AIRSPACE AS A WEAPON

WHAT ARMY COMMANDERS NEED TO KNOW ABOUT AIRSPACE TO BE EFFECTIVE

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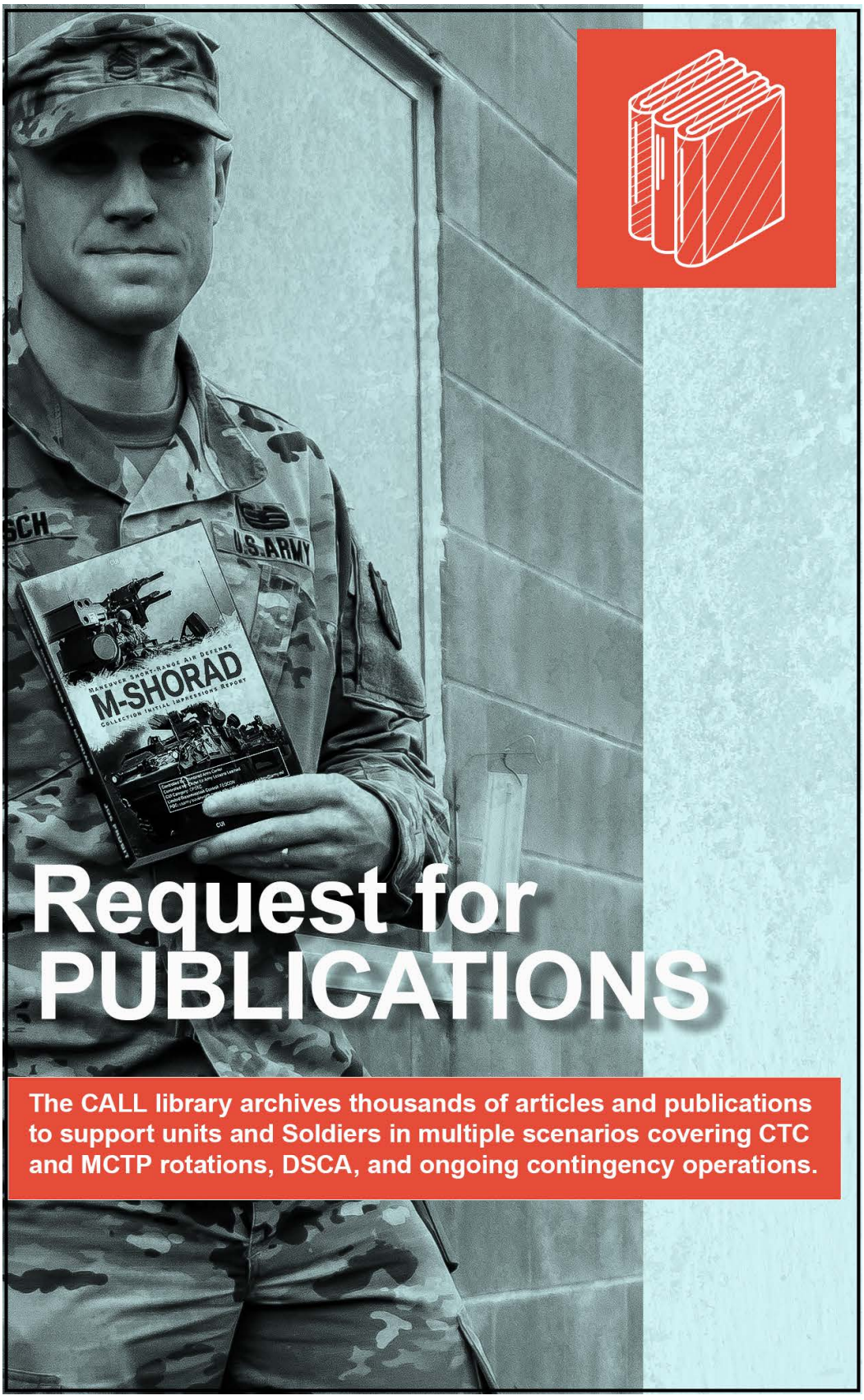

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Foreword

The Army Joint Support Team (AJST) presents the following topics to assist in educating Army commanders on joint air-ground operations. This publication informs the reader on how to effectively employ Army forces/assets in the air domain to conduct operations using procedures based on current doctrine that are typically established in an airspace control system, as part of the command and control (C2) architecture of a joint operations area/theater of operations. Division and corps commanders and staffs need to consider airspace requirements for all organic and supporting airspace users throughout the operations planning process to ensure the airspace control system (ACS), and relevant orders, support Army airspace requirements and are responsive to dynamic ground forces' operations (e.g., airspace control plans, airspace control orders, any special instructions, etc.).

Field Manual (FM) 3-0, *Operations*, 1 October 2022, established the division as the Army's principle tactical warfighting formation. As such, Army divisions must contain the capabilities at their own echelon that they will need to accomplish major battlefield tasks. Divisions, supported by corps and theater Army, must be allowed to fight as formations and deliver decisive advantages in large-scale combat operations. To fulfill their role as the decisive tactical formation, Army divisions require the ability to effectively integrate surface-to-surface fires with joint airpower operating within the same volume of airspace in support of the ground force. Direct control of airspace and airspace users is a critical capability necessary for Army divisions to succeed in their tactical operations. Divisions are ideally positioned to execute airspace control on behalf of the corps commander and the supporting air component because of proximity to the enemy and understanding of the ground scheme of maneuver and supporting fires.

Army commanders that thoroughly understand joint air operations and comply with the joint force commander's plan for airspace control and the use of airpower, increase the likelihood of securing the airspace and resources required to successfully conduct operations. Commanders demonstrate their knowledge of operations in the air domain by using doctrinally accurate terms to describe the tactical conditions within their area of operations, their airspace requirements, and the techniques used to mitigate risk to an acceptable level. Commanders understand and utilize the systems and methods described throughout this publication to request and employ joint airpower. They maintain a clear understanding of the ground scheme of maneuver and scheme of fires and deliberately plan airspace and fires to support the dynamic execution of targets to enhance their ability to effectively manage organic and supporting airspace users. Those commanders that are unable to clearly articulate and demonstrate their capability to control airspace will find themselves poorly positioned to influence joint airspace control decisions affecting their operations.

The information and concepts presented in this publication are referenced in various joint and service doctrine publications. Portions of text are copied or paraphrased from doctrine (where appropriate) to facilitate understanding of the topics and to reduce confusion. AJST's intent is for

this publication to serve as a resource for commanders that can be used as a reference when planning and executing joint air-ground operations.

COL John Sandor
Director
Army Joint Support Team

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Executive Summary

JFACC. The joint force commander (JFC) normally designates a joint force air component commander (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. 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.

ACA. The JFC is responsible for airspace control within the operations area but normally delegates that authority to the airspace control authority (ACA). The JFACC may be designated by the JFC to perform the duties of the ACA. The ACA is a commander designated by the JFC to assume overall responsibility for the operation of the ACS in the airspace control area.

ACS. The ACS is an arrangement by the ACA of the components and host-nation airspace control elements (organizations, personnel, policies, procedures, and facilities) required to perform airspace control.

Airspace control elements. Airspace control elements are trained, organized, and equipped to provide varied airspace control and management capabilities. Control of airspace may only be delegated to airspace control elements recognized by the ACA as part of the ACS.

ACP. The ACA develops the airspace control plan (ACP) and the airspace control order (ACO). The ACP provides specific planning guidance and procedures for the airspace control system for the joint force operational area and is approved by the JFC.

ACO. 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.

Airspace control. Airspace control is the exercise of delegated authority over designated airspace and airspace users through control procedures and coordination measures to maximize operational effectiveness. Airspace control, when delegated from the JFC's designated ACA, includes specified authorities over a volume of airspace to coordinate, integrate, and regulate airspace users.

Airspace management. Airspace management is the planning, coordination, integration, and regulation of airspace-by-airspace control elements in support of airspace control. Airspace control relies upon airspace management capabilities provided by airspace control elements with the appropriate training for effective and safe operations in the air domain. Airspace control and airspace management are distinctly different terms. They complement one another and are essential to overall military effectiveness and in achieving JFC objectives.

Positive and procedural control. There are two types of airspace control to include positive control and procedural control. Positive control relies on surveillance, accurate identification, and effective communications between ACA-designated airspace control elements and all airspace users. Positive control requires two primary conditions: the means to locate and identify airspace users via electronic means and the ability to maintain continuous communications with them for required control instructions. Procedural control relies on common procedures, designated airspace, and promulgated instructions for airspace control elements to deconflict and activate air traffic control measures (ATCMs), airspace coordinating measures (ACMs), fire support coordination measures (FSCMs), and air defense measures.

JAGIC. The joint air-ground integration center (JAGIC) collocates decision-making authorities from the land component (Army division staff) and air component (Air Force air support

operations center) to support the supported maneuver commander's objectives and intent. Army division commanders that have requested, justified the tactical necessity, and demonstrated the capability to control airspace (by executing the JAGIC tactics, techniques, and procedures [TTPs] in their command post [CP]), may be assigned a volume of airspace for their JAGIC to procedurally control.

TAGS. The JAGIC is recognized as an airspace control element of the theater air-ground system (TAGS). The TAGS combines each service component's C2 and airspace control systems into a multi-domain framework, allowing them to operate as part of a unified effort in support of the JFC. The Air Force theater air control system (TACS) and Army air-ground system (AAGS) are part of the TAGS and are habitually integrated to enhance air-ground operations, conducting critical functions for each service, and creating synergistic effects for joint operations.

Joint targeting cycle. Planning for the employment of airpower in support of the joint force requires understanding the linkages between the joint targeting cycle and the joint air tasking cycle. The joint targeting cycle supports joint planning and execution of operations by providing flexibility required to support the concept of operations and commander's intent as the operational environment changes, opportunities arise, and plans change. The joint targeting cycle provides necessary target system analysis, and the JFC approved joint target list, restricted target list, and no-strike list. These target lists are used to produce a prioritized list of targets for execution called the joint integrated prioritized target list (JIPTL). The JIPTL is approved by the JFC.

Joint air tasking cycle. The joint air tasking cycle is an analytical and systematic cycle that focuses joint air efforts on accomplishing operational requirements. It provides an iterative and cyclic process for planning and tasking joint air missions and sorties within the guidance of the JFC. 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 JFC's guidance is normally communicated through the joint targeting coordination board and documented in the air operations directive to focus use of joint air capabilities for a specified period. Important outputs of the joint air tasking cycle are the ACO, and the air tasking order (ATO). The ATO articulates the tasking for joint air operations for a specific execution period, normally 24 hours.

The joint air tasking cycle is synchronized with the JFC's battle rhythm. The joint air operations center (JAOC) normally establishes a 72 to 96-hour ATO planning cycle. The battle rhythm or daily operations cycle provides suspense for targeting, air support requests, friendly order of battle updates, etc., to produce the air battle plan that is used to create the ATO message and other products. When effects exceeding Army organic capabilities are identified during the planning process, Army air support requests are created and submitted to the supporting air component to be resourced by joint capabilities. Airspace is planned to support the operation and Army airspace requirements are submitted to the ACA for approval. The ACA ensures airspace is coordinated across the joint force.

UAP. Army airspace elements (AEs) perform a series of collective tasks during staff planning to integrate airspace user's requirements with other coordination measures. The unit airspace plan (UAP) represents the integration of a unit's airspace requirements for their area of operations for a specified time (aligned with the ACO). The production of the daily UAP is per the ACA's ACP and supporting Appendix 10 (Airspace Control), to Annex C (Operations), of the Army operations order. UAP inputs include ACMs, FSCMs, and maneuver control measures.

ACM. ACMs are employed to facilitate the efficient use of airspace to accomplish missions and simultaneously provide safeguards for friendly forces. ACMs are nominated from subordinate

headquarters through component command headquarters and forwarded to the ACA in accordance with the ACP. The ACA consolidates, coordinates, and deconflicts the airspace requirements of the components and publishes the ACMs in the ACO. Simply stated, planned ACMs are approved by the ACA and disseminated via the ACO.

Army airspace control. Control of airspace and airspace users via the JAGIC TTP (or similar future capabilities) is a critical capability necessary for Army divisions to succeed in their tactical operations. Located in the Army division current operations integration cell, the JAGIC provides commanders a technique to coordinate, integrate, and control operations in division-assigned airspace and efficiently collaborate requirements with external airspace elements outside of the division area. The JAGIC collocates decision making authorities from the land and air component to support the supported maneuver commander's objectives and intent.

The collocation of Army and Air Force airspace personnel with fires, air defense, and Army aviation personnel allows for responsive execution of airspace control. The JAGIC facilitates effective mission execution while managing the level of risk. To fulfill their role as the decisive tactical formation, Army divisions require the ability to effectively integrate surface-to-surface fires with joint airpower operating within the same volume of airspace in support of the ground force.

ASOC. As a direct subordinate C2 element of the JAOC, the air support operations center (ASOC) is responsible for directing and controlling air operations in its assigned area, short of the fire support coordination line and up to the coordinating altitude. Air missions conducted within the ASOC's control area, and not directly supporting the ground component, are coordinated through the ASOC. The ASOC deconflicts ground force maneuver and fires and provides target and threat updates for supporting aircraft. Maintaining alignment of ASOCs at the division echelon increases situational awareness for the joint force. Information is fed back to the JAOC and shared with other TACS elements directly from the ASOC as soon as it is acquired. Removing the ASOC from the division CP may cause unnecessary delays in the information flow, reducing the effectiveness of joint airpower in execution.

The division is the most relevant echelon at which the most accurate and pertinent information regarding the current operation is maintained. The JAGIC TTP is likely the best option for the ACA to control the volume of airspace where an Army division will conduct tactical operations. ASOC personnel working in a division CP gain an in-depth understanding of the scheme of fires and the ground scheme of maneuver. This situational understanding is required to effectively control airspace with the high density of indirect surface fires and other airspace users typically expected during large-scale combat operations (LSCO).

JTEC. To ensure unity of effort and fully integrated use of capabilities for deep operations, a joint targeting and execution capability (JTEC) TTP within the corps headquarters could be used to synchronize all fire support assets in accordance with the commander's guidance. The JTEC TTP integrates with the corps fire support element and other Army, joint, and multinational elements of the fire support system. The JTEC is not a cell, but a TTP resident within the current operations integration cell. The JTEC TTP allows a tactical corps to manage direct support airpower and conduct dynamic targeting in response to emerging targets of opportunity. The TTP does not provide the manning or equipment to control a volume of airspace for extended periods and should not be confused with a division JAGIC's function as an airspace control element.

The primary focus of the JTEC TTP is to support the corps' role to conduct deep operations as tactical headquarters in LSCO. The TTP provides a base personnel structure, positioned in multiple locations (main and tactical CP), with multi-service capability leveraging trained personnel and

digital systems. The JTEC TTP reinforces the staff's roles, missions, and functions that support accomplishing the commander's guidance, intent, and objectives. The JTEC TTP provides the means to effectively structure relationships and processes facilitated through the physical integration of selected current operations staff members with Air Force personnel.

The JTEC TTP supports airspace management through decentralized execution. It will, for example, provide target updates to scheduled and/or on-call air missions conducting target engagements in the corps area of operations. The JTEC will not typically conduct airspace control during execution. Airspace control is executed by designated airspace control elements per the ACP. Normally, airspace use in the corps area of operations below a coordinating altitude will be controlled by that responsible division's JAGIC/ASOC, and airspace use above the coordinating altitude will be controlled by other airspace control elements of the TACS.

Army airspace control is most effective at the division echelon. Divisions exercising the JAGIC TTP are much better positioned to execute airspace control on behalf of the corps commander and the ACA because of their proximity to the enemy and understanding of the ground scheme of maneuver and supporting fires. Division commanders require the ability to efficiently direct/re-direct the movement of joint airpower operating in support of the ground force within the division area of operations to actively counter enemy actions and ensure success in the close fight.

Maintaining ASOC alignment in the Army division CP supports the Air Force's distributed control and decentralized execution requirements. An ASOC operating within the division CP enhances the JFACC's situational awareness of the tactical situation as it progresses in real time. ASOCs feed tactical information to decision makers within the JFACC's JAOC and to other TACS elements. ASOCs ensure Army needs are identified at the appropriate echelon. The ASOC provides effective and timely C2 of aircraft operating in support of tactical ground combat formations. ASOC personnel working within the Army division CP are acutely aware of the current operation and are best positioned to provide valuable insight to the Army commander on the most effective use of airpower at any given time, thus ensuring that available airpower is not unintentionally wasted or misused.

The division is the Army's principal tactical warfighting formation during LSCO and as such, the division requires the capabilities afforded by the ASOC to mass combat power in peer-on-peer combat operations. An Army commander exercising the JAGIC TTP in the CP is likely the best means available to the ACA to control the volume of airspace where significant tactical ground combat operations will occur. Knowledgeable and informed commanders make a strong case to the ACA in support of maintaining ASOC alignment at the division echelon to conduct procedural control of airspace and airspace users via the JAGIC TTP.

When requesting a volume of airspace to control, commanders must demonstrate their knowledge of airspace by using doctrinally accurate terms to describe the tactical conditions within their area of operations, their airspace requirements, and the techniques used to mitigate risk to an acceptable level and by understanding and utilizing the TACS/AAGS. It is the responsibility of Army commanders to clearly articulate to the ACA their airspace requirements and demonstrate that the CP contains the capabilities required to be delegated a volume of airspace.

Note: Army commanders that do not request a volume of airspace or are unable to justify the tactical necessity and demonstrate to the ACA their capability to control airspace, will find themselves poorly positioned to influence airspace control decisions affecting their operations.

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Introduction

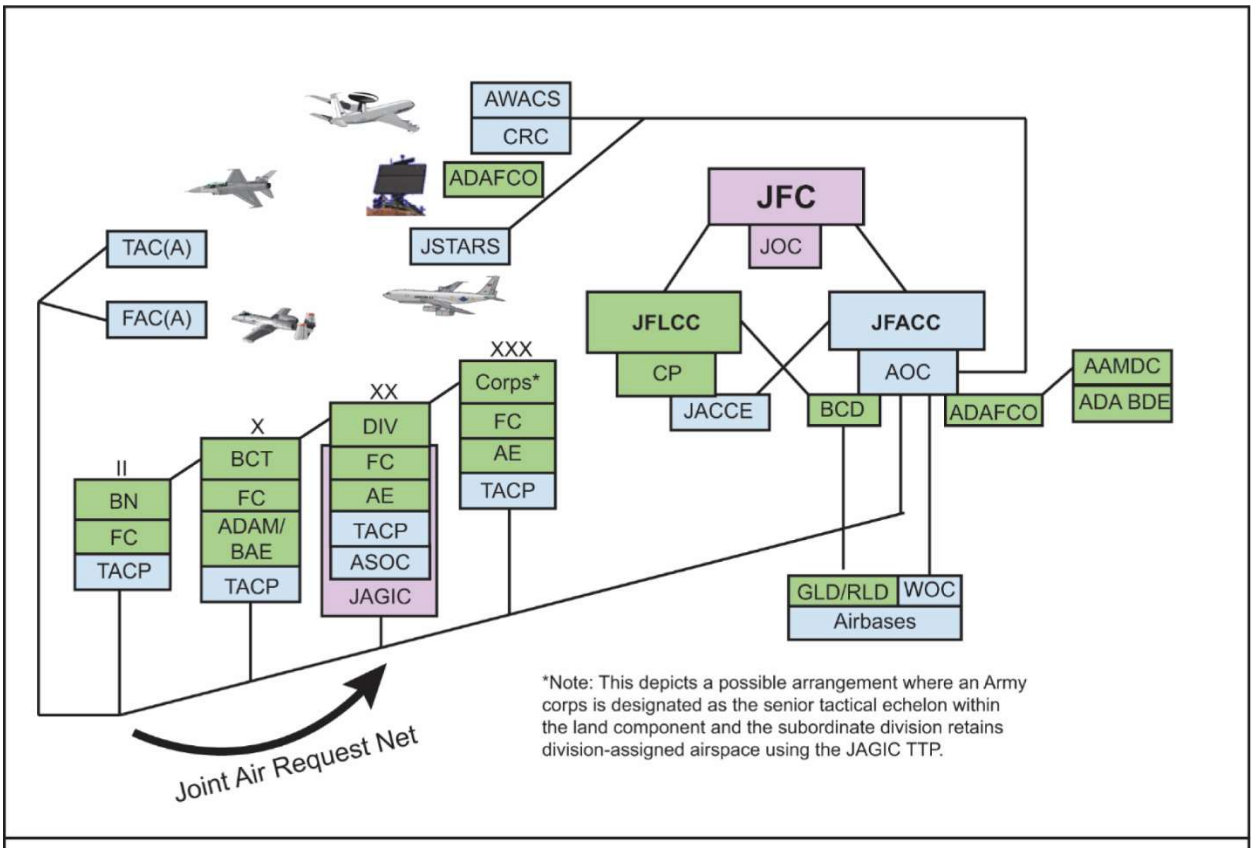
As we train for LSCO, and with tactical corps being re-introduced in the Army, the viability of airspace control and Air Force ASOC alignment at the Army division echelon is being called into question. Since 2014, the ASOC has normally been located at Army divisions operating as the senior tactical echelon to exercise procedural control of airspace users in support of the ground force. Technological advancements and the ever-increasing number of airspace users (e.g., rotary wing, fixed wing, unmanned aircraft systems, surface-to-surface fires, and loitering munitions) over the last two decades have changed how we fight. Previously effective C2 and situational awareness systems and structures have never experienced the volume of airspace users we see today. The purpose of this publication is to provide information on how joint air operations are planned and executed, describe current airspace control capabilities available to Army division and corps commanders, and to discuss how the JAGIC tactics, techniques, and procedures (TTPs) enhance C2/situational awareness for corps/division commanders and the JFACC.

History of Theater Air Control System/Army Air Ground System and Incorporation of the Joint Air-ground Integration Center

As depicted in the diagram by the Air Land Sea Space Application Center[1] in Figure 1, the Army and Air Force provide trained liaisons at specified TACS/Army air-ground system (AAGS) echelons based on a memorandum of agreement (MOA) between the Army and Air Force chiefs of staff (the current MOA is dated February 2022). The TACS/AAGS identifies the C2 structure the Army and Air Force employs to conduct air-ground operations. TACS/AAGS allows C2 of joint fires, joint air support (e.g., close air support, air interdiction, electromagnetic warfare, etc.), collection, suppression of enemy air defense, tactical airlift, and a host of other missions.

The JFC is responsible for airspace control within the operations area but normally delegates the authority to the airspace control authority (ACA).[2] The ACA develops airspace control policies and procedures for all military airspace users and airspace control elements (ACEs) operating within the operations area. Airspace control elements are trained, organized, and equipped to provide airspace control and management capabilities. Control of airspace may only be delegated to ACEs recognized by the ACA as part of the ACS.[3] Army division commanders that have requested, justified the tactical necessity, and demonstrated the capability to control airspace (via the JAGIC TTP in their CP), may be assigned a volume of airspace for their JAGIC to procedurally control. The JAGIC is recognized as an airspace control element of the TAGS. TAGS combines each service component's C2 and airspace control systems into a multi-domain framework, allowing them to operate as part of a unified effort in support of the JFC. The Air Force TACS and AAGS are part of the TAGS and are habitually integrated to enhance air-ground operations, conducting critical functions for each service, and creating synergistic effects for joint operations.[4]

The Army's 2005 force restructure, to have divisions act as the senior tactical echelon[5] paired with the operational needs identified during the Iraq war in 2007,[6] required changes be made to the TACS/AAGS.[7] Studies conducted by Air Force Air Combat Command and U.S. Army Training and Doctrine Command (TRADOC) starting in 2009 resulted in development of the JAGIC TTP that was codified in service doctrine in 2014.[8] The JAGIC TTP complied with the Army's intent to have divisions act as the senior tactical echelon. ASOCs would now operate at the division CP and (if the JAGIC TTP was implemented) the ACA could assign a volume of airspace to the division commander to procedurally control with their JAGIC.



Legend:

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

Figure 1. Theater Air Control System Army Air Ground System Diagram[9]

In FM 3-0, *Operations,* 1 October 2022, the Army decided to reorganize again and brought the corps back as a tactical echelon. FM 3-0 proposed to leave the ASOCs at division and retain the JAGIC TTP capability with division-assigned airspace at the division headquarters. The diagram in Figure 1 was agreed upon in 2020 and generally depicts the current joint and service doctrine on the TACS/AAGS. Figure 1 also supports the current Army Air Force liaison MOA signed in February 2022 with the ASOC at division under a tactical corps higher headquarters.[10]

The concept of division-assigned airspace was formalized in the initial JAGIC TTP and made its way into other joint and service publications such as Joint Publication (JP) 3-09.3, *Close Air Support*; JP 3-09, *Joint Fire Support*, 10 April 2019*;* and Army Techniques Publication (ATP) 3-52.1, *Multi-service Tactics, Techniques, and Procedures for Airspace Control*, 21 June 2023/(Air Force Tactics, Techniques, and Procedures (AFTTP) 3-2.78, *Airspace Control).* As a result of the Army's force restructure, the Air Force modified the TACS and removed the Army corps from the TACS diagrams in service and joint doctrine/TTPs. The TACS in Figure 2 shows the division reporting directly to the joint force land component commander (JFLCC) with no intermediate headquarters. Although the corps was removed from the TACS diagram, Army divisions still report to the corps.

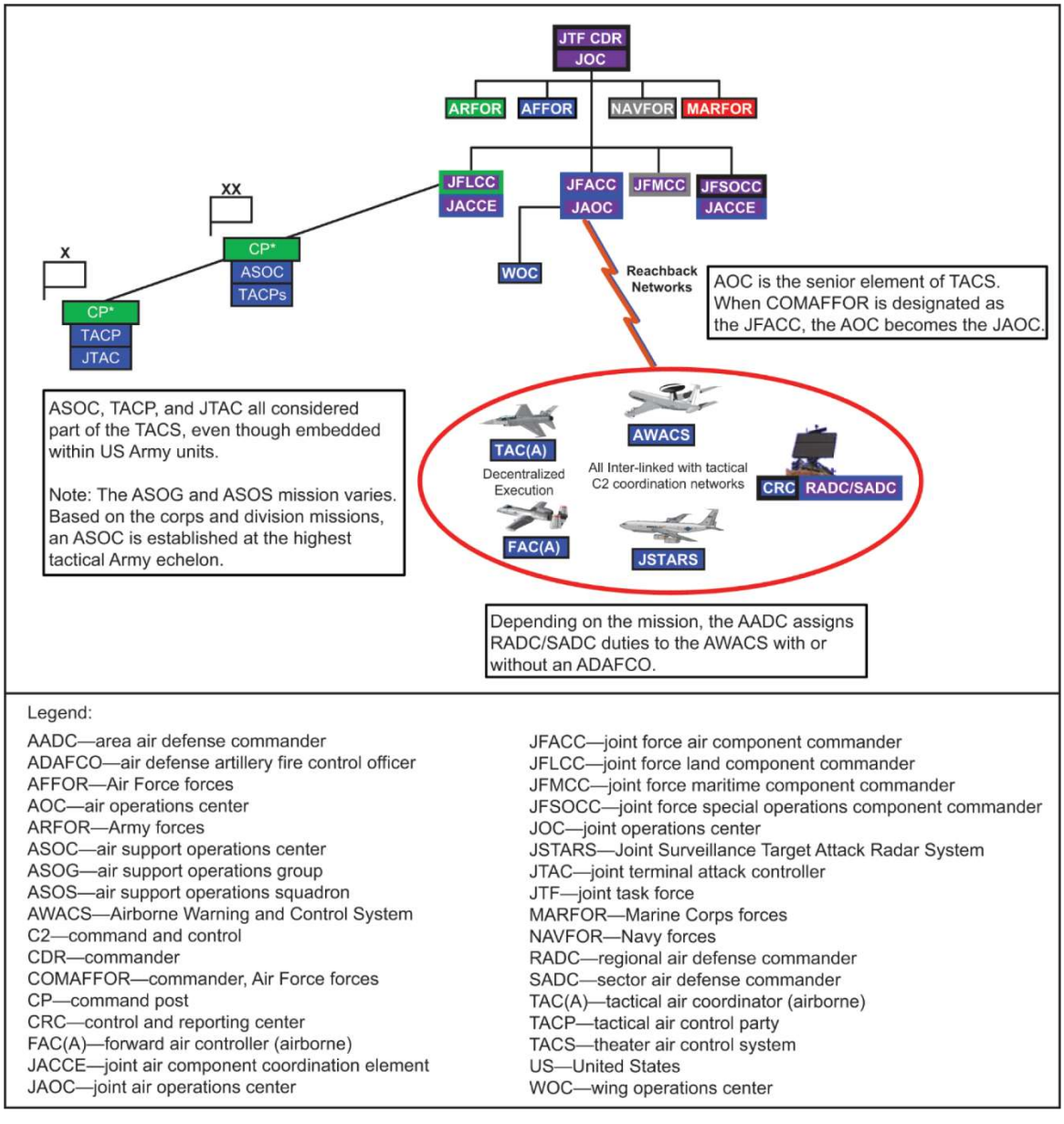


Figure 2. Theater Air Control System[11]

Setting Conditions: Planning For Execution

Before discussing how commanders can make the most effective use of airspace and airpower in execution, we must first understand how air operations are planned prior to execution. When effects exceeding organic capabilities are identified during the planning process, Army air support requests are created and submitted to the supporting air component to be resourced by joint capabilities. Airspace is planned to support the operation and Army airspace requirements are submitted to the ACA for approval. The ACA ensures airspace is coordinated across the joint force to enhance effectiveness in accomplishing the JFC's objectives, prevent mutual interference, facilitate air defense identification, safely accommodate and expedite the flow of all air traffic in the joint operations area (JOA), and to prevent friendly fire incidents.[12] Army commanders who thoroughly understand joint air operations and comply with the JFC's plan for airspace control and the use of airpower, increase their likelihood of securing the airspace and resources required to successfully conduct their operations.

Authorities

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. The JFC may designate the JFACC as the supported commander for strategic attack; air interdiction; personnel recovery; and airborne intelligence, surveillance, and reconnaissance (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 and have the authority to designate target priority, effects, and timing of fires within their area of operation (AOs).[13]

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 during campaign planning, all service and functional components should support the development of the JFACC's joint air operations plan (JAOP). This includes adherence to the JFC's approved guidance provided by the rules of engagement, ACP, area air defense plan,[14] and baseline special instructions.[15]

The joint air tasking cycle requires participation by all joint force components to produce an executable ATO and ACO. 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.

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

- Developing a joint air operations plan in coordination with the other service and functional components to best support the JFC's concept of operations or operation plan.
- Recommending air apportionment priorities to the JFC.
- Allocating and tasking the joint air capabilities and forces made available by the service components based on the JFC's air apportionment decision.

- Providing the JFACC's guidance in the air operations directive 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.
- Providing oversight and guidance during execution of joint air operations.
- Assessing the results of joint air operations.
- Performing the duties of the ACA, if designated.
- Performing the duties of the area air defense commander, if designated.[16]

The ACA is a commander designated by the JFC to assume responsibility for the operation of the 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. The ACS is an arrangement by the ACA of the components and host-nation ACEs (organizations, personnel, policies, procedures, and facilities) required to perform airspace control. 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 provides the details of the approved requests for coordination measures such as ACMs and air defense measures (ADMs). The ground commander approves and submits FSCMs and maneuver control measures (MCMs) for inclusion within the ACO. Aside from certain small-unmanned aircraft systems that do not interfere with other airborne operations, all airspace users are subject to the ACO and the ACP.[17] The ACO and ACP provide direction to integrate, coordinate, and deconflict the use of airspace within the operational area.[18]

To successfully plan for, request, and control a volume of airspace, Army commanders must understand the authorities delegated by the JFC to the ACA and the role of the JAGIC as an airspace control element within the ACS. Airspace control elements are trained, organized, and equipped to provide varied airspace control and management capabilities. They generally are not interchangeable. For example, an Air Force control and reporting center provides positive and procedural control, whereas an Air Force ASOC only provides procedural control. Neither provides air traffic control services. It is important that airspace planners and operators know the specific capabilities and limitations of ACEs operating within the ACS.[19]

When a JAGIC is formed and a volume of airspace is delegated by the ACA to the Army commander's ACE to control, that Army commander is now responsible for ensuring that their JAGIC is performing airspace control and airspace management activities in accordance with the ACP and approved ACO. Although the JAGIC is resident within the Army CP and some of its personnel are directly subordinate to the Army commander, as an airspace control element of the TAGS, the JAGIC is part of the ACS and controls airspace under the authority of the ACA (as delegated by the JFC).

Systems and Procedures

Planning for the employment of airpower in support of the joint force requires understanding the linkages between the joint targeting cycle and the joint air tasking cycle. The joint targeting cycle is a continuous process that is not always constrained by time or rigidly sequential, as some steps in various phases may be conducted concurrently. It provides a framework to describe the phases and steps that are accomplished to successfully provide targeting products to the joint force. The joint targeting cycle supports joint planning and execution of operations by providing flexibility required to support the concept of operations and commander's intent as the operational

environment changes, opportunities arise, and plans change.[20] 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
- Assessment

See Figure 3. For more detailed information on targeting and joint fires, refer to JP 3-60, *Joint Targeting*, 28 September 2018 and JP 3-09, *Joint Fire Support*, 10 April 2019.[21]

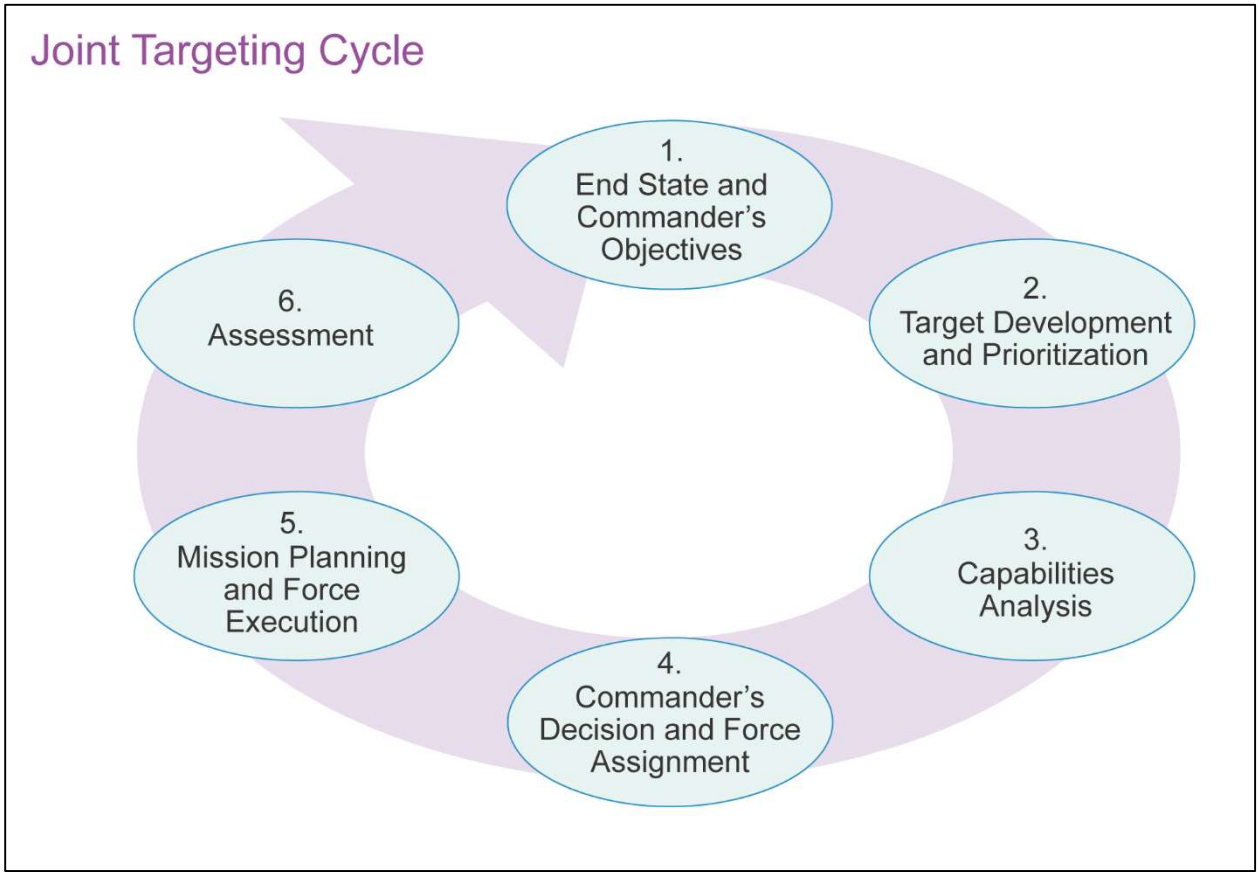


Figure 3. Joint Targeting Cycle[22]

The joint air tasking cycle provides for the effective and efficient employment of joint air capabilities and forces made available for tasking. The tasking cycle provides an iterative and cyclic process for planning and tasking joint air missions and sorties within the guidance of the JFC. The cycle accommodates changing tactical situations or JFC guidance. It also accommodates requests for support from other component commanders. The joint air tasking cycle is an analytical and systematic cycle that focuses joint air efforts on accomplishing operational requirements. Much of the daily tasking cycle is conducted through an interrelated series of information exchanges and active involvement in plan development, target development, air execution, and assessment, which provide a means of requesting and scheduling joint air missions.[23]

The joint air tasking cycle consists of six stages as depicted in Figure 4:

- Objectives, effects, and guidance
- Target development
- Weaponeering and allocation
- ATO production and dissemination
- Execution planning and force execution
- Assessment[24]

The joint air tasking cycle receives products from information developed during the joint targeting cycle and other joint force processes. The joint targeting cycle and joint air tasking cycle are systematic processes 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 suspense's for product inputs and outputs for each stage of the joint air tasking cycle.[25] 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.[26] For more detailed information on the six stages of the joint air tasking cycle, refer to JP 3-30, *Joint Air Operations*, 25 July 2019.

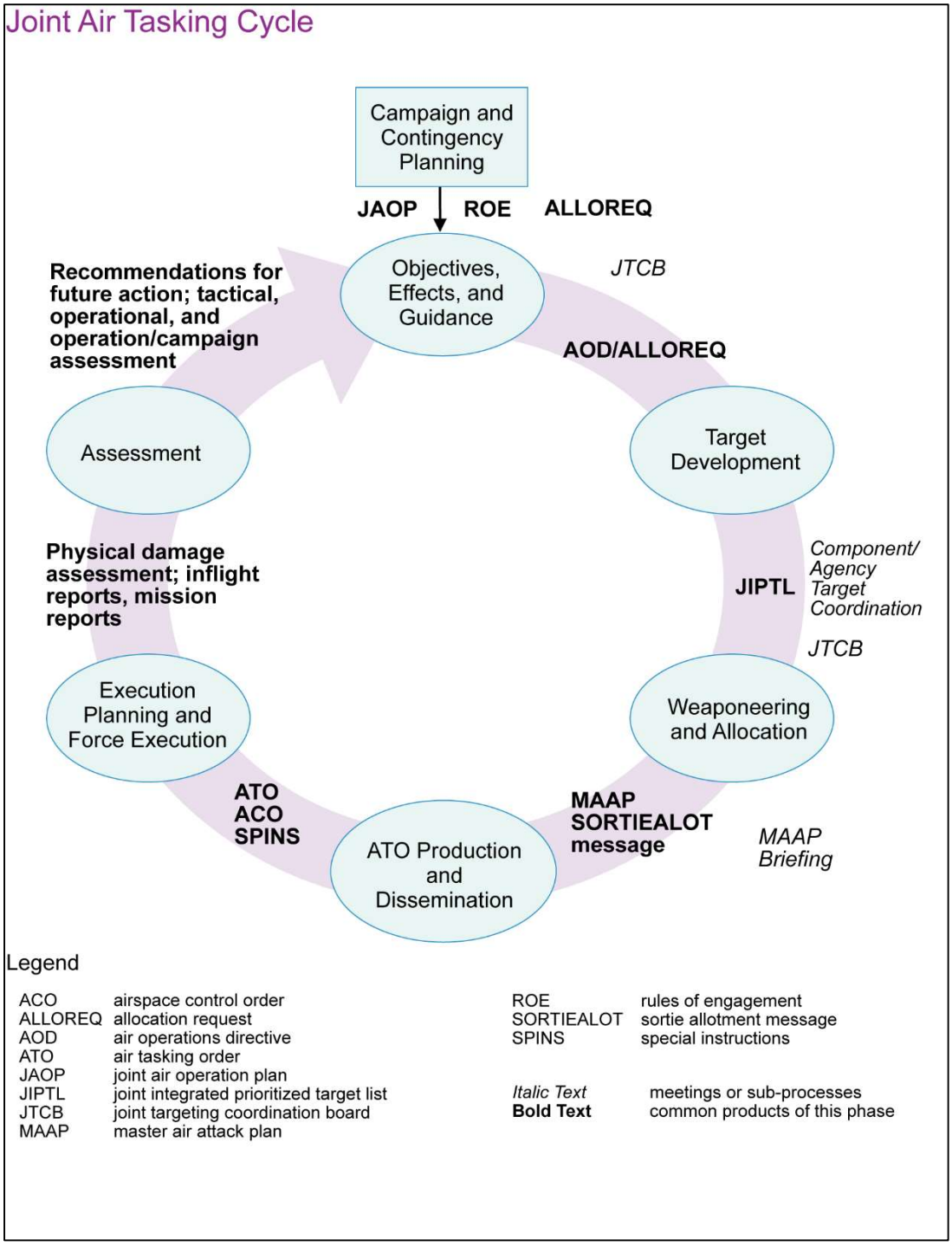


Figure 4. Joint Air Tasking Cycle[27]

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 JFC's guidance is normally communicated through the joint targeting coordination board and documented in the air operations directive to focus use of joint air capabilities for a specified period. The ATO articulates the tasking for joint air operations for a specific execution period, normally 24 hours. The joint air tasking cycle is synchronized with the JFC's battle rhythm. The

joint air operations center (JAOC) normally establishes a 72 to 96-hour ATO planning cycle. The battle rhythm or daily operations cycle provides suspense for targeting, air support requests, friendly order of battle updates, etc., to produce the air battle plan that is used to create 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 concept of operations and supporting other components' operations. The net result of the tasking process is a series of ATOs and related products in various stages of progress at any time.[28] See Figure 5.

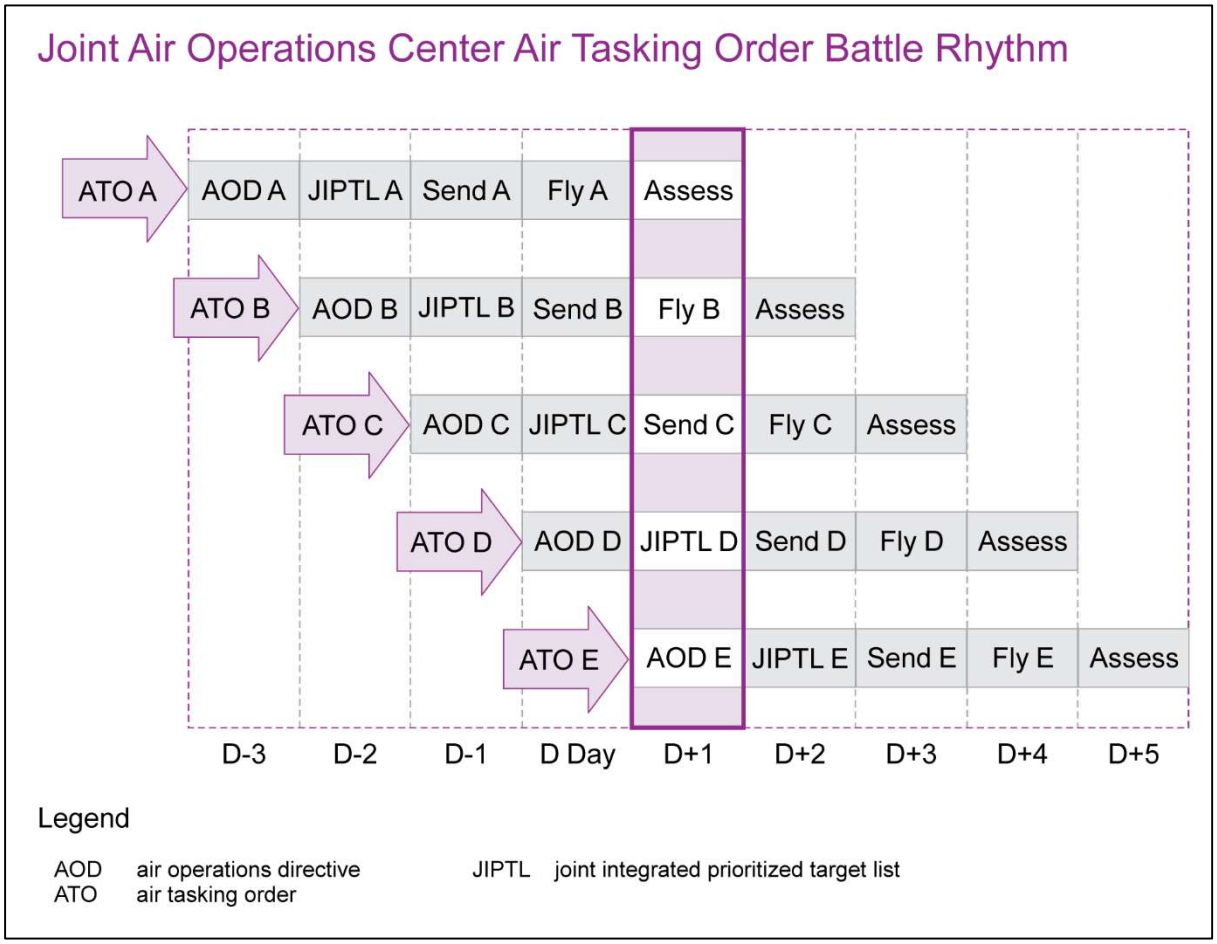


Figure 5. Joint Air Operations Center Air Tasking Order Battle Rhythm[29]

The 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 planning cycle which starts with objectives, effects, and guidance, is standard (see Figure 6). The ATO matches and tasks air assets and capabilities made available to the JFACC for tasking to prosecute targets and resource air support requests and other requirements. Other component air missions should be on the ATO to improve joint force visibility and assist with overall coordination and deconfliction. The other component air missions that appear on the ATO may not be under the control of the JFACC, and the JFACC will coordinate changes with all affected components.[30]

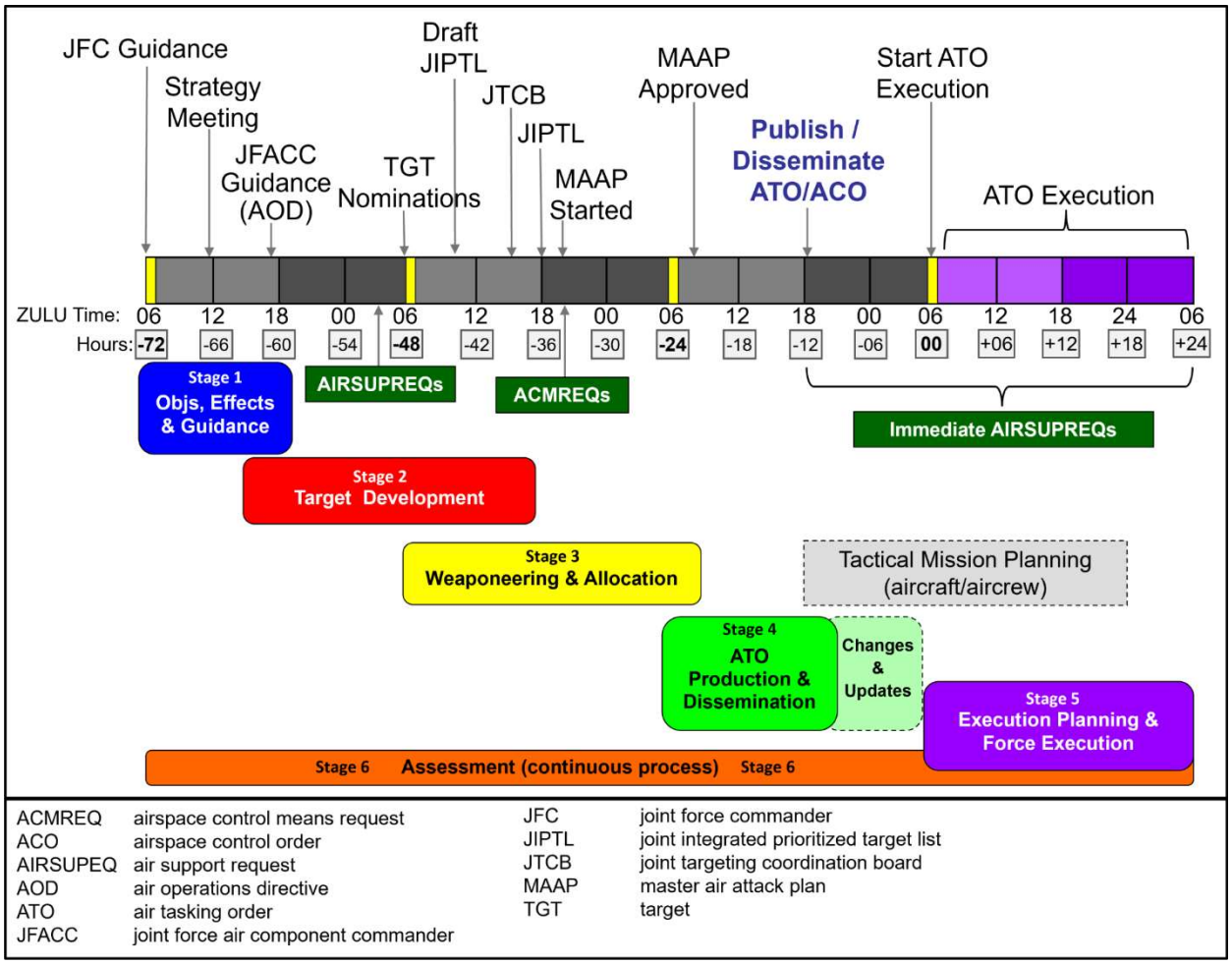


Figure 6. Example Joint Air Tasking Cycle Timeline[31]

Airspace Planning: Deliberately Plan to Dynamically Execute

Centralized airspace planning facilitates meeting the joint force commander priorities, while decentralized execution gives subordinate commanders the flexibility to execute missions effectively.[32] Joint doctrine recognizes unity of effort as a common operating principle. Within their service doctrine, the Air Force recognizes unity of effort as an additional principle of joint operations to highlight its importance.[33] Achieving unity of effort requires the ACS and associated procedures to be fully coordinated, integrated, and centrally planned by the ACA.[34]

Army AEs perform a series of collective tasks during staff planning to help the S-3/G-3 integrate airspace user's requirements with other coordination measures. The UAP represents the integration of a unit's airspace requirements for the unit's area of operations for a specified time (aligned with the ACO). The production of the daily UAP is per the ACA's ACP and supporting Appendix 10 (Airspace Control), to Annex C (Operations), of the Army operations order. UAP inputs include ACMs, FSCMs, and MCMs. The AE creates ACMs to support current and planned operations. These ACMs serve as the foundation of the UAP. The fire support element (FSE) provides FSCMs, and the movement/maneuver cell establishes MCMs that can be integrated into the UAP to synchronize air-ground operations.

ACMs are employed to facilitate the efficient use of airspace to accomplish missions and simultaneously provide safeguards for friendly forces. ACMs are nominated from subordinate headquarters through component command headquarters and forwarded to the ACA in accordance with the ACP. The ACA consolidates, coordinates, and deconflicts the airspace requirements of the components and publishes the ACMs in the ACO. Simply stated, ACMs are approved by the ACA and disseminated via the ACO. The ACO is published to meet the operations tempo and should be disseminated to meet the pace of the ACM request process.[35] Additionally, the ACP may direct selected MCMs and FSCMs to be published in the ACO to coordinate measures that affect component operations within the JOA (some FSCMs and MCMs have a vertical component that requires consideration and coordination when traversing or firing ordnance, and/or represent the locations of friendly forces or other entities within the area of operations).

Airspace Control and Airspace Management

Developing and implementing a cohesive plan for airspace use requires understanding the difference between airspace control and airspace management.

Airspace control is the exercise of delegated authority over designated airspace and airspace users through control procedures and coordination measures to maximize operational effectiveness. Airspace control, when delegated from the JFC's designated ACA, includes specified authorities over a volume of airspace to coordinate, integrate, and regulate airspace users.

Airspace management is the planning, coordination, integration, and regulation of airspace by ACEs in support of airspace control.[36] Airspace control relies upon airspace management capabilities provided by ACEs with the appropriate training for effective and safe operations in the air domain.

Airspace control and airspace management are distinctly different terms. They complement one another and are essential to overall military effectiveness and in achieving JFC objectives.

Effective airspace control requires ACEs and/or C2 nodes to maintain close liaison and coordination among all airspace users and relies on common airspace control procedures, which include procedural and/or positive control methods.

Procedural control relies on common procedures, designated airspace, and promulgated instructions for ACEs to deconflict and activate air traffic control measures (ATCMs), ACMs, FSCMs, and ADMs.[37]

Positive control relies on surveillance, accurate identification, and effective communications between ACA-designated ACEs and all airspace users. Positive control requires two primary conditions:

- The means to locate and identify airspace users via electronic means[38]
- The ability to maintain continuous communications with them for required control instructions[39]

Airspace control differs from airspace management. Army commanders can make a request to the ACA for a volume of airspace to control in accordance with the ACP. In their request, the commander must justify the tactical necessity and demonstrate the capability to control airspace. Airspace control capability is demonstrated by teaming with the Air Force ASOC and exercising the JAGIC TTP in the CP. It is the combination of Army and Air Force personnel that enables a division commander to effectively control a volume of airspace. Air defense airspace management/brigade aviation elements (ADAM/BAEs) located at the brigade echelon do not have

the training, personnel, or equipment required to conduct airspace control, but they coordinate with the division JAGIC and are actively involved in the management of airspace users within the brigade area of operations.

The ADAM/BAE maintains communications with the division JAGIC to plan and coordinate airspace requirements on behalf of the brigade commander. ADAM/BAEs will conduct airspace management activities in accordance with the airspace control appendix published by the division staff (Appendix 10, Airspace Control to Annex C, Operations). This supports the ability of the division to control their assigned volume of airspace during current operations.

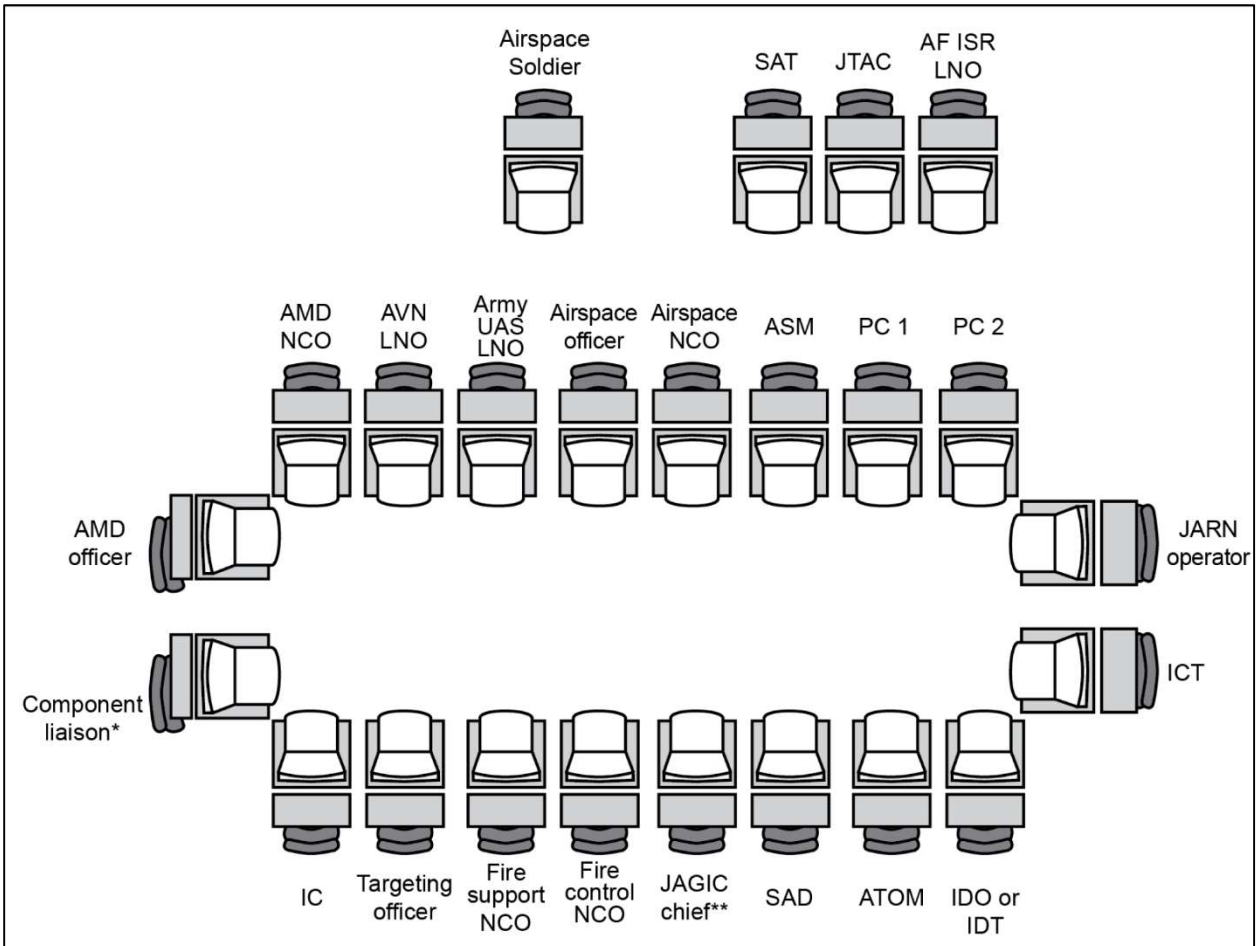
Army Divisions: Joint Air-ground Integration Center

Army 2030 force design updates ensure our adversaries cannot outrange or outpace the U.S. Army on traditional battlefields.[40] The critical idea driving Army 2030 initiatives is that divisions, supported by corps and the theater Army, must be empowered to fight as formations and deliver decisive advantages. Designating the division as the Army's principle tactical warfighting formation[41] means that it will gain the personnel, organizations, and equipment they need to disrupt and defeat an adversary's ability to achieve objectives.[42]

Located in the Army division current operations integration cell, the JAGIC provides commanders a technique to coordinate, integrate, and control operations in division-assigned airspace and efficiently collaborate requirements with external airspace elements outside of the division area. The JAGIC collocates decision-making authorities from the land and air components to support the supported maneuver commander's objectives and intent.[43] The Airmen who make up the ASOC and TACP have JFACC and ACA authority to conduct procedural control of JFACC airspace users operating in support of the division or in division-assigned airspace. Army airspace personnel are delegated an enhanced procedural control authority over division airspace users by the ACA and in accordance with FM 3-52, *Airspace Control*, 20 October 2016. The collocation of Army and Air Force airspace personnel with fires, air defense, and Army aviation personnel allows for responsive execution of airspace control. Army airspace personnel can procedurally control Army airspace by either communicating directly to the airspace users or, when appropriate, through coordination with the ADAM/BAEs.[44]

The JAGIC facilitates effective mission execution while managing the level of risk. The control and coordination of this center with other centers were depicted in Figure 1 with the corps as the most senior tactical echelon, but the divisions with their JAGICs are still integrators and control division assigned airspace.[45] To fulfill their role as the decisive tactical formation, Army divisions require the ability to effectively integrate surface-to-surface fires with joint airpower operating within the same volume of airspace in support of the ground force. ASOCs operating within division CPs via the JAGIC TTP, enable commanders to conduct C2 of airspace users operating within their area of operations.

Figure 7 shows a JAGIC seating arrangement in a traditional division CP. This seating arrangement represents the best Army-Air Force teaming within a JAGIC and can be applied to disaggregated CPs by recognizing where critical information linkages are required and maintaining those teams while dispersed for survivability.



*Component liaison seating can include the mobility Air Force weapons officer, air mobility liaison officer, special operations fires, information operations officer, and staff judge advocate.

**The JAGIC chief is primarily filled by a fire support officer, formerly referred to as the assistant fire support coordinator (AFSCOORD).

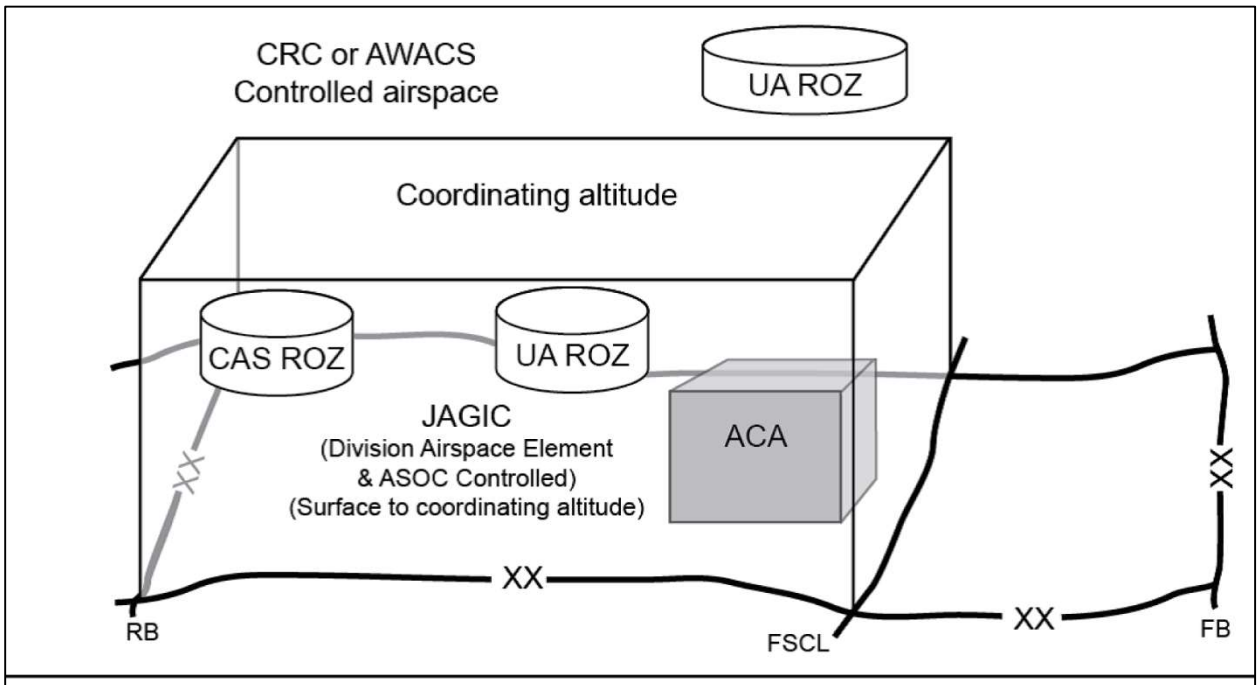
Additional duty positions as required:
Information collection manager, UAS technician, electronic warfare manager and space liaison officer, and staff judge advocate. Other positions may be added based on the division commander's direction and personnel availability.

AF	Air Force	JAGIC	joint air ground integration center
AMD	air and missile defense	JARN	joint air request net
ASM	airspace manager	JTAC	joint terminal attack controller
ATOM	air tasking order manager	LNO	liaison officer
AVN	aviation	NCO	noncommissioned officer
IC	interdiction coordinator	PC	procedural controller
ICT	interface control technician	SAD	senior air director
IDO	intelligence duty officer	SAT	senior air technician
IDT	intelligence duty technician	UAS	unmanned aircraft system
ISR	intelligence, surveillance, and reconnaissance		

Figure 7. JAGIC Seating Arrangement[46]

As a direct subordinate C2 element of the JAOC, the ASOC is responsible for directing and controlling air operations in its assigned area, short of the fire support coordination line (FSCL) and up to the coordinating altitude (CA). See Figure 8. Air missions conducted within the ASOC's control area, and not directly supporting the ground component, are coordinated through the

ASOC. The ASOC deconflicts ground force maneuver and fires and provides target and threat updates for supporting aircraft.[47]



ACA	airspace coordination area	FB	forward boundary
ASOC	air support operations center	JAGIC	joint air-ground integration center
AWACS	airborne warning and control system	RB	rear boundary
CAS	close air support	ROZ	restricted operating zone
CRC	control and reporting center	UA	unmanned aircraft
FSCL	fire support coordination line		

Figure 8. Division-assigned airspace[48]

Maintaining alignment of ASOCs at the division echelon increases situational awareness for the joint force. Information is fed back to the JAOC and shared with other TACS elements directly from the ASOC as soon as it is acquired. Removing the ASOC from the division CP may cause unnecessary delays in the information flow, reducing the effectiveness of joint airpower in execution. Having to relay threat information and target updates to echelons further removed from the fight can result in delayed response times or in incorrect information, as changes dynamically occur within the area of operations. The division is the most relevant echelon at which the most accurate and pertinent information regarding the current operation is maintained. The JAGIC TTP is likely the best option for the ACA to control the volume of airspace where an Army division will conduct tactical operations. ASOC personnel working in a division CP gain an in-depth understanding of the scheme of fires and the ground scheme of maneuver. This situational understanding is required to effectively control airspace with the high density of indirect surface fires and other airspace users typically expected during LSCO.

Army Corps: Joint Targeting and Execution Capability

The current Army-Air Force liaison MOA, signed in February 2022, places the ASOC at division to develop teamwork, maintain combat readiness, and facilitate the JAGIC. As discussed previously, the ASOC is the primary control agency of the TACS for directing airpower in support of land operations. Although its primary mission is to control air operations short of the FSCL, the

ACA could designate the ASOC to control airspace users beyond the division's forward boundary up to the FSCL and into the corps deep area.

Key considerations for the feasibility of such a construct are communications limits, ASOC capacity to control the additional anticipated air missions, JAGIC capacity to control the additional airspace, and a process for clearance of fires within the terrain beyond the division boundary.[49] See Figure 9.

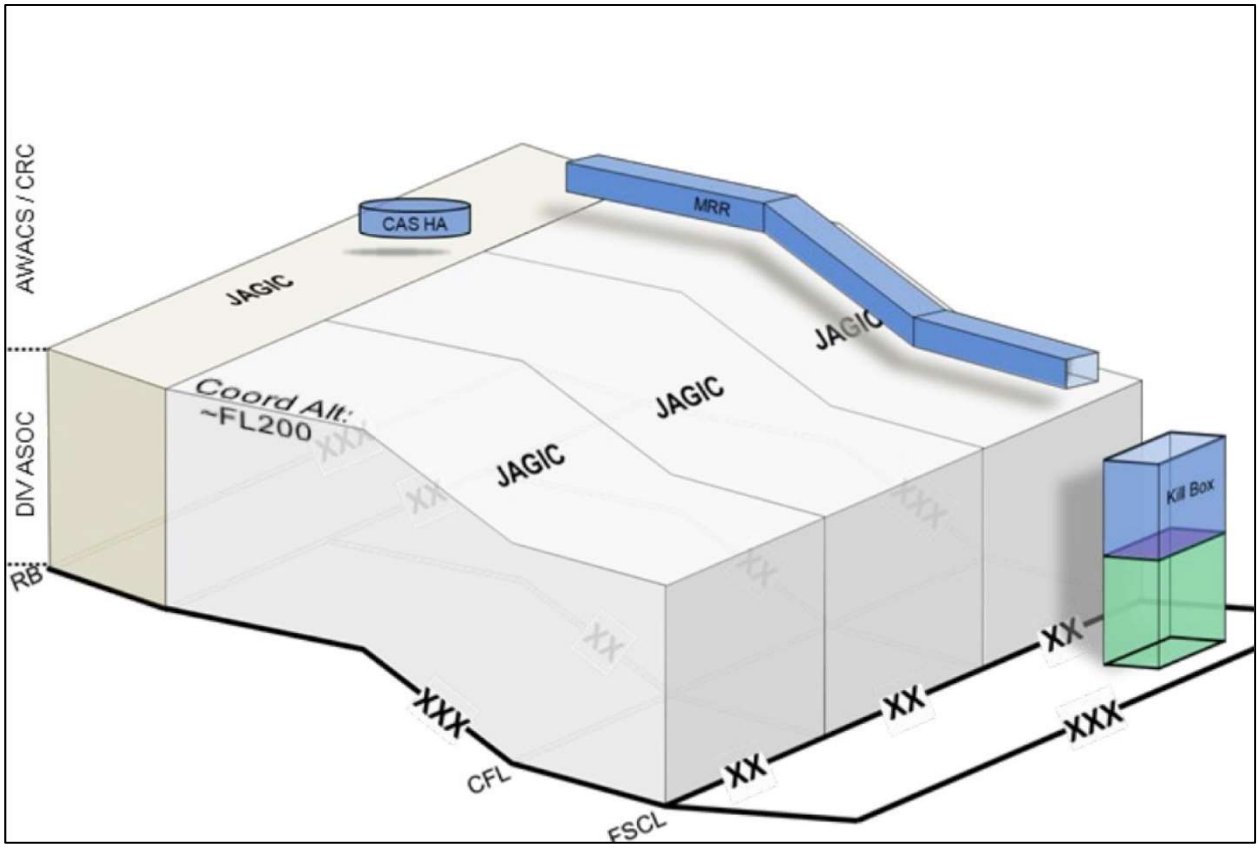


Figure 9. Example Corps Airspace Management[50]

To ensure unity of effort and a fully integrated use of capabilities for deep operations, a JTEC TTP within the corps headquarters could be used to synchronize all fire support assets in accordance with the commander's guidance. The JTEC TTP integrates with the corps FSE and other Army, joint, and multinational elements of the fire support system.[51] The JTEC is not a cell, but a TTP resident within the current operations integration cell. The JTEC TTP allows a tactical corps to manage direct support airpower and conduct dynamic targeting in response to emerging targets of opportunity. The TTP does not provide the manning or equipment to control a volume of airspace for extended periods and should not be confused with a division JAGIC's function as an ACE.[52]

The primary focus of the JTEC TTP is to support the corps' role to conduct deep operations as a tactical headquarters in LSCO. The TTP provides a base personnel structure, positioned in multiple locations (main and tactical CPs), with multi-service capability leveraging trained personnel and digital systems. The JTEC TTP reinforces the staff's roles, missions, and functions that support accomplishing the commander's guidance, intent, and objectives. It provides the means to effectively structure relationships and processes facilitated through the physical integration of selected current operations staff members with Air Force TACP personnel.[53]

To make the best use of the JTEC TTPs, commanders must understand how planning for airspace and deliberate targeting efforts support the dynamic execution of targets. Deliberate targeting produces planned targets (scheduled targets and on-call targets), which are targets known to exist in the operational environment with engagement actions scheduled against them. Except for unanticipated targets, all targets should flow from deliberate targeting. Scheduled targets are prosecuted at a specific time. On-call targets have actions planned but not for a specific delivery time. Commanders expect to locate on-call targets in time to execute planned actions; these targets are normally executed using the dynamic targeting process.[54] Airspace requirements should be planned and submitted in time to support deliberate and dynamic targeting efforts. UAPs should include airspace that is designed to be flexible during execution. Changes to approved and planned airspace must be made in consultation with the ACA and shared with superiors, subordinates, and supporting and affected commanders. For more information on targeting, see JP 3-60, *Joint Targeting*, 28 September 2018 and FM 3-60, *Army Targeting,*11 August 2023.

The JTEC TTP supports airspace management through decentralized execution. It will, for example, assign targets of opportunity to on-call air missions tasked to support the corps on the ATO and provide target updates to scheduled air missions. The JTEC will not typically conduct airspace control during execution. Airspace control is executed by designated ACEs per the ACP. Normally, airspace use in the corps area of operations below a CA will be controlled by that responsible division's JAGIC/ASOC, and airspace use above the CA will be controlled by other ACEs of the TACS.[55] See Figure 10.

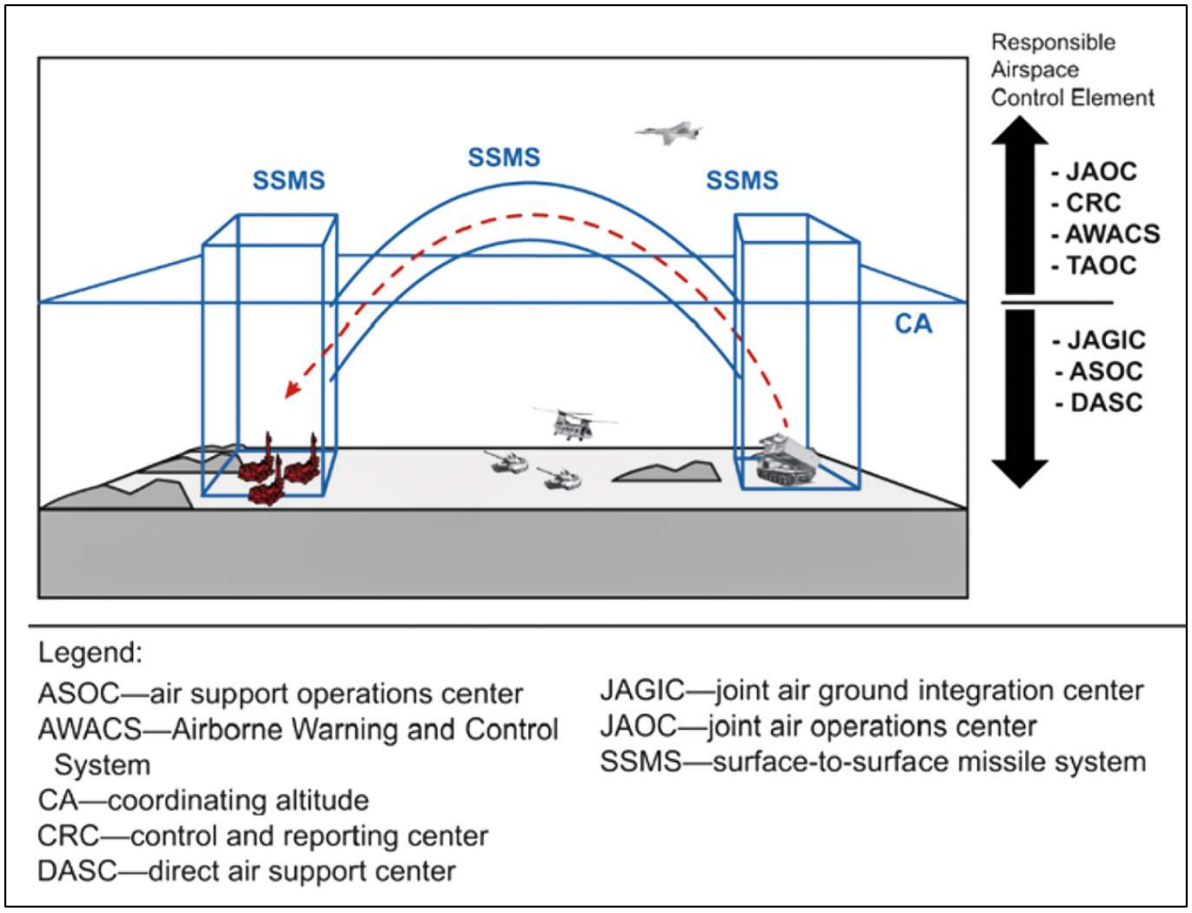


Figure 10. Airspace Clearance Above the Coordinating Altitude[56]

Corps commanders control the priority, effects, and timing of fires within their area of operations. They conduct airspace management and leverage the decentralized execution and airspace control capabilities of subordinate division JAGICs to provide joint fires and effects on targets in the corps deep area short of the FSCL (e.g., to range targets in the corps deep area, corps artillery is positioned inside the division area of operations and must have their fires cleared by the JAGIC). Divisions exercising the JAGIC TTP are much better positioned to execute airspace control on behalf of the corps commander and the ACA because of their proximity to the enemy and understanding of the ground scheme of maneuver and supporting fires.

The corps' deliberate targeting efforts are normally focused beyond the division forward boundary, up to and potentially beyond the FSCL, and often require more than 24 to 96 hours to properly plan and execute engagements.[57] Division targeting efforts are normally concentrated between the division's forward boundary and their forward line of own troops (FLOT) and/or coordinated fire line. Division commanders require the ability to efficiently direct and re-direct the movement of joint airpower operating in support of the ground force within the division area of operations to actively counter enemy actions and ensure success in the close fight.

Although the JAGIC TTP was designed to be executed within a division CP, this does not preclude a corps headquarters from forming a temporary JAGIC if necessary. Language in the Army Air-Force MOA specifically states the following that, "When employing an ASOC, it will support the headquarters at the Army echelon above brigade most capable of integrating fires and effects and procedural control."[58] A corps commander may temporarily direct relocation of the ASOC from a division CP to the corps CP to form a JAGIC to execute airspace control when operational requirements justify the need for a JAGIC at corps.

Example situations could involve multiple subordinate divisions that are not JAGIC capable because of the size and scope of the operation or because of the terrain on which the operation is taking place, such as a series of islands or other AOs too small to support a large volume of airspace for each division to control. Corps commanders could temporarily relocate the ASOC to form a JAGIC to support a focused mission such as a wet gap crossing involving multiple divisions that are not capable of maintaining their airspace control capability while moving. Whatever the situation, careful consideration should be taken to weigh the costs of relocating a JAGIC capability against the proposed benefits.

Air Support Operations Center at Division Enhancing Command and Control

Army doctrine recognizes mission command as the Army's approach to C2 that empowers subordinate decision making and decentralized execution appropriate to the situation.[59] Similarly, the Air Force Airman's philosophy for the C2 of airpower is also mission command. Mission command is one of the Air Force's tenets of airpower. The tenets of airpower reflect the unique aspects of airpower and complement the principles of joint operations. See Figure 11.

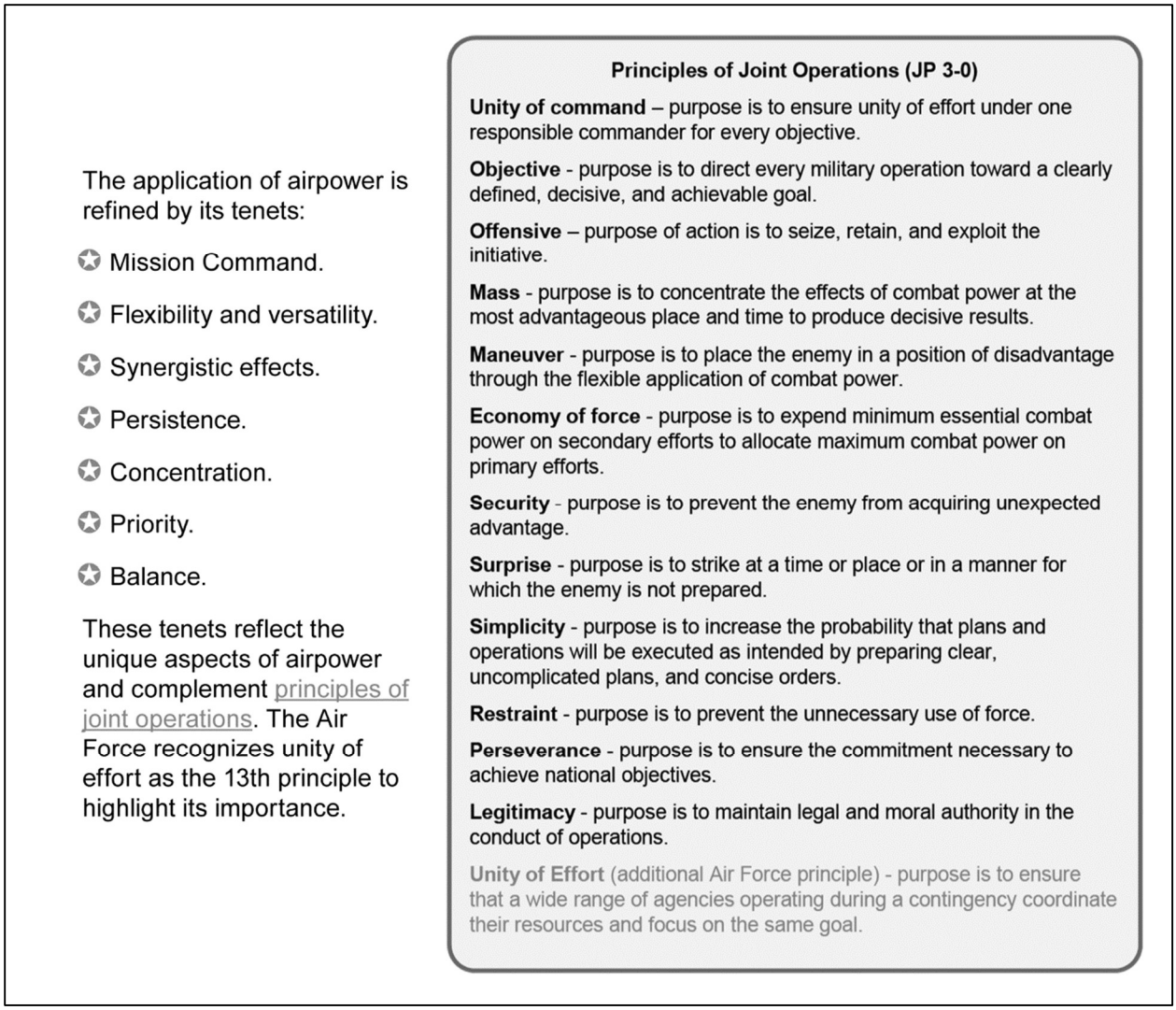


Figure 11. Tenets of Airpower and Principles of Joint Operations[60]

According to Air Force doctrine, mission command is an approach to C2 that empowers subordinate decision making for flexibility, initiative, and responsiveness in the accomplishment of the commander's intent.

The Air Force's core principles of mission command are:

- Build teams through mutual trust.
- Create shared understanding.
- Provide clear commander's intent.
- Use mission-type orders when appropriate.
- Exercise disciplined initiative.
- Accept prudent risk.

Airmen execute mission command through:

- Centralized command
- Distributed control
- Decentralized execution

Centralized command gives the commander the responsibility and authority for planning, directing, and coordinating military operations. It promotes effectiveness and preserves flexibility and versatility at the operational level while supporting the joint principle of unity of command.

Distributed control enables commanders to delegate authorities for planning, coordination, execution, and assessment activities to dispersed locations to achieve an effective span of control and maintain the initiative, particularly in contested environments. It allows subordinate commanders to respond to changes in the operational environment and exploit emergent opportunities.

Decentralized execution is enabled by commanders empowering subordinate decision-making to enable flexibility, initiative, and responsiveness in mission accomplishment. This is the fundamental characteristic of operations guided by a mission command philosophy.[61]

Maintaining ASOC alignment at the Army division CP supports the Air Force's distributed control and decentralized execution requirements. An ASOC operating within the division CP enhances the JFACC's situational awareness of the tactical situation as it progresses in real time. ASOCs feed tactical information to decision makers within the JFACC's JAOC and to other TACS elements and they ensure Army needs are identified at the appropriate echelon. ASOCs operating at the division echelon support the Air Force's tenets of flexibility and versatility by providing pertinent intelligence directly to the JAOC that may be used to decide whether aircraft re-role or re-tasking is necessary to support an unanticipated need.

The ASOC provides effective and timely C2 of aircraft operating in support of tactical ground combat formations. ASOC personnel working within the Army division CP are acutely aware of the current operation and are best positioned to provide valuable insight to the Army commander on the most effective use of airpower at any given time, thus ensuring that available airpower is not unintentionally wasted or misused. This supports the tenets of priority and balance.

The effectiveness of airpower depends on Airmen ensuring assets are employed efficiently and effectively to achieve the commander's intent. Operations in denied, degraded, and disrupted environments require flexible and adaptive Airmen who maintain unity of effort by exercising the philosophy of mission command based on trust, shared awareness, and shared intent.[62] To achieve the commander's intent and ensure joint air assets are being employed efficiently and effectively, work directly with the supported commander at the appropriate echelon.

The division is the Army's principal tactical warfighting formation during LSCO[63] and as such requires the capabilities afforded by the ASOC to mass combat power in peer-on-peer combat operations.

Conclusion

Army and Air Force commanders have fundamentally different views and opinions on how to conduct operations in support of the JFC. These differences are magnified during combat and have been the subject of research, have caused heated debate, and have even drawn national attention, after the fact. Take for instance the opposing views of Army LTG (Retired) Calvin Waller (deputy commander, U.S. Central Command [CENTCOM], Operation Desert Storm), and Air Force Lt Gen (Retired) Buster Glosson (air offensive campaign chief, CENTCOM, Operation Desert Storm) on the use of airpower during the Persian Gulf War:

> I have never seen a strategic air campaign yet that moved one enemy Soldier off a piece of terrain… We had over a month, a month and a third if you want to be more precise, to try to win that war with strategic air and I don't think strategic air would have caused Saddam Hussein to withdraw from Kuwait… I really believe that Buster Glosson really believed in his own mind that if he could just have a few more days and hit a few more [strategic] targets that there wouldn't be a need for a ground war…we were too concerned about the strategic targets to really concentrate on shaping the battlefield for those ground commanders.[64]
>
> – Army LTG Waller

> The intensity of the strategic air campaign and when to switch that intensity, more toward the field army deployed, was always a controversial issue. The Army had one view, and the Air Force had another view. We believed, and I still do, that the attacking of targets in Baghdad had as much or more to do with the success or failure of that field army. This air campaign, in its totality, was Norman Schwarzkopf's air campaign, it wasn't Cal Waller's nor Buster Glosson nor Chuck Horner's. The campaign was part of Schwarzkopf's overall war plan. We executed that the way he wanted it executed. If that happened to not be the way Cal Waller thought that it should be executed, that's tough.[65]
>
> – Air Force Lt Gen Glosson

Understanding the ASOC and a division executing the JAGIC TTP, supports the JFC's priorities through the ACA to enable the most effective means of developing and executing the ACP and ACO for the entire JOA. An Army commander exercising the JAGIC TTP in the CP is likely the best means available to the ACA to control the volume of airspace where significant tactical ground combat operations will occur. Army commanders must maintain a clear understanding of the ground scheme of maneuver and scheme of fires. They should deliberately plan airspace and fires to support the dynamic execution of targets to enhance their ability to effectively manage organic and supporting airspace users.

When requesting a volume of airspace to control, commanders must demonstrate their knowledge of airspace by using doctrinally accurate terms to describe the tactical conditions within their AO, their airspace requirements, and the techniques used to mitigate risk to an acceptable level; and by understanding and utilizing the TACS/AAGS. It is the responsibility of Army commanders to clearly articulate to the ACA their airspace requirements and demonstrate that their CP contains the capabilities required to be delegated a volume of airspace.

Knowledgeable and informed commanders make a strong case to the ACA in support of maintaining ASOC alignment at the division echelon to conduct procedural control of airspace and

airspace users via the JAGIC TTP. It is possible that, despite having correctly submitted a comprehensive request for airspace control to the ACA, Army commanders may still not receive their requested volume of airspace in its entirety because of other factors affecting joint air operations (e.g., JFACC priorities for airspace use in support of JFC objectives or enemy threats to friendly airspace users).

Note: Army commanders that do not request a volume of airspace or that are unable to justify the tactical necessity and demonstrate to the ACA their capability to control airspace, will find themselves poorly positioned to influence airspace control decisions affecting their operations.

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Figure 6 - Nicholas Niewadomski, Example Joint Air Tasking Cycle Timeline, Hurlburt Field, FL: Army Joint Support Team, 2023.

Figure 10 - Nicholas Niewadomski. Airspace Clearance Above the Coordinating Altitude. Hurlburt Field, FL, Army Joint Support Team, 2023.

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LTG Calvin Waller, interview by PBS FRONTLINE, "An Oral History," The Gulf War: An In-depth Examination of the 1990-1991 Persian Gulf Crisis. WGBH-PBS, Boston 9-10 January 1996.

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Terms and Definitions[66]

air operations directive. This provides the joint force air component commander's (JFACC's) guidance 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 air operations directive normally includes the joint force commander's apportionment decision and joint targeting guidance, the JFACC's intent, objectives, weight of effort, and other detailed planning guidance that includes priority of joint air support to joint force commander and other component operations (as described in Joint Publication [JP] 3-30, *Joint Air Operations*, 25 July 2019).[67]

air support operations center. The principal air control agency of the theater air control system responsible for the direction and control of air operations directly supporting the ground combat element. Also called ASOC (Department of Defense [DOD] Dictionary, JP 3-09.3, *Close Air Support*, 10 June 2019).

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. (DOD Dictionary, JP 3-30).

air tasking order. A method used to task 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).

airspace control. This is the exercise of delegated authority over designated airspace and users through control procedures and coordination measures to maximize operational effectiveness (DOD Dictionary, JP 3-52).

airspace control area. This is airspace that is laterally defined by the boundaries of the operational area and may be subdivided into sectors (DOD Dictionary, JP 3-01, *Countering Air and Missile Threats*, 6 April 2023).

airspace control authority. The commander designated for overall responsibility for airspace control. Also called ACA (DOD Dictionary, JP 3-52, *Joint Airspace Control*, 22 October 2022).

airspace control order. An order implementing the airspace control plan that provides the details of the approved requests for airspace coordinating measures. Also called ACO (DOD Dictionary. Source: JP 3-52).

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

airspace control system. An arrangement by the airspace control authority of the components and host-nation airspace control elements (organizations, personnel, policies, procedures, and facilities) required to perform airspace control. Also called ACS. (DOD Dictionary, JP 3-52).

airspace coordinating measures. These are measures employed to facilitate the efficient use of airspace to accomplish missions and simultaneously provide safeguards for friendly forces. Also called ACMs (DOD Dictionary, JP 3-52).

airspace management. This is the planning, coordination, integration, and regulation of airspace-by-airspace control elements in support of airspace control (DOD Dictionary, JP 3-52).

area of operations. This is an operational area defined by a commander for the land or maritime force commander to accomplish their missions and protect their forces. Also called area of operations (DOD Dictionary, JP 3-0, *Joint Campaigns and Operations*, 18 June 2022).

army air-ground system. This is the Army system that provides for interface between Army and tactical air support agencies of other Services in the planning, evaluating, processing, and coordinating of air support requirements and operations. Also called AAGS (DOD Dictionary, JP 3-09.3).

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, JP 3-30).

command and control. This is the exercise of authority and direction by a properly designated commander over assigned and attached forces in the accomplishment of the mission. Also called C2 (DOD Dictionary).

coordinating altitude. This is an airspace coordinating measure that uses altitude to separate users and transition between different airspace control elements, also called CA (DOD Dictionary, JP 3-52).

coordinated fire line. This is a line beyond which conventional surface-to-surface direct fire and indirect fire support means may fire at any time within the boundaries of the establishing headquarters without additional coordination but does not eliminate the responsibility to coordinate the airspace required to conduct the mission. Also called CFL (DOD Dictionary, JP 3-09).

decentralized execution. This is delegation of execution authority to subordinate commanders (DOD Dictionary, JP 3-30).

deliberate targeting. This is targeting that produces planned targets (scheduled targets and on-call targets), which are targets known to exist in the operational environment with engagement actions scheduled against them (as described in JP 3-60, *Joint Targeting*, 28 September 2018).[68]

dynamic targeting. This is targeting that prosecutes targets identified too late or not selected for action in time to be included in deliberate targeting (DOD Dictionary, JP 3-60).

fire support coordination line. This is a fire support coordination measure established by the land or amphibious force commander to support common objectives within an area of operation, beyond which all fires must be coordinated with affected commanders before engagement and, short of the line, all fires must be coordinated with the establishing commander before engagement. Also called FSCL (DOD Dictionary, JP 3-09).

fire support coordination measure. This is a measure employed by commanders to facilitate the rapid engagement of targets and simultaneously provide safeguards for friendly forces. Also called FSCM (DOD Dictionary, JP 3-0).

joint air-ground integration center. A staff organization designed to enhance joint collaborative efforts to deconflict joint air-ground assets in the division's airspace. Also called JAGIC (DOD Dictionary, JP 3-09.3).

joint air operations. These are 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, JP 3-30).

joint air operations center. This is 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, JP 3-30).

joint air operations plan. This is 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, JP 3-30).

joint force air component commander. The commander within a unified command, subordinate unified command, or joint task force responsible to the establishing commander for recommending the proper employment of assigned, attached, and made available air forces in planning and coordinating air operations; or accomplishing such operational missions. Also called JFACC (DOD Dictionary, JP 3-0).

joint force commander. A general term applied to a combatant commander, subordinate unified commander, or joint task force commander (also called JFC [DOD Dictionary]).

joint force land component commander. The commander within a unified command, subordinate unified command, or joint task force responsible to the establishing commander for recommending the proper employment of assigned, attached, and made available land forces in planning and coordinating land operations; or accomplishing such operational missions. Also called JFLCC (DOD Dictionary, JP 3-0).

joint operations area. The airspace, land area, and maritime area defined by a combatant commander or subordinate unified commander, in which a joint force commander directs military operations to accomplish a specific mission. Also called JOA (DOD Dictionary. Source: JP 3-0).

joint targeting coordination board. A group formed by the joint force commander to accomplish broad targeting oversight functions that may include, but are not limited to, coordinating targeting information; providing targeting guidance, synchronization, and priorities; and approving the joint integrated prioritized target list (JTCB) (DOD Dictionary, JP 3-60).

planned target. Target that is known to exist in the operational environment, upon which actions are planned to use deliberate targeting, creating effects which support commander's objectives. There are two subcategories of planned targets: scheduled and on-call (DOD Dictionary, JP 3-60).

positive control. A method of airspace control that relies on positive identification, tracking, and communicating with aircraft within an airspace. Conducted with electronic means by an airspace control element having the authority and responsibility (DOD Dictionary, JP 3-52).

procedural control. A method of airspace control that relies on a combination of previously agreed upon and promulgated orders and procedures (DOD Dictionary, JP 3-52).

scheduled target. Planned target upon which fires, or other actions are scheduled for prosecution at a specified time.

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

target of opportunity. 1. A target identified too late, or not selected for action in time, to be included in deliberate targeting that, when detected or located, meets criteria specific to achieving objectives and is processed using dynamic targeting. 2. A target visible to a surface or air sensor or observer, which is within range of available weapons and against which fire has not been scheduled or requested (DOD Dictionary, JP 3-60).

unanticipated target. A target of opportunity that was unknown or not expected to exist in the operational environment (DOD Dictionary, JP 3-06, *Joint Urban Operations,* 20 November 2013).

unit airspace plan. This plan includes the integrated set of airspace coordinating measures to support Army operations submitted to the airspace control authority through the battlefield coordination detachment for integration into a future ACO, also called UAP (as described in Army Techniques Publication [ATP] 3-52.1, *Multi-service Tactics, Techniques, and Procedures for Airspace Control,* 21 June 2023).[69]

unity of command. This is the direction of all forces under a single, responsible commander who has the requisite authority to direct and employ those forces (DOD Dictionary, JP 3-0).

unity of effort. This is the coordination and cooperation toward common objectives, even if the participants are not necessarily part of the same command or organization that is the product of successful unified action (DOD Dictionary).

unscheduled target. This is a target of opportunity that is known to exist in the operational environment (DOD Dictionary, JP 3-60).

[1] Formerly known as Air Land Sea Application center (ALSA). Name changed to ALSSA in November 2022.

[2] Joint Publication (JP) 3-0, *Joint Campaigns and Operations,* 18 June 2022.

[3] JP 3-52, *Joint Airspace Control*, 22 October 2022.

[4] ALSSA, Theater Air-Ground System (*TAGS)*.

[5] AUSA, "The U.S. Army: A Modular Force for the 21st Century."

[6] Headquarters Multi-National Corps-Iraq, Joint Urgent Operational Needs Statement.

[7] Neal and Felton, Air Support Operations Center (ASOC) Tiger Team presentation.

[8] Army Techniques Publication (ATP) 3-91.1; Air Force Tactics, Techniques, and Procedures (AFTTP) 3-2.86, *The Joint Air Ground Integration Center.*

[9] ALSSA, *TAGS*.

[10] Army and AF, "MOA for Liaison Support."

[11] Ibid.

[12] JP 3-30, *Joint Air Operations*.

[13] Ibid.

[14] Ibid.

[15] JP 3-52.

[16] JP 3-30.

[17] Ibid.

[18] Ibid.

[19] JP 3-52, *Joint Airspace Control*.

[20] JP 3-60, *Joint Targeting*, 28 September 2018.

[21] JP 3-30, *Joint Air Operations*, 25 Jul 2019.

[22] JP 3-60.

[23] JP 3-30.

[24] Ibid.

[25] Ibid.

[26] Ibid.

[27] Ibid.

[28] Ibid.

[29] Ibid.

[30] Ibid.

[31] Army Joint Support Team (AJST), original graphic.

[32] JP 3-52.

[33] Air Force Doctrine Publication (AFDP) 1, *The Air Force.*

[34] JP 3-52.

[35] JP 3-09, *Joint Fire Support*, 10 April 2019.

[36] JP 3-52.

[37] JP 3-09.

[38] Ibid.

[39] Ibid.

[40] Army of 2030, 5 October 2022, https://www.army.mil/article/260799/army_of_2030.

[41] Field Manual (FM) 3-0, *Operations,* 1 October 2022.

[42] Army of 2030, 5 October 2022, https://www.army.mil/article/260799/army_of_2030.

[43] Army Techniques Publication (ATP) 3-91.1, *The Joint Air Ground Integration Center,* 17 April 2019/(Air Force Tactics, Techniques, and Procedures [AFTTP] 3-2.86).

[44] Ibid.

[45] Ibid.

[46] Ibid.

[47] ALSSA, *TAGS*.

[48] ATP 3-91.1/AFTTP 3-2.86.

[49] U.S. Army Training and Doctrine Command (TRADOC), "Joint Targeting and Execution Capability Tactics, Techniques and Procedures (*JTEC TTP)*" (common access card authorization required).

[50] Ibid.

[51] Field Manual (FM) 3-09, *Fire Support and Field Artillery Operations*, 30 April 2020.

[52] U.S. Army TRADOC, "*JTEC TTP.*"

[53] Ibid.

[54] JP 3-60, *Joint Targeting.*

[55] U.S. Army TRADOC, "*JTEC TTP.*"

[56] AJST, original graphic.

[57] FM 3-60, *Army Targeting*, 11 August 2023.

[58] Army and AF, "MOA for liaison support."

[59] Army Doctrine Publication (ADP) 6-0, *Mission Command, Command and Control of Army Forces*.

[60] Air Force Doctrine Publication (AFDP)-1, *The Air Force*, 10 March 2021.

[61] Air Force Doctrine Publication (AFDP) 1-1, *Mission Command*, 14 August 2023.

[62] AFDP 1, *The Air Force*, 10 March 2021.

[63] FM 3-0, *Operations*, 1 October 2022.

[64] https://www.pbs.org/wgbh/pages/frontline/gulf/oral/waller/1.html.

[65] https://www.pbs.org/wgbh/pages/frontline/gulf/oral/glosson/1.html.

[66] In accordance with Chairman of the Joint Chiefs of Staff Instruction (CJCSI) 5705.01H, *Standardization of Military and Associated Terminology*, 4 April 2023,"A definition is a formal, concise statement of the exact meaning of a term that clearly distinguishes it from other terms. A description, in contrast, is a narrative containing explanatory information about the term or its use, is not constrained in format or content, and belongs in the text."

[67] Description. IAW CJCSI 5705.01H, *Standardization of Military and Associated Terminology*.

[68] Ibid.

[69] Ibid.

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