanographic.** Explain factors like climate and terrain, and how they will likely affect air operations.

g. **Geospatial Information.** Explain common geospatial reference system requirements and plans here.

h. **Medical Services.** Use as required.

5. COMMAND AND CONTROL

a. **Command**

(1) Command Relationships. Specify command relationships for all organizations relevant to the JFACC operations. Be as specific as possible.

(2) Memoranda of Understanding. As applicable.

(3) Command Headquarters. Designation and location of all air-capable command headquarters.

(4) Continuity of Operations. Any general considerations unique to the operation.

(5) Command Posts. List the designations and locations of each major headquarters.

(6) Succession to Command. Designate, in order of succession, the commanders responsible for assuming command of the operation in specific applicable circumstances.

b. **C2 and Communications Systems.** General overview of C2 systems and communication systems required to support air operations.

6. ANNEXES

JAOP annexes should be written for functional-specific audiences and contain technical details necessary for C2 of all air organizations and capabilities across the joint force. They should contain any details not considered appropriate for the relevant section of the main plan.

- A. **Task Organization.**
- B. **Intelligence.**
- C. **Operations.**
- D. **Logistics.**
- E. **Personnel.**
- F. **Public Affairs.**
- G. **Civil-Military Operations.**
- H. **Meteorological and Oceanographic Operations.**
- I. **Knowledge and Information Management.**
- J. **Command Relationships.**
- K. **Command, Control, Communications, and Computer Systems.**
- L. **Environmental Considerations.**
- N. **Assessments.**
- O. **Foreign Disclosure Guidance.**
- P. **Host-Nation Support.**
- Q. **Health Services.**
- R. **Reports.**
- S. **Special Technical Operations.**
- T. **Chemical, Biological, Radiological, and Nuclear Response.**

- U. **Notional Counterproliferation Decision Guide.**
- V. **Interorganizational-Interagency Coordination.**
- W. **Operational Contract Support.**
- X. **Execution Checklist.**
- Y. **Commander's Communication Strategy.**
- Z. **Distribution.**

(Signed) (Commander)

DISTRIBUTION:
SECURITY CLASSIFICATION.

APPENDIX D AIR OPERATIONS DIRECTIVE TEMPLATE

Issuing Headquarters
Place of Issue
AOD Effective Period
Date/Time Group of Signature

1. SITUATION

- a. JFC guidance (verbatim).
 - (1) JFC's intent statement.
 - (2) Execution guidance (if issued).
 - (3) Supported and supporting command relationships.
- b. Enemy situation.
- c. Friendly situation (by joint force component).

2. MISSION

The JFACC's mission statement (verbatim). Covers all phases of the operation, but AOD may state which phase this AOD applies to. This should not change unless the mission itself changes.

3. EXECUTION–AIR OPERATIONS

- a. JFACC's intent.
 - (1) Purpose.
 - (2) End state.
- b. Execution: What to do, when.
- c. Focus of effort by objective.
- d. Weight of effort by objective.
- e. Acceptable level of risk.
- f. Collateral damage and civilian casualty guidance.

- g. TST guidance.
- h. Other issues (e.g., ISR, information, space, mobility, focus of effort, PR).

4. ADMINISTRATION AND LOGISTICS

Logistics considerations affecting operations during the AOD period.

5. COMMAND AND CONTROL

C2 considerations affecting operations during the AOD period. If there are no unique considerations, refer the reader to the JAOP commander relationship annex.

6. ANNEXES

Use as required. Typical annexes:

- a. Full listing of end state conditions, objectives, effects, and tasks, including MOP and effectiveness for each (as applicable).
- b. Commander's critical information requirements and essential elements of information applicable for the AOD period.

APPENDIX E

JOINT AIR OPERATIONS CENTER DIVISIONS AND DESCRIPTIONS

1. Joint Air Operations Center Director

The JAOC director is charged with effectively managing joint air operations and establishing the JAOC battle rhythm. The JAOC director develops and directs processes to plan, coordinate, allocate, task, execute, and assess joint air operations in the JOA based on JFC and JFACC guidance. The JAOC director's staff includes division chiefs, ATO coordinators, the JAOC manager, information management personnel, and the ATO SPINS coordinator (see Figure E-1).

2. Strategy Division

The SD concentrates on long-range and near-term planning of joint air operations to achieve JFC objectives by developing, refining, disseminating, and assessing the JFACC's strategy. In addition, the SD does near-term planning for space operations, CO, and information activities in coordination with joint air operations. Strategy activities are primarily reflected in the JAOP, AOD, and the operational assessment report. The SD is divided into four teams: strategy plans, strategy guidance, information activities, and operational assessment. Despite physical proximity to the ATO planning, production, and execution areas within the JAOC, SD personnel should not become caught up in execution details. Although the information activities team is organizationally aligned with the SD, it coordinates information efforts across all the divisions within the JAOC.

3. Combat Plans Division

The CPD is responsible for near-term air operations planning (within 48 hours prior to ATO execution). The CPD is divided into four teams: TET, MAAP, ATO production, and C2 plans. The TET develops the JFACC's TNL and may produce a draft JIPTL for JFC approval. The primary daily products of CPD processes are the ATO and ACO. CPD develops the MAAP, assembles the SPINS, and finalizes ISR synchronization matrix. The MAAP team needs the current AOD, ABP shell, preplanned AIRSUPREQs, and JIPTL loaded to build missions in the proper TBMCS format. The C2 plans team produces the daily ACO, tactical operations data, and operational task link message. The ATO production team develops the ABP databases and assembles, publishes, and disseminates the ATO and SPINS. Additionally, various specialty/support personnel are embedded in the CPD.

4. Combat Operations Division

The COD is responsible for the execution of the current ATO (usually the 24 hours encompassing the effective period of the ATO). The COD is divided into four teams: offensive operations, defensive operations, interface control, and the senior intelligence duty officer (SIDO) team. Additionally, various specialty/support personnel are embedded in the COD.

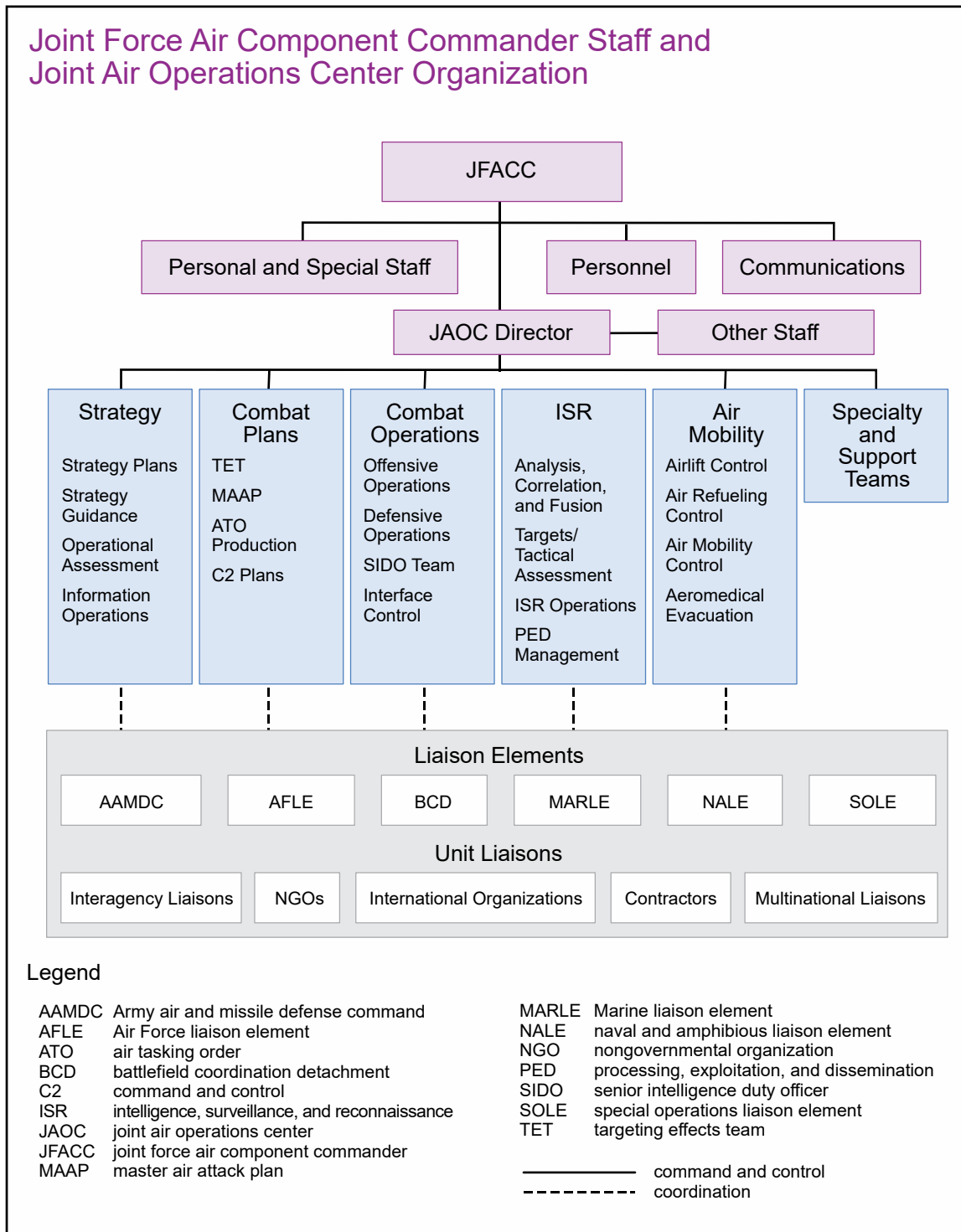


Figure E-1. Joint Force Air Component Commander Staff and Joint Air Operations Center Organization

5. Intelligence, Surveillance, and Reconnaissance Division

For operations in theaters outside the continental US, the ISR Division provides the JFACC and JAOC with awareness of threat activity in the operational area; assists with integrating,

planning, and managing airborne ISR operations; develops and maintains targeting information about the threat; and assists with execution of ISR operations. In addition, the ISRD has integrated teams or assigned personnel in other JAOC divisions. The ISRD is divided into four teams: analysis, correlation, and fusion; targets and tactical assessment; ISR operations; and PED team. ISR personnel, assigned in the SD, assist in the development of overall JFACC strategy, JAOP, and operational assessment. ISR personnel, assigned in the CPD, provide tailored ISR operations planning, threat analysis, and targeting expertise necessary to develop detailed execution plans for joint air operations. ISR personnel, assigned to the COD, are part of the SIDO team and provide current situational awareness, targeting, and ISR operations management for execution of the ATO.

6. Air Mobility Division

The AMD plans, coordinates, tasks, executes, and assesses the air mobility mission for assigned and attached mobility forces in support of JFC objectives. The AMD consists of an airlift control team (ALCT), an air refueling control team (ARCT), an air mobility control team (AMCT), and an aeromedical evacuation control team (AECT). It may also include an air mobility support team and a theater direct delivery cell. The ALCT plans, schedules, and manages theater airlift operations. The ARCT plans, schedules, tasks, and assists in execution of air refueling missions to support operations. The AMCT is the central C2 entity for execution of air mobility missions and provides support for the overall air mobility effort. The AECT plans, schedules, and monitors execution of AE missions to support patient movements. Elements within the AMD are matrixed throughout other divisions to enhance integration, mission planning, and execution.

7. Specialty and Support Functions

Various teams provide the JAOC with diverse capabilities necessary to successfully integrate and orchestrate joint air operations. Key functions include force protection, public affairs, PR, staff judge advocate, weather, airspace management, and information management. Integration of these capabilities is crucial to the success of the JAOC and joint air operations.

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APPENDIX F

LIAISON ELEMENTS WITHIN THE JOINT AIR OPERATIONS CENTER

1. Introduction

Liaison between forces is essential for coordinated and effective joint air operations. Component commanders will exchange liaison elements to assist and coordinate the planning and execution of their component's operations with joint air operations. Liaison elements provide senior-level interface for air, land, maritime, space, cyberspace, and SOF. These elements consist of personnel who provide component planning and tasking expertise, coordination capabilities, and the ability to deconflict component operations and joint air operations. A brief summary follows of typical liaison elements. Detailed information can be found in respective command and Service documents.

2. Battlefield Coordination Detachment

A BCD is a specialized, regionally focused Army element that serves as the senior Army operational commander's liaison with the air component. A BCD is co-located with the JAOC, multinational AOC, or the Air Force AOC. The BCD is the Army's interface for systems connectivity to the JAOC and for personnel integration with their JAOC counterparts. BCD tasks include facilitating the exchange of current intelligence and operational data, processing AIRSUPREQs, monitoring and interpreting the land battle situation, coordinating air and missile defense, coordinating airlift, and integrating airspace requirements. When a US Army headquarters is designated as the joint forces land component command, the BCD may serve as the land component commander's liaison to the air component commander when augmented with other land force representatives. It expedites information exchange through face-to-face coordination with JAOC division/teams. BCD personnel are trained to operate in the JAOC environment using both Army systems and joint air C2 systems and understand the operations process, joint C2 processes (e.g., joint targeting), and the air component processes (e.g., joint air tasking cycle). The BCD coordinates and receives objectives, guidance, and priorities from the ARFOR commander and staff. Additionally, the BCD supervises the Army air reconnaissance liaison teams and Army ground liaison detachments that coordinate ARFOR requirements with supporting Air Force reconnaissance, fighter, and airlift wings. BCD personnel work with their counterparts in the JAOC to facilitate planning, coordination, and execution of air-ground operations by ensuring:

a. The JFACC understands the Army commander's operational intent, priorities, objectives, and air support requirements.

b. Pertinent Army command operational data and operational support requirements are forwarded to the JFACC, to include AIRSUPREQs, airspace coordinating measure requests, manned and unmanned information collection, cyberspace and electromagnetic activities, airlift, and joint suppression of enemy air defenses.

c. Army requests for airspace coordination and air support are coordinated with the appropriate elements.

d. The ATO accurately reflects air support to the Army and Army aircraft missions, and the ACO reflects coordination measures approved for the Army.

e. All changes to theater-wide air defense warnings, weapons control status, ROEs, and aircraft identification standards among the JAOC, Army force headquarters, and senior land-based air and missile defense headquarters are coordinated.

f. Planned and unplanned changes to the FSCL and selected FSCMs are coordinated as required.

g. Army airspace risk guidance and airspace use priorities are coordinated with the appropriate joint C2 elements/JAOC.

h. Priorities of JFC airspace risk guidance and airspace use are forwarded to the senior Army headquarters.

i. Priorities for use of joint air assets and changes to missions supporting ground forces are forwarded to the senior Army headquarters.

3. Special Operations Liaison Element

The SOJTF commander, JSOTF commander, or JFSOCC provides a SOLE to the JFACC, or appropriate Service component air C2 facility, to coordinate and synchronize SOF air and surface operations with joint air operations. The SOLE director places LNOs throughout the JFACC's staff, located in the JAOC. The SOLE coordinates, synchronizes, and deconflicts all SOF activities by providing a SOF presence in the JAOC that is aware of special operations activities. Special operations must be closely coordinated with joint air operations planning and execution to prevent friendly fire incidents and ensure achievement of mission objectives.

For more information on the SOLE, see JP 3-05, Special Operations, and USSOCOM Directive 525-7, Joint Special Operations Liaison Element.

4. Naval and Amphibious Liaison Element

The JFMCC/NCC should establish a NALE to coordinate with the JAOC on matters pertaining to Navy and Marine amphibious, maritime, and air operations and to serve as the MOC's primary point of contact in the AOC. Placement of billets at the JAOC will be in coordination with the appropriate commanders' guidance (JFACC and JFMCC/NCC) and should facilitate synchronization of maneuver and synergy of effects. The NALE integrates JFMCC objectives into the AOD; advocates JFMCC/NCC target nominations to reflect desired effects in the JFC's JIPTL; and coordinates, integrates, and deconflicts all naval air and surface activities in the JFACC's ATO and ACO. The NALE facilitates JFMCC requests for air support and monitors and interprets the maritime battle situation for the JAOC. The NALE supports incorporation of naval assets into the ATO, ensuring JFMCC/NCC assets are suitably integrated into joint air operations. The NALE provides

the necessary interface for the exchange of current operational and intelligence data between the components and the JAOC. The NALE coordinates maritime requirements for air defense support and long-range interdiction. The NALE also monitors maritime airspace, ATC requirements, and changes within the maritime AO or AOA, as specified. The NALE provides feedback to the JAOC and components on current and future joint air operations concerning integration of force requirements. Specialty/platform LNO positions may be required to be in the JAOC to cover specific maritime platforms and capabilities that require special coordination.

5. Marine Liaison Element

The MARLE is the Marine Corps forces commander's representative within the JAOC and is responsive to the JFACC on matters pertaining to Marine Corps operations. The MARLE provides feedback to organizations within the JAOC on current and future joint air operations concerning integration of force requirements.

6. Air Force Liaison Element

The AFLE provides an interface between the COMAFFOR and the JFACC for coordinating and synchronizing Air Force units in support of joint air operations if the JFACC is not also the COMAFFOR. Normally, the AFLE is composed of personnel and equipment for a general purpose, numbered Air Force's staff and component organizations. AFLE manning is based on a cadre concept with personnel selected for their battle management expertise and knowledge of C2 concepts and procedures. The cadres are augmented by additional personnel who are specialists knowledgeable in the capabilities and tactics of the aircraft, intelligence, or weapons systems being employed. The AFLE can be tailored to perform a variety of missions and management functions to match the contingency or operation.

7. Army Air and Missile Defense Command Liaison Team

The AAMDC liaison team is the senior Army air and missile defense element. It is the primary interface for all land-based Army air and theater missile defense operations. The BCD air defense section will coordinate its activities with the AAMDC liaison if required. Although the BCD has an air defense section, responsibility to integrate the ARFOR air and missile defense resides with the senior air defense artillery commander, normally the commander, AAMDC. The AAMDC liaison team responsibilities normally include:

- a. Assisting the AADC with the AADP development.
- b. Integrating land-based air and missile defense into theater defensive operations.
- c. Advising the JFACC/AADC regarding ROE, air defense measures, weapons control measures, fire control orders, and air defense warnings.
- d. Advising the AADC on matters regarding land-based air and missile defense operations.

8. Space Liaison

Effective coordination is vital to facilitate integration of space operations and capabilities across the joint force. Space professionals on Service and joint functional component staffs ensure JFCs and their staffs have a common understanding of space operations and how they should be integrated with other military operations to achieve unity of effort. The SCA may require additional liaison with other organizations such as JFC headquarters, subordinate commands, and multinational forces.

9. Cyberspace Liaison

A United States Cyber Command (USCYBERCOM) CO-IPE integrates within a CCDR's CO support staff to provide CO expertise and reachback capability to USCYBERCOM. CO-IPEs are organized from USCYBERCOM, Joint Force Headquarters-Department of Defense Information Network, and joint force headquarters-cyberspace personnel and are co-located with each CCMD for full integration into their staffs. CO-IPEs provide a CCDR with CO planners and other subject matter experts required to support development of CCMD requirements for CO and to assist CCMD planners with coordinating, integrating, and deconflicting CO.

10. Other Liaison

Liaisons representing multinational forces or interagency organizations can improve JAOC situational awareness and contribute to unity of effort. They provide invaluable information on their nations' or agencies' capabilities and sensitivities. They can also help overcome cultural barriers. The JFACC must anticipate the need for LNOs and be prepared to proactively coordinate as appropriate.

For further discussion of liaisons, see JP 3-0, Joint Operations; JP 3-08, Interorganizational Cooperation; and JP 3-16, Multinational Operations.

APPENDIX G

THE JOINT AIR COMPONENT COORDINATION ELEMENT

1. General

A JACCE is a small team of air operations experts that can be used to facilitate coordination between a JFACC and other component commanders or the JFC. The JACCE is intended as a facilitator and should not be used in place of existing, more formal methods of coordination. The JACCE will not bear any responsibilities of the JAOC nor will it replace any JAOC processes or sub-processes. The JFACC may simultaneously deploy multiple JACCEs as liaisons to the JTF, subordinate joint forces, or Services, while operating from home station or a deployed location. Some general considerations include:

a. **The JACCE director** should be senior enough to work effectively with the JFC or component commander whom they are supporting.

b. **The JACCE director should be supported by a staff.** Its size should reflect the breadth of the operation and normally includes plans, operations, intelligence, airspace management, space, and air mobility. Additionally, administration and communications support may be needed.

(1) The JACCE staff should be representative of the JFACC's staff and should be composed primarily of personnel from the JFACC's Service or component (e.g., if the JFACC is a naval officer and the JAOC is composed primarily of naval personnel, then the JACCE should also be composed primarily of naval personnel).

(2) JACCE composition and expertise should be tailored to the needs of the supported/supporting headquarters. For example, the JACCE composition and expertise required for combat operations may be considerably different than those required for a dedicated humanitarian operation.

c. **Authority and responsibility** of the JACCE should be tailored to JFACC needs. In some situations, the JFACC may give the JACCE significant latitude in their authority to represent the JFACC; in other situations, the JFACC may be more restrictive.

d. **Working Relationships.** The JFACC should introduce the JACCE director to the supported component commander or JFC to establish the desired working relationship. If this is not possible, the JFACC should at least meet face-to-face with the JACCE prior to the JACCE assuming their duties. Typically, when Army units are designated to provide the JTF or JFLCC and the COMAFFOR is designated the JFACC, the habitually aligned air support operations group will provide the JACCE nucleus due to the established working relationships.

e. **Communications.** A key to the JACCE's success is its ability to communicate and gather information. Better communication should lead to better information and thus to better advice from the JACCE. Some members of the JACCE will require access to special

access programs or compartmentalized information and they should deploy with the requisite clearances.

2. Presentation and Command and Control Relationships

Ideally, the JFACC and other component commanders would be located together and there would be no need for a JACCE—the JFACC and other commanders could work side-by-side and talk face-to-face. Headquarters are often not located together, however, so a JACCE is presented to the other commanders to bridge that physical separation. The JFACC retains OPCON of the JACCE, but Service components retain administrative control of their personnel within it. There are two general modes of JACCE presentation: internal and external to a JTF.

a. Presentation with JFACC internal to a JTF

(1) In this model, the CDR has established a JTF; the JFACC is subordinate to the commander, JTF; and JACCE are presented as needed laterally to other functional component commanders and upward to the JTF. This is illustrated in Figure G-1.

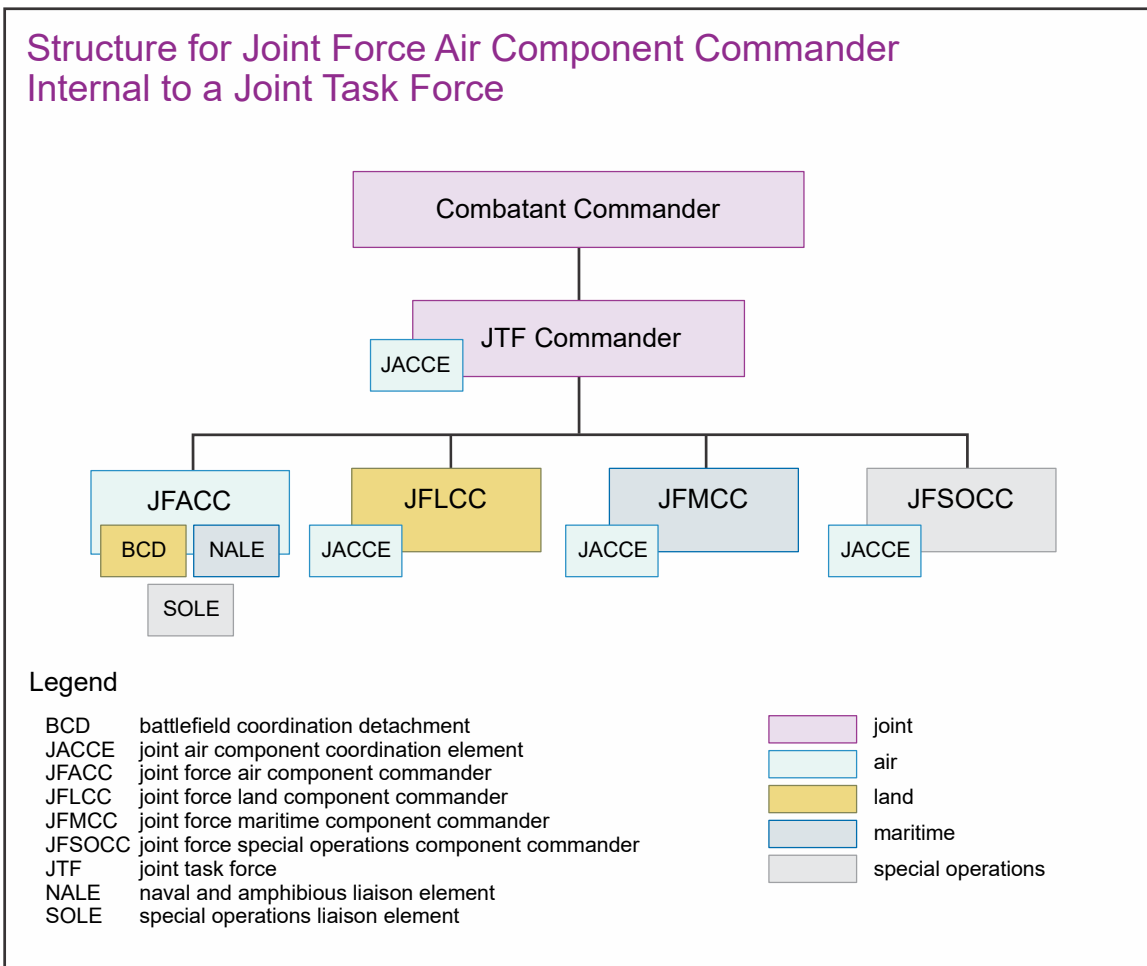


Figure G-1. Structure for Joint Force Air Component Commander Internal to a Joint Task Force

Example 1: During Operations IRAQI FREEDOM and ENDURING FREEDOM, the Commander of United States Air Forces Central Command, while acting as the joint force air component commander (JFACC) for the Commander, United States Central Command, simultaneously provides support to separate joint task forces (JTFs) in Iraq, Afghanistan, and the Horn of Africa.

Example 2: The Commander, United States Air Forces Northern Command, acting as the JFACC for Operation NOBLE EAGLE in the continental United States (CONUS), may also support separate JTFs responding to separate disasters in CONUS. In this case, if there are very limited Air Force forces operational control to the JTF, then the joint air component coordination element (JACCE) director could be dual-hatted as the commander, Air Force forces, depending on the JACCE director's ability to handle both jobs.

(2) Although a TSOC/SOJTF/JSOTF normally includes a JSOACC, the JSOACC is focused on employment of SOF aviation. A JACCE may be required if conventional aviation provided by the JFACC is to be integrated with SOF to provide non-SOF capabilities.

b. Presentation with JFACC external to a JTF. In this model, there is a mix of several JTFs within a theater, but only one fully capable JAOC to service all components. In such instances, there is usually one JFACC reporting to the GCC. The JFACC provides centralized control of all joint air operations across the theater and supports multiple JTFs based on the Ccdr's priorities. This arrangement usually occurs because there are insufficient air assets to supply each JTF with adequate air component representation and thus there is no separate air component within the JTFs.

c. Presentation to Service components. In those cases when a JFC elects not to designate functional component commanders, the COMAFFOR may provide JACCEs to the other Service component commanders and the JFC as necessary. Duties and relationships remain as stated.

d. Presentation in multinational operations. In multinational operations, JACCEs may be presented as necessary. The model should be similar to that depicted in Figure G-1 above. (See Figure G-2.)

3. Joint Air Component Coordination Element Authority, Command Relationships, and Functions and Responsibilities

The JACCE:

- a. Derives all authority from the JFACC.
- b. Authorities can vary and change over time, depending on JFACC objectives, CONOPS, and operational dynamics.

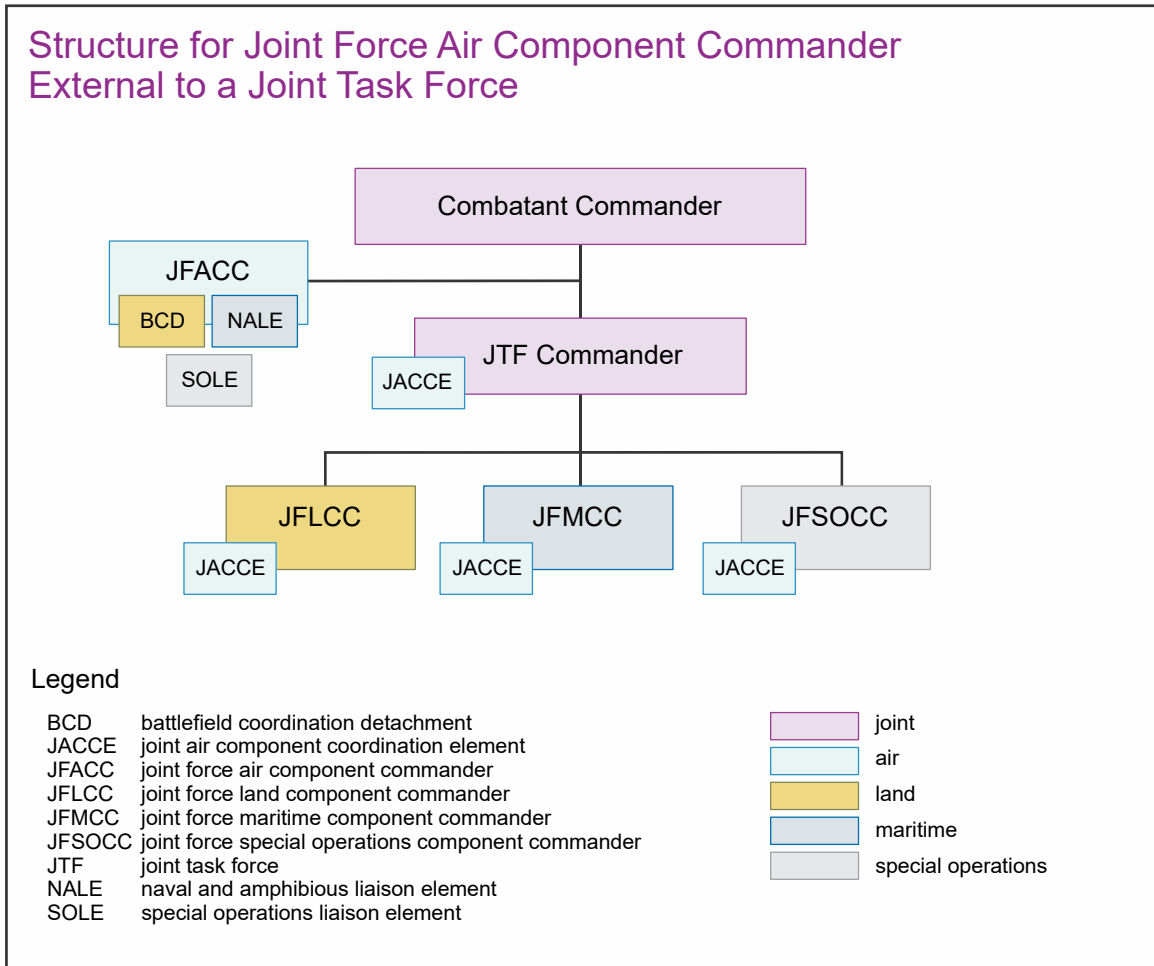


Figure G-2. Structure for Joint Force Air Component Commander External to a Joint Task Force

c. Is typically presented in a liaison role (i.e., without command authority) and communicates, facilitates, advises, coordinates, and supports the effective integration between the JFACC and the host commander(s). However, a Service component may delegate some command authorities of Service forces to the JACCE based on operational requirements and to enhance overall C2 and integration and employment.

d. Communicates:

(1) The host commander’s decisions, priorities, interests, and plans to the JFACC.

(2) The JFACC’s intent, capabilities, restraints, and air component perspective to the host commander.

e. Advises and assists in planning supporting and supported relationship options.

f. Facilitates the staff process for the JFACC and host commander.

g. Should not replace, replicate, or circumvent in-place request mechanisms (e.g., target requests and air apportionment).

**THE JOINT AIR COMPONENT COORDINATION ELEMENT DURING
OPERATION IRAQI FREEDOM AND OPERATION ENDURING FREEDOM**

In United States Central Command during later operations of Operation IRAQI FREEDOM and Operation ENDURING FREEDOM, the JFACC [joint force air component commander] found the typical liaison role of the ACCE [air component coordination element] [precursor to the joint air component coordination element] insufficient to satisfy his and the supported JFC [joint force commander] requirements. He therefore delegated additional specific responsibilities and personnel, including limited command authority over some forces, to better integrate planning at all levels and respond to JFACC and JFC needs. The ACCE effectively became dual-hatted as an air expeditionary task force commander, which eventually became the final solution.

“To improve the integration of airpower with the ground scheme of maneuver, I empowered the ACCE-Afghanistan and ACCE-Iraq through a verbal order in 2009. Specifically, I delegated limited operational control and full administrative control over AFCENT [United States Air Forces Central] forces in each joint operations area to the respective ACCE.”

“Although the tactical control of theater-wide air assets remains at the AFCENT CAOC [Combined Air Operations Center], the ACCE has authority to organize forces, recommend courses of action, and provide authoritative direction to the subordinate air expeditionary wings. The ACCE also ensures that inputs to the air tasking order meet the needs of the operation or plan. Reachback to the Air Force forces staff and the CAOC permits the ACCE to accomplish these tasks without having to maintain a large forward staff and robust command and control capability.”

“A Seat at the Table: Beyond the Air Component
Coordination Element”
Lt Gen Mike Hostage, US Air Force
Air and Space Power Journal, Winter 2010

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APPENDIX H POINTS OF CONTACT

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Joint Staff/J35

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Phone Number: 334-953-2640 (DSN 493)

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APPENDIX J REFERENCES

The development of JP 3-30 is based upon the following sources:

1. Department of Defense Publications

DOD Directive 5100.01, *Functions of the Department of Defense and Its Major Components*.

2. Chairman of the Joint Chiefs of Staff Publications

a. Chairman of the Joint Chiefs of Staff Instruction (CJCSI) 3150.25G, *Joint Lessons Learned Program*.

b. CJCSI 3151.01C, *Global Command and Control System Common Operational Picture Reporting Requirements*.

c. CJCSM 3130.03A, *Planning and Execution Planning Formats and Guidance*.

d. JP 2-0, *Joint Intelligence*.

e. JP 2-01, *Joint and National Intelligence Support to Military Operations*.

f. JP 2-01.3, *Joint Intelligence Preparation of the Operational Environment*.

g. JP 3-0, *Joint Operations*.

h. JP 3-01, *Countering Air and Missile Threats*.

i. JP 3-03, *Joint Interdiction*.

j. JP 3-05, *Special Operations*.

k. JP 3-08, *Interorganizational Cooperation*.

l. JP 3-09, *Joint Fire Support*.

m. JP 3-09.3, *Close Air Support*.

n. JP 3-11, *Operations in Chemical, Biological, Radiological, and Nuclear Environments*.

o. JP 3-12, *Cyberspace Operations*.

p. JP 3-13, *Information Operations*.

- q. JP 3-13.1, *Electronic Warfare*.
- r. JP 3-14, *Space Operations*.
- s. JP 3-15.1, *Counter-Improvised Explosive Device Activities*.
- t. JP 3-16, *Multinational Operations*.
- u. JP 3-17, *Air Mobility Operations*.
- v. JP 3-50, *Personnel Recovery*.
- w. JP 3-52, *Joint Airspace Control*.
- x. JP 3-60, *Joint Targeting*.
- y. JP 4-02, *Joint Health Services*.
- z. JP 4-10, *Operational Contract Support*.
- aa. JP 5-0, *Joint Planning*.
- bb. JP 6-0, *Joint Communications System*.
- cc. JP 6-01, *Joint Electromagnetic Spectrum Management Operations*.

3. Multi-Service Publications

- a. ATP 3-04.18/MCRP 3-25J/NTTP 3-20.8/AFTTP 3-2.74, *Multi-Service Tactics, Techniques, and Procedures for Air Operations in Maritime Surface Warfare*.
- b. ATP 3-52.2 (FM 3-52.2)/MCRP 3-25F/NTTP 3-56.2/AFTTP 3-2.17, *Multi-Service Tactics, Techniques, and Procedures for the Theater Air-Ground System*.
- c. NTTP 3-04M/Marine Corps Tactical Publication 13-10L/Coast Guard Tactics, Techniques, and Procedures 3-90.5/ATP 3-04.19/AFTTP 3-2.4/USSOCOM Publication 3-04, *Multi-Service Tactics Techniques and Procedures for Shipboard Helicopter Operations*.

4. Service Publications

- a. Air Force Instruction 13-1 AOC, Volume 3, *Operational Employment Procedures–Air Operations Center (AOC)*.
- b. AFTTP 3-3.AOC, *Operational Employment–Air Operations Center*.
- c. NTTP 3-03.4, *(U) Naval Strike and Air Warfare*.

d. Navy Warfare Publication 3-30, *Maritime Command and Control of Air Operations (Organizations and Processes)*.

5. United States Special Operations Command Publications

a. USSOCOM Directive 525-7, *Joint Special Operations Liaison Element*.

b. USSOCOM Directive 525-8, *Joint Special Operations Air Component*.

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APPENDIX K ADMINISTRATIVE INSTRUCTIONS

1. User Comments

Users in the field are highly encouraged to submit comments on this publication using the Joint Doctrine Feedback Form located at: https://jdeis.js.mil/jdeis/jel/jp_feedback_form.pdf and e-mail it to: js.pentagon.j7.mbx.jedd-support@mail.mil. These comments should address content (accuracy, usefulness, consistency, and organization), writing, and appearance.

2. Authorship

a. The lead agent for this publication is the US Air Force. The Joint Staff doctrine sponsor for this publication is the J-3.

b. The following staff, in conjunction with the joint doctrine development community, made a valuable contribution to the revision of this joint publication: lead agent, Mr. James Burlingame, US Air Force LeMay Center; Joint Staff doctrine sponsor, LtCol Stephen Fiscus, Joint Staff J-35; Lt Col John Stratton, Joint Staff J-7, Joint Doctrine Analysis Division; and LCDR Adam Yates, Joint Staff J-7, Joint Doctrine Division.

3. Supersession

This publication supersedes JP 3-30, *Command and Control of Joint Air Operations*, 10 February 2014.

4. Change Recommendations

a. To provide recommendations for urgent and/or routine changes to this publication, please complete the Joint Doctrine Feedback Form located at: https://jdeis.js.mil/jdeis/jel/jp_feedback_form.pdf and e-mail it to: js.pentagon.j7.mbx.jedd-support@mail.mil.

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

5. Lessons Learned

The Joint Lessons Learned Program (JLLP) primary objective is to enhance joint force readiness and effectiveness by contributing to improvements in doctrine, organization, training, materiel, leadership and education, personnel, facilities, and policy. The Joint Lessons Learned Information System (JLLIS) is the DOD system of record for lessons learned and facilitates the collection, tracking, management, sharing, collaborative

resolution, and dissemination of lessons learned to improve the development and readiness of the joint force. The JLLP integrates with joint doctrine through the joint doctrine development process by providing lessons and lessons learned derived from operations, events, and exercises. As these inputs are incorporated into joint doctrine, they become institutionalized for future use, a major goal of the JLLP. Lessons and lessons learned are routinely sought and incorporated into draft JPs throughout formal staffing of the development process. The JLLIS Website can be found at <https://www.jllis.mil> (NIPRNET) or <http://www.jllis.smil.mil> (SIPRNET).

6. Distribution of Publications

Local reproduction is authorized, and access to unclassified publications is unrestricted. However, access to and reproduction authorization for classified JPs must be IAW DOD Manual 5200.01, Volume 1, *DOD Information Security Program: Overview, Classification, and Declassification*, and DOD Manual 5200.01, Volume 3, *DOD Information Security Program: Protection of Classified Information*.

7. Distribution of Electronic Publications

a. Joint Staff J-7 will not print copies of JPs for distribution. Electronic versions are available on JDEIS Joint Electronic Library Plus (JEL+) at <https://jdeis.js.mil/jdeis/index.jsp> (NIPRNET) and <https://jdeis.js.smil.mil/jdeis/generic.jsp> (SIPRNET), and on the JEL at <http://www.jcs.mil/doctrine> (NIPRNET).

b. Only approved JPs are releasable outside the combatant commands, Services, and Joint Staff. Defense attachés may request classified JPs by sending written requests to Defense Intelligence Agency (DIA)/IE-3, 200 MacDill Blvd., Joint Base Anacostia-Bolling, Washington, DC 20340-5100.

c. JEL CD-ROM. Upon request of a joint doctrine development community member, the Joint Staff J-7 will produce and deliver one CD-ROM with current JPs. This JEL CD-ROM will be updated not less than semi-annually and when received can be locally reproduced for use within the combatant commands, Services, and combat support agencies.

GLOSSARY

PART I—ABBREVIATIONS, ACRONYMS, AND INITIALISMS

AADC	area air defense commander
AADP	area air defense plan
AAGS	Army air-ground system
AAMDC	Army air and missile defense command
ABP	air battle plan
ACA	airspace control authority
ACE	aviation combat element (USMC)
ACO	airspace control order
ACP	airspace control plan
ACS	airspace control system
ADAM/BAE	air defense airspace management/brigade aviation element
AE	aeromedical evacuation
AECT	aeromedical evacuation control team
AETF	air expeditionary task force
AFLE	Air Force liaison element
AFTTP	Air Force tactics, techniques, and procedures
AIRSUPREQ	air support request
ALCT	airlift control team
ALLOREQ	allocation request
AMCT	air mobility control team
AMD	air mobility division
AO	area of operations
AOA	amphibious objective area
AOC	air operations center
AOD	air operations directive
AODB	air operations database
AOR	area of responsibility
ARCT	air refueling control team
ARFOR	Army forces
ASOC	air support operations center
ATC	air traffic control
ATO	air tasking order
ATP	Army techniques publication
AWACS	Airborne Warning and Control System
BCD	battlefield coordination detachment (USA)
BDA	battle damage assessment
C2	command and control
CAS	close air support
CBRN	chemical, biological, radiological, and nuclear
CC	critical capability
CCDR	combatant commander

CCMD	combatant command
CDRJSOTF	commander, joint special operations task force
CDRUSCYBERCOM	Commander, United States Cyber Command
CDRUSSTRATCOM	Commander, United States Strategic Command
CJCSI	Chairman of the Joint Chiefs of Staff instruction
CJCSM	Chairman of the Joint Chiefs of Staff manual
CMA	collection management authority
CO	cyberspace operations
COA	course of action
COD	combat operations division
COG	center of gravity
CO-IPE	cyberspace operations-integrated planning element
COMAFFOR	commander, Air Force forces
CONOPS	concept of operations
CPD	combat plans division
CR	critical requirement
CRC	control and reporting center
CV	critical vulnerability
CWC	composite warfare commander
DASC	direct air support center
DCA	defensive counterair
DHS	Department of Homeland Security
DIRMOBFOR	director of mobility forces
DOD	Department of Defense
DSCA	defense support of civil authorities
FAA	Federal Aviation Administration (DOT)
FM	field manual (USA)
FSCL	fire support coordination line
FSCM	fire support coordination measure
GCC	geographic combatant commander
GCE	ground combat element (USMC)
GPS	Global Positioning System
HD	homeland defense
HS	homeland security
IPB	intelligence preparation of the battlespace
ISR	intelligence, surveillance, and reconnaissance
ISRD	intelligence, surveillance, and reconnaissance division
J-2	intelligence directorate of a joint staff
J-3	operations directorate of a joint staff
J-4	logistics directorate of a joint staff

JACCE	joint air component coordination element
JAOC	joint air operations center
JAOP	joint air operations plan
JDDOC	joint deployment and distribution operations 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
JFSOCC	joint force special operations component commander
JIPCL	joint integrated prioritized collection list
JIPOE	joint intelligence preparation of the operational environment
JIPTL	joint integrated prioritized target list
JMC	joint movement center
JOA	joint operations area
JOC	joint operations center
JP	joint publication
JPPA	joint planning process for air
JPRC	joint personnel recovery center
JSOACC	joint special operations air component commander
JSOTF	joint special operations task force
JTCB	joint targeting coordination board
JTF	joint task force
JTWG	joint targeting working group
LNO	liaison officer
LOE	line of effort
LOO	line of operation
MAAP	master air attack plan
MACCS	Marine air command and control system
MAGTF	Marine air-ground task force
Marine TACC	Marine tactical air command center
MARLE	Marine liaison element
MCRP	Marine Corps reference publication
MOC	maritime operations center
MOE	measure of effectiveness
MOP	measure of performance
NALE	naval and amphibious liaison element
Navy TACC	Navy tactical air control center
NCC	Navy component commander
NGO	nongovernmental organization
NORAD	North American Aerospace Defense Command
NTACS	Navy tactical air control system

NTTP	Navy tactics, techniques, and procedures
OCA	offensive counterair
ONE	Operation NOBLE EAGLE
OPCON	operational control
OPLAN	operation plan
OTC	officer in tactical command
PED	processing, exploitation, and dissemination
PNT	positioning, navigation, and timing
PR	personnel recovery
PRCC	personnel recovery coordination cell
RCT	rescue coordination team (USN)
ROE	rules of engagement
RSO	remote split operations
618 AOC (TACC)	618th Air Operations Center (Tanker Airlift Control Center)
SCA	space coordinating authority
SD	strategy division
SIDO	senior intelligence duty officer
SOAGS	special operations air-ground system
SOF	special operations forces
SOJTF	special operations joint task force
SOLE	special operations liaison element
SORTIEALOT	sortie allotment message
SPINS	special instructions
TACON	tactical control
TACP	tactical air control party
TACS	theater air control system
TAGS	theater air-ground system
TAOC	tactical air operations center (USMC)
TBMCS	theater battle management core system
TET	targeting effects team
TNL	target nomination list
TPFDD	time-phased force and deployment data
TSOC	theater special operations command
TST	time-sensitive target
UA	unmanned aircraft
UAS	unmanned aircraft system
USC	United States Code
USCYBERCOM	United States Cyber Command
USG	United States Government
USINDOPACOM	United States Indo-Pacific Command

USNORTHCOM	United States Northern Command
USSOCOM	United States Special Operations Command
USSOUTHCOM	United States Southern Command
USSTRATCOM	United States Strategic Command
USTRANSCOM	United States Transportation Command
WMD	weapons of mass destruction

PART II—TERMS AND DEFINITIONS

air domain. The atmosphere, beginning at the Earth's surface, extending to the altitude where its effects upon operations become negligible. (DOD Dictionary. Source: JP 3-30)

air expeditionary task force. A deployed numbered air force or command echelon immediately subordinate to a numbered air force provided as the United States Air Force component command committed to a joint operation. Also called **AETF**. (DOD Dictionary. Source: JP 3-30)

air operations center. The senior agency of the Air Force component commander that provides command and control of Air Force air and space operations and coordinates with other components and Services. Also called **AOC**. (DOD Dictionary. Source: JP 3-30)

air support request. A means to request preplanned and immediate close air support, air interdiction, air reconnaissance, surveillance, escort, helicopter airlift, and other aircraft missions. Also called **AIRSUPREQ**. (DOD Dictionary. Source: JP 3-30)

air tasking order. A method used to task and disseminate to components, subordinate units, and command and control agencies projected sorties, capabilities, and/or forces to targets and specific missions. Also called **ATO**. (Approved for incorporation into the DOD Dictionary.)

allocation request. A daily message that provides an estimate of the total air effort, identifies any excess and joint force general support aircraft sorties, and identifies unfilled air requirements for preplanned missions. Also called **ALLOREQ**. (Approved for incorporation into the DOD Dictionary.)

centralized control. 1. In air defense, the control mode whereby a higher echelon makes direct target assignments to fire units. (JP 3-01) 2. In joint air operations, placing within one commander the responsibility and authority for planning, directing, and coordinating a military operation or group/category of operations. (DOD Dictionary. Source: JP 3-30)

decentralized execution. Delegation of execution authority to subordinate commanders. (DOD Dictionary. Source: JP 3-30)

flight. 1. In Navy and Marine Corps usage, a specified group of aircraft usually conducting a common mission. 2. The basic tactical unit in the Air Force, consisting of four or more aircraft in two or more elements. 3. A single aircraft airborne on a nonoperational mission. (Approved for incorporation into the DOD Dictionary.)

joint air component coordination element. A general term for the liaison element that serves as the direct representative of the joint force air component commander for joint air operations. Also called **JACCE**. (DOD Dictionary. Source: JP 3-30)

joint air operations. Air operations performed with air capabilities/forces made available by components in support of the joint force commander's operation or campaign objectives, or in support of other components of the joint force. (DOD Dictionary. Source: JP 3-30)

joint air operations center. A jointly staffed facility established for planning, directing, and executing joint air operations in support of the joint force commander's operation or campaign objectives. Also called **JAOC**. (DOD Dictionary. Source: JP 3-30)

joint air operations plan. A plan for a connected series of joint air operations to achieve the joint force commander's objectives within a given time and joint operational area. Also called **JAOP**. (DOD Dictionary. Source: JP 3-30)

mission. 1. The task, together with the purpose, that clearly indicates the action to be taken and the reason therefore. (JP 3-0) 2. In common usage, especially when applied to lower military units, a duty assigned to an individual or unit; a task. (JP 3-0) 3. The dispatching of one or more aircraft to accomplish one particular task. (DOD Dictionary. Source: JP 3-30)

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

sortie. In air operations, an operational flight by one aircraft. (DOD Dictionary. Source: JP 3-30)

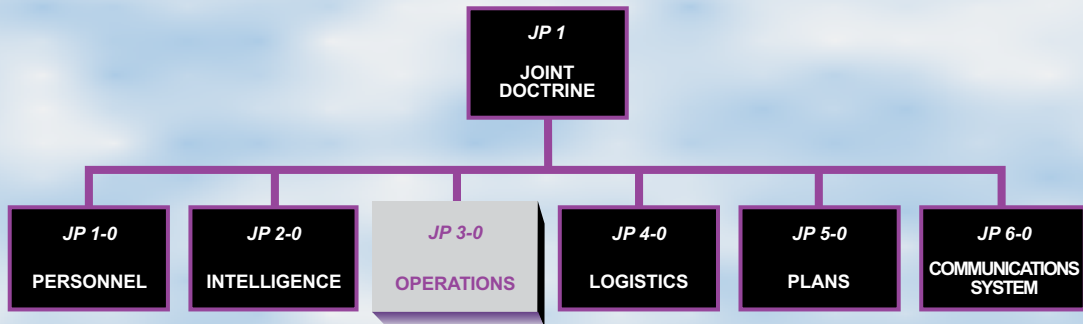
sortie allotment message. The means by which the joint force commander allots excess sorties to meet requirements of subordinate commanders that are expressed in their air employment and/or allocation plan. Also called **SORTIEALOT**. (DOD Dictionary. Source: JP 3-30)

unmanned aircraft. An aircraft that does not carry a human operator and is capable of flight with or without human remote control. Also called **UA**. (DOD Dictionary. Source: JP 3-30)

unmanned aircraft system. That system whose components include the necessary equipment, network, and personnel to control an unmanned aircraft. Also called **UAS**. (DOD Dictionary. Source: JP 3-30)

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JOINT DOCTRINE PUBLICATIONS HIERARCHY



All joint publications are organized into a comprehensive hierarchy as shown in the chart above. **Joint Publication (JP) 3-30** is in the **Operations** series of joint doctrine publications. The diagram below illustrates an overview of the development process:

