Joint Publication 3-09

Joint Fire Support

13 November 2006

PREFACE

1. Scope

This publication provides fundamental principles and guidance for planning, coordinating, and executing joint fire support 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. It sets forth joint doctrine to govern the activities and performance of the Armed Forces of the United States in operations and provides the doctrinal basis for interagency coordination and for US military involvement in multinational operations. 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 their appropriate plans. It is not the intent of this publication to restrict the authority of the JFC from organizing the force and executing the mission in a manner the JFC deems most appropriate to ensure unity of effort in the accomplishment of the overall objective.

3. Application

a. Joint doctrine established in this publication applies to the commanders of combatant commands, subunified commands, joint task forces, subordinate components of these commands, and the Services.

b. The guidance in this publication is authoritative; as such, this doctrine will be followed except when, in the judgment of the commander, exceptional circumstances dictate otherwise. If conflicts arise between the contents of this publication and the contents of Service publications, this publication will take precedence unless the Chairman of the Joint Chiefs of Staff, normally in coordination with the other members of the Joint Chiefs of Staff, has provided more current and specific guidance. Commanders of forces operating as part of a multinational (alliance or coalition) military command should follow multinational doctrine and procedures ratified by the United States. For doctrine and procedures not ratified by the United States, commanders should evaluate and follow the multinational command's doctrine and procedures, where applicable and consistent with US law, regulations, and doctrine.

For the Chairman of the Joint Chiefs of Staff:

WALTER L. SHARP
Lieutenant General, USA
Director, Joint Staff

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SUMMARY OF CHANGES
REVISION OF JOINT PUBLICATION 3-09
DATED 12 MAY 1998

- **Relates joint fire support to the elements of combat power**
- **Revises the definitions of the terms "fires" and "joint fires" for consistency with JP 3-0**
- **Updates the discussion of employment considerations to include command and control in operational areas**
- **Revises the discussion of synchronization of maneuver and fires and adds a discussion of synchronizing and/or integrating maneuver and interdiction**
- **Expands the coverage of joint fire support command and control**
- **Updates and greatly expands the discussion of component fires command and control**
- **Adds coverage of joint fire support coordination, targeting, surveillance, and management systems**
- **Provides planning considerations for joint fire support across the range of military operations**
- **Adds a discussion of terminal guidance operations**
- **Expands the discussion of multinational considerations**
- **Revises the list of joint fire support capabilities**
- **Adds a discussion of combat identification**
- **Expands the discussion of mitigation of collateral damage**
- **Provides an appendix with a notional joint fire support operation order format**
- **Revises the definition of the terms "fire support coordination line" and "kill box" and provides a definition of the term "terminal guidance operations"**

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Joint Fire Support Overview

Joint fire support is an element of combat power.

The foundations of joint fire support are based on the elements of combat power, the principles of joint operations and joint functions. The elements of combat power are combined to provide the basis for the generation of overwhelming firepower. The fire support system has its roots in the firepower element of combat power.

Joint fire support is synchronized to collectively ensure effective fires.

Synchronized joint fire support requires the coordinated interaction of all of the elements of the fire support system, thorough and continuous planning, aggressive coordination, and vigorous execution. The fire support system includes the target acquisition, command and control, and attack/delivery systems that must function collectively to ensure effective fires are delivered where and when the commander requires them.

Fires create lethal or nonlethal effects.

Fires. Fires are defined as the use of weapon systems to create a specific lethal or nonlethal effect on a target. All fires are normally synchronized and integrated to achieve synergistic results. Fires can be delivered by air, land, maritime, or special operations forces (SOF).

Joint fires are produced by two or more components.

Joint Fires. Joint fires are defined as fires produced during the employment of forces from two or more components in coordinated action to produce desired effects in support of a common objective.

Joint fire support assists air, land, maritime, and special operations components.

Joint Fire Support. Joint fire support is defined as joint fires that assist air, land, maritime, and SOF to move, maneuver, and control territory, populations, airspace, and key waters.

All fires should support joint force commander (JFC) objectives.

The concept of operations describes how the actions of the joint force components and supporting organizations will be integrated, synchronized, and phased to accomplish the mission. All fires should support the joint force commander's (JFC's) objectives. While some fires will support maneuver forces, other fires are independent of maneuver and orient on achieving specific effects that support the JFC's objectives.

JFCs may retain control of joint fire support within areas not established for land and maritime components, delegate control to a component, or establish a joint security area.

The land or maritime commander is the supported commander within areas of operations designated by the JFC. In coordination with the land and/or maritime force commander, those commanders designated by the JFC to execute theater- and/or joint operations area (JOA)-wide functions have the latitude to plan and execute these JFC prioritized operations within land and maritime areas of operations (AOs). Any commander executing such a mission within a land or maritime AO must coordinate the operation to avoid adverse effects and fratricide. If those operations would have adverse impact within a land or maritime AO, the commander assigned to execute the JOA-wide functions must readjust the plan, resolve the issue with the land or maritime component commander, or consult with the JFC for resolution.

Commanders must institute preventive measures to reduce the risk of fratricide.

Commanders must identify and assess situations that increase the risk of fratricide. The primary preventive measures for limiting fratricide are command emphasis, disciplined operations, close coordination among component commands, rehearsals, reliable combat identification technology, effective procedures, and enhanced situational awareness.

Maneuver and joint fire support are complementary functions.

Combining joint fire support and maneuver relies on the fundamental and beneficial effects of teamwork, unity of effort, and synchronization of capabilities in time, space, and purpose. **Maneuver and joint fire support are complementary functions that are essential to achieving JFC objectives.** Joint fire support neutralizes, destroys, or suppresses enemy forces and disrupts enemy maneuver, both on the surface and in the air, which assists the maneuver of friendly forces.

Joint fire support has an immediate effect on operations.

Typically, the execution of joint fire support has an immediate or near term effect on the conduct of friendly operations.

Interdiction and maneuver are complementary operations.

Synchronizing and/or integrating interdiction and maneuver (air, land, and maritime) provides one of the most dynamic concepts available to the joint force. Interdiction and maneuver should not be considered separate operations against a common enemy, but rather complementary operations designed to achieve the military strategic and operational objectives.

Joint Fire Support Command and Control

The JFC is responsible for joint fires.

The JFC is responsible for ensuring the synchronization and integration of joint fires. The challenge for the JFC is to integrate and synchronize the wide range of capabilities at his disposal.

The operations directorate serves as the principal staff advisor for joint fire support.

The operations directorate of a joint staff (J-3) serves as the JFC's principal staff advisor for the coordination, integration, and synchronization of joint fire support with other major elements of operations. The J-3 recommends, coordinates, reviews, designates, and disseminates fire support coordination measures, maneuver control measures, and airspace coordinating measures as part of the overall concept of the operations for joint fires and joint fire support.

A joint fires element advises the JFC and assists the operations directorate in fires planning, coordination, and execution.

The JFC may approve the formation of a joint fires element (JFE) within the J-3. The JFE advises the JFC and assists the J-3 in joint fires planning, coordination, and execution. The JFE would be composed of a variety of experts from the joint force headquarters, the components, the combatant command, and other supporting organizations as required.

The JFC's concept of operations addresses joint force maneuver and the application of joint fire support.

The JFC's concept of operations (CONOPS) describes how the actions of the joint force components and supporting organizations will be integrated, synchronized, and phased to accomplish the mission. The concept is based on the JFC's selected course of action and describes where and how friendly forces engage the enemy. The CONOPS also addresses joint force maneuver and the application of joint fire support.

The joint targeting coordination board normally reviews target information, develops targeting guidance and priorities, and prepares and refines joint target lists.

JFCs may establish and task their staff to accomplish broad targeting oversight functions or may delegate the responsibility to a subordinate commander. Typically, JFCs organize joint targeting coordination boards (JTCBs). If the JFC so designates, a JTCB may be either an integrating center for this effort or a JFC-level review mechanism.

The components of a joint force have unique fire support command and control agencies.

The land, air, maritime, and SOF components of a joint force all have unique fire support command and control agencies.

Joint Fire Support Planning and Execution

The joint force planning process includes joint fire support planning.

The key to effective joint fire support is the inclusion of joint fire support in the planning process, aggressive coordination efforts, and a vigorous execution of the plan.

Joint fire support planners develop the joint fire support portion of the concept of operations.

Joint fire support planners and/or coordinators actively participate with other members of the staff to develop estimates, give the commander recommendations, develop the joint fire support portion of the CONOPS, and supervise the execution of the commander's decision. The effectiveness of their planning and coordination is predicated on the commander providing clear and precise guidance.

Fire support plans focus on four basic fire support tasks.

Effective joint fire support depends on planning for the successful performance of the following four basic fire support tasks: **support forces in contact; support the CONOPS; synchronize joint fire support; and sustain joint fire support operations.**

Major operations and campaigns.

When other instruments of national power (diplomatic, economic, and informational) are unable or inappropriate to achieve national strategic objectives or protect national interests, the **US national leadership may decide to conduct a major operation involving large-scale combat, placing the United States in a wartime posture**. In such cases, the goal is to **prevail** against the enemy as quickly as possible, conclude hostilities, and establish conditions favorable to the United States, the host nation, and its multinational partners.

Crisis response and contingency operations.

Joint fire support employed in support of crisis response and contingency operations may be the same as that employed for major operations and campaigns but is normally more restrictive in application.

Military engagement, security cooperation, and deterrence operations.

Lethal joint fire support employed in support of security cooperation and deterrence operations is normally the most restrictive in application and may be limited to defensive fires only.

Multinational considerations.

Fire support coordination in multinational operations demands special arrangements with multinational forces and local authorities. To maximize the fires of the multinational force and to minimize the possibility of fratricide, the multinational force commander must ensure that he develops good fire support coordination throughout the multinational force. Standard operating procedures should be established for fire support to achieve the most effective results for its use by the multinational force.

Joint fire support planning principles.

Joint fire support planning requires detailed planning as well as developing and disseminating target information. Fire support planning and coordination involves several principles stemming from the basic fire support tasks.

Plan Early and Continuously

Ensure the Continuous Flow of Targeting Information

Consider Using All Available Lethal and Nonlethal Attack Means

Use the Lowest Echelon Capable of Furnishing Effective Support

Furnish the Type of Joint Fire Support Requested

Use the Most Effective Joint Fire Support Means

Avoid Unnecessary Duplication

Coordinate Airspace

Provide Adequate Support

Provide for Rapid Coordination

Protect the Force

Analyze Effectiveness

Provide for Flexibility

Joint fire support coordination is a continuous process.

Joint fire support coordination is a **continuous process of planning and executing fires**. Joint fire support coordination involves operational, tactical, and technical considerations and the exercise of joint fire support command, control, and communications. Joint fire support coordination includes efforts to deconflict attacks, avoid fratricide, reduce duplication of effort, and assist in shaping the operational environment. **Coordination procedures must be flexible and responsive to the ever-changing dynamics of warfighting.**

Combat identification.

Combat identification (CID) is the process of attaining an accurate characterization of detected objects in the operational environment sufficient to support an engagement decision. Depending on the situation and the operational decisions that must be made, this characterization may be limited to, "friend," "enemy," or "neutral." In other situations, other characterizations may be required — including, but not limited to class, type, nationality and mission configuration. CID characterizations, when applied with combatant commander rules of engagement, enable engagement decisions and the subsequent use, or prohibition of use, of lethal and nonlethal weaponry to accomplish military objectives.

Mitigating collateral damage.

Collateral damage is the unintentional or incidental injury or damage to persons or objects that would not be lawful military targets in the circumstances ruling at the time. **Collateral damage may be minimized by using CID, precision munitions, and other methods.**

CONCLUSION

JFC's and their staffs synchronize joint fire support to increase the total effectiveness of the joint force. The key to effective synchronization of joint fire support is thorough and continuous planning followed by aggressive coordination efforts and vigorous execution. Synchronized and integrated joint fire support links weapons effects to the JFC's operational objectives through component operations. Experience has proven that early identification of common CID procedures significantly increases CID effectiveness. Collateral damage and fratricide may be minimized by using precision munitions.

CHAPTER I
JOINT FIRE SUPPORT OVERVIEW

"Joint fire support is defined as joint fires that assist air, land, maritime, and special operations forces to move, maneuver, and control territory, populations, airspace, and key waters."

Joint Publication 3-0, *Joint Operations*

1. Introduction

a. The joint force commander (JFC) and component commanders, with the assistance of their staffs, integrate and synchronize joint fire support in time, space, and purpose to increase the effectiveness of the joint force. The JFC organizes forces to accomplish the assigned mission based on the concept of operations (CONOPS). The organization should be sufficiently flexible to meet planned phases of contemplated operations and any development that may require a change in plan. The JFC establishes subordinate commands, assigns responsibilities, establishes or delegates appropriate command and support relationships, and establishes coordinating instructions for the component commanders. The JFC provides guidance to integrate components' capabilities and synchronize the execution of fires. Systems for delivering firepower may be limited, and there are competing priorities for employing these assets. Therefore, JFCs and their staffs carefully balance resources and requirements over the course of a joint operation to ensure the appropriate mix of forces and capabilities required to achieve the objective.

b. The foundations of joint fire support are based on the elements of combat power, the principles of joint operations, and joint functions. The elements of combat power are combined to provide the basis for the generation of overwhelming firepower. The fire support system has its roots in the firepower element of combat power. The principles of joint operations provide a set of time-tested guidelines for combining the elements of combat power and employing fire support. Joint functions are related capabilities and activities grouped together to help JFCs integrate, synchronize, and direct joint operations to include fires.

c. Synchronized joint fire support requires the coordinated interaction of all of the elements of the fire support system, thorough and continuous planning, aggressive coordination, and vigorous execution. The fire support system includes the target acquisition (TA), command and control (C2), and attack/delivery systems that must function collectively to ensure effective fires are delivered where and when the commander requires them.

(1) **Fires. Fires are defined as the use of weapon systems to create a specific lethal or nonlethal effect on a target**. All fires are normally synchronized and integrated to achieve synergistic results. Fires can be delivered by air, land, maritime, or special operations forces (SOF).

(2) **Joint Fires. Joint fires are defined as fires delivered during the employment of forces from two or more components in coordinated action to produce desired effects in**

support of a common objective. Joint fires are provided to assist forces (air, land, maritime, or SOF), joint air operations, and joint interdiction operations.

(3) **Joint Fire Support.** Joint fire support is defined as joint fires that assist air, land, maritime, and SOF to move, maneuver, and control territory, populations, airspace, and key waters. Synchronization of joint fire support with the supported force is essential. Prerequisites for effective joint fire support are interoperable systems, broad understanding of the differing strengths and limitations of each Service's capabilities and how they are applied, and clear agreement about how those capabilities will be integrated in any given operational setting.

2. Concept of Fires

The CONOPS describes how the actions of the joint force components and supporting organizations will be integrated, synchronized, and phased to accomplish the mission, including potential branches and sequels. The concept expresses the what, where, how, and the desired effects upon the enemy. The commander defines responsibilities by providing guidance to the staff and subordinate commanders. **Integral to the CONOPS is the concept of fires.** The concept of fires describes how tactical, operational, and strategic joint fires, as well as nonlethal capabilities, will be synchronized to meet and support the JFC's operational objectives. The JFC determines the enemy's center(s) of gravity (COGs) and decisive points and how the application of fires can assist in creating the desired effect to attain the objective. The JFC can also highlight the anticipated critical actions, times, and places during combat that would serve as triggers for friendly action. The JFC determines the sequencing of key events and emphasizes

The joint force commander is responsible for ensuring the synchronization and integration of joint fires.

the desired end state. Some fires will support maneuver forces and other fires are independent of maneuver and orient on achieving specific effects. All fires should support the JFC's objectives. **The JFC provides guidance on his objectives and desired effects and priorities and what effects of fires should have on the enemy (e.g., deny, disrupt, delay, suppress, neutralize, destroy, or influence).** In addition, the JFC provides guidance on munitions usage and restrictions. The JFC also provides guidance on restricted targets and a no-strike list (NSL). Restricted targets are targets that have specific restrictions imposed upon them. Actions that exceed specified restrictions are prohibited until coordinated and approved by the establishing headquarters (HQ). This list also includes restricted targets directed by higher authorities. Items on a NSL are those objects or entities characterized as protected from the effects of military operations under the law of armed conflict, international law and/or rules of engagement (ROE). Additional considerations for an NSL could include conventions, or agreements, or damaging relations with the indigenous population. The JFC may also make available specific assets for operational area-wide employment, such as Army Tactical Missile Systems (ATACMSs), sensor-fused weapons, or Tomahawk land attack missiles (TLAMs).

3. Employment Considerations

a. **Complementary and Interdependent.** The JFC integrates diverse fires assets from air, land, maritime, SOF, and multinational forces. To maximize the effects of fires, complementary and interdependent operations are required. These operations include planning, target acquisition, execution, and assessment efforts.

b. **Command and Control in Operational Areas.** The land and maritime force commanders are the supported commanders within the areas of operations (AOs) designated by the JFC. Within their designated AOs, land and maritime force commanders integrate and synchronize maneuver, fires, and interdiction. To facilitate this integration and synchronization, such commanders have the authority to designate target priority, effects, and timing of fires within their AOs.

(1) Synchronization of efforts within land or maritime AOs with theater and/ or joint operations area (JOA)-wide operations is of particular importance. To facilitate synchronization, the JFC establishes priorities that will be executed throughout the theater and/or JOA, including within the land and maritime force commander's AOs. The joint force air component commander (JFACC) is normally the supported commander for the JFC's overall air interdiction effort, while land and maritime component commanders are supported commanders for interdiction in their AOs.

(2) In coordination with the land and/or maritime force commander, those commanders designated by the JFC to execute theater and/or JOA-wide functions have the latitude to plan and execute these JFC prioritized operations within land and maritime AOs. Any commander executing such a mission within a land or maritime AO must coordinate the operation to avoid adverse effects and fratricide. If those operations would have adverse impact within a land or maritime AO, the commander assigned to execute the JOA-wide functions must readjust the

plan, resolve the issue with the land or maritime component commander, or consult with the JFC for resolution.

(3) A joint special operations area (JSOA) is a restricted area of land, sea, and airspace, defined by a JFC who has geographic responsibilities, for use by a joint special operations component or joint special operations task force (JSOTF) for the conduct of special operations (SO) (e.g., a discrete direct action mission or longer term unconventional warfare operations). JFCs may use a JSOA to delineate and facilitate simultaneous conventional and SO. Within the JSOA, the joint force special operations component commander (JFSOCC) is the supported commander.

c. **Unity of Effort.** Component forces' planning, execution, and TA capabilities often overlap. Due to the diversity of systems capable of providing joint fire support, C2, and TA, the JFC must ensure unity of effort throughout the joint force.

4. Synchronization of Maneuver and Fires

a. Combining joint fire support and maneuver relies on the fundamental and beneficial effects of teamwork, unity of effort, and synchronization of capabilities in time, space, and purpose. As a principle of war, maneuver is the movement of forces in relation to the enemy to secure or retain positional advantage, usually in order to deliver — or threaten delivery of — the direct and indirect fires of the maneuvering force. Maneuver positions forces at decisive points to achieve surprise, psychological shock, physical momentum, and massed effects. The focus of maneuver is to render opponents incapable of resisting by shattering their morale and physical cohesion (their ability to fight as an effective, coordinated whole) rather than by destroying them physically through attrition.

See Joint Publication (JP) 3-0, Joint Operations, *for a more detailed discussion on maneuver.*

> *"Battles are won by fire and by movement. The purpose of the movement is to get the fire in a more advantageous place to play on the enemy. This is from the rear or flank."*
>
> **George S. Patton Jr.**
> **War As I Knew It**

b. **Maneuver and joint fire support are complementary functions that are essential to achieving JFC objectives.** Maneuver is conducted to achieve positional advantage in respect to the enemy action to accomplish the mission. The principal purpose of maneuver is to gain positional advantage relative to enemy COGs in order to control or destroy those COGs. Maneuver of forces relative to enemy COGs can be key to the JFC's operation. Through maneuver, the JFC concentrates forces at decisive points to achieve surprise, psychological shock, and physical momentum. **Chances of successful maneuver are improved with fire support and movement.** Joint fire support neutralizes, destroys, or suppresses enemy forces and disrupts enemy maneuver, both on the surface and in the air, which assists the maneuver of friendly forces. Joint fire

support may be used separately from or in combination with maneuver to achieve strategic objectives or neutralize, suppress, or destroy enemy ground, maritime, and air forces. Through effective maneuver of friendly forces, the enemy can be placed into a position of disadvantage. If the enemy remains in position, their forces may be isolated and destroyed by fires delivered by land, air, maritime, and SOF. If the enemy withdraws, attempts to establish new defensive positions, or maneuvers their forces for counterattack, they may be exposed to unacceptable losses caused by the effective use of joint fire support. When exploiting the effects of maneuver, commanders use joint fire support to neutralize the enemy's forces and destroy their will to fight. Maneuver and firepower (joint fire support) are complementary dynamics of combat power. Although one might dominate a phase of the battle, their synchronization is a characteristic of successful military operations. Their synchronized use makes the destruction of larger enemy forces feasible and enhances the protection of friendly forces.

c. **Prevention of Fratricide.** The destructive power and range of modern weapons, coupled with the high intensity and rapid tempo of modern combat, increase the potential for fratricide. Risk management must become fully integrated while planning and executing operations. **Commanders must identify and assess situations that increase the risk of fratricide.** Commanders then incorporate guidance into all plans to minimize and control risks by implementing preventive measures. The primary preventive measures for limiting fratricide are command emphasis, disciplined operations, close coordination among component commands, rehearsals, reliable combat identification (CID), effective procedures, and enhanced situational awareness. The risk of fratricide is greatly reduced when engagement decisions are vested with well-trained and qualified personnel. Special instructions may also specify particular means to prevent fratricide in specific missions.

Maneuver and joint fire support are complementary functions.

d. **Effects.** Typically, the execution of joint fire support has an immediate or near term effect on the conduct of friendly operations. Component commanders employ joint fires to create the effects described in their CONOPS by synchronizing fires against the enemy. Detailed integration and coordination with supported and supporting forces is required. Planning allows detailed integration of joint fire support assets for anticipated time-sensitive targets (TSTs) and other immediate targets.

e. **Nonlethal Fires.** Employment of nonlethal capabilities must be integrated into operations to produce synergistic results. Examples are masking smoke, area denial, and employment of some information operations (IO) capabilities, such as electronic attack (EA), that deceive the enemy, disable the enemy's C2 systems, and disrupt operations. The employment of nonlethal fires is especially important when restraint and limitations on the use of deadly force are directed.

5. Synchronizing and/or Integrating Maneuver and Interdiction

Interdiction is an action to divert, disrupt, delay, or destroy the enemy's military potential before it can be used effectively against friendly forces, or to otherwise achieve objectives.

a. Synchronizing and/or integrating interdiction and maneuver (air, land, and maritime) provides one of the most dynamic concepts available to the joint force. Interdiction and maneuver usually are not considered separate operations against a common enemy, but rather normally are considered complementary operations designed to achieve the military strategic and operational objectives. Moreover, maneuver by air, land, or maritime forces can be conducted to interdict enemy military potential. Potential responses to integrated and synchronized maneuver and interdiction can create a dilemma for the enemy. If the enemy attempts to counter the maneuver, enemy forces may be exposed to unacceptable losses from interdiction. If the enemy employs measures to reduce such interdiction losses, enemy forces may not be able to counter the maneuver. The synergy achieved by integrating and synchronizing interdiction and maneuver assists commanders in optimizing leverage at the operational level.

b. The land or maritime commander should clearly articulate the vision of maneuver operations to other commanders that may employ interdiction forces within the land or maritime AO. The land or maritime commander's intent and CONOPS should clearly state how interdiction will enable or enhance land or maritime force maneuver in the AO and what is to be accomplished with interdiction (as well as those actions to be avoided, such as the destruction of key transportation nodes or the use of certain munitions in a specific area). Once this is understood, other interdiction-capable commanders normally can plan and execute their operations with only that coordination required with the land or maritime commander. However, the land or maritime commander should provide other interdiction-capable commanders as much latitude as possible in the planning and execution of interdiction operations within the AO.

c. JFCs need to pay particular attention and give priority to activities impinging on and supporting the maneuver and interdiction needs of all forces. In addition to normal target nomination procedures, JFCs establish procedures through which land or maritime force commanders can specifically identify those interdiction targets they are unable to engage with

organic assets within their operational areas that could affect planned or ongoing maneuver. These targets may be identified individually or by category, specified geographically, or tied to a desired effect or time period. Interdiction target priorities within the land or maritime operational areas are considered along with theater and/or JOA-wide interdiction priorities by JFCs and reflected in the air apportionment decision. The JFACC uses these priorities to plan, coordinate, and execute the theater and/or JOA-wide air interdiction effort. The purpose of these procedures is to afford added visibility to, and allow JFCs to give priority to, targets directly affecting planned maneuver by air, land, or maritime forces.

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CHAPTER II
JOINT FIRE SUPPORT COMMAND AND CONTROL

"A superiority of fire, and therefore a superiority in directing and delivering fire and in making use of fire, will become the main factors upon which the efficiency of a force will depend."

Marshal of France Ferdinand Foch
Precepts and Judgments, 1919

1. Introduction

This chapter reviews the joint force command structure and the fire control functions employed to control joint fire support. It includes their roles, responsibilities, and some of the targeting systems available to them. The successful application of joint fire support depends on the close coordination of these functions. Joint fire support must function in a coordinated and integrated manner to support the commander's objectives.

2. Joint Fire Support Command and Control

a. Joint Force Commander and Staff

(1) **Joint Force Commander.** The JFC, using systems that allow rapid response to changes as they occur, is responsible for ensuring the synchronization and integration of joint fires. The challenge for the JFC is to integrate and synchronize the wide range of capabilities at his disposal. The JFC's intent will normally be to bring force against the opponent's entire structure in a near simultaneous manner to overwhelm and cripple the enemy's capabilities and will to resist. In this effort, liaison elements play a pivotal role in the coordination of joint fire support.

(2) **Directorate of Operations**

(a) The operations directorate of a joint staff (J-3) serves as the JFC's principal staff advisor for the coordination, integration, and synchronization of joint fire support with other major elements of operations such as C2, intelligence, movement and maneuver, protection, and sustainment. These functions may include:

1. Developing estimates of the situation and courses of action (COAs).

2. Developing mission-type orders and guidance for JFC approval.

3. Developing operation orders (OPORDs), and operation plans (OPLANs).

4. Developing joint fire support targeting guidance, objectives, and priorities for JFC approval.

5. Coordinating and assessing joint operations.

6. Coordinating ROE.

7. Recommending, coordinating, reviewing, designating, and disseminating fire support coordination measures (FSCMs), maneuver control measures, and airspace coordinating measures (ACMs) as part of overall concept of the operations for joint fires and joint fire support.

8. Maintaining munitions supply status and logistic concerns effecting joint force operations.

9. Ensuring IO are fully integrated and synchronized with operations.

10. Establishing a joint fires element (JFE).

11. Organizing and serving as a member of a joint targeting coordination board (JTCB), if established by the JFC.

(b) The JFC may approve the formation of a JFE within the J-3. The JFE advises the JFC and assists the J-3 in joint fires planning, coordination, and execution. Specific duties of the JFE are assigned by the J-3 subject to approval by the JFC. The JFE would be composed of a variety of experts from the JFC, the components, the combatant command, and other supporting organizations as required.

(c) J-3 staffing may vary based on how the JFC forms the joint force HQ and the component forces for the operation. The J-3's augmentation requirements will depend on a variety of factors, including the mission, expected complexity and duration of the operation, peacetime staffing levels, expertise of the new operations staff, and the joint force composition. Such augmentation should provide the capability to accomplish fires planning and coordination functions relevant to the operation.

(d) Some joint force operations may require only limited augmentation. In this case, the JFC might choose to absorb augmentees directly into existing joint force staff sections and divisions. For example, the JFC may augment the joint operations center with additional personnel from the combatant commands or Services to ensure continuous operations capability.

(e) C2 systems bring critical information together for collation, collaboration, interpretation, and analysis to enable decision-making. C2 systems, personnel, equipment, and a variety of related procedures support the execution of joint fire support missions. Unity of effort is key to the effective coordination of joint fire support. Vertical and horizontal integration is also essential for effective joint fire support. For this reason, Service and functional components provide a hierarchy of coordinators, coordination agencies, and liaison officers that interface with commanders at each level of execution. These coordinators have one goal in common —

to effectively direct the integration and employment of joint fire support to accomplish the mission.

(3) **Joint Force Staff Functions.** To effectively plan joint fire support, planners must understand the objective, purpose of the operation, and the commander's intent. Subordinate JFCs will translate the combatant commander's guidance and strategy into clearly defined and attainable operational level objectives. They then write supporting OPLANs and OPORDs to attain those objectives. These plans and orders will contain a CONOPS that describes joint force employment. Joint fire support priorities and goals are typically listed as part of the overall priorities and goals within the CONOPS. The commander's estimate and the CONOPS assist in focusing the employment of all assets, to include those providing joint fire support.

(a) **Commander and Staff Estimates.** Estimates help the commander clearly understand the situation and select the best COA. The estimate results in an accurate visualization of the current enemy and friendly situation, a visualization of the goal or mission, and a clear expression of COAs. Consideration of how to employ fires continues throughout the estimate process.

(b) **Concept of Operations.** The CONOPS is key in describing how the commander anticipates the operation unfolding. The concept is based on the commander's selected COA and describes where and how friendly forces engage the enemy. In the CONOPS, the commander describes how the actions of each of the components or supporting commands fit together to accomplish the assigned mission. The CONOPS discusses joint force maneuver and the application of joint fire support. The joint fires discussion should reflect the JFC's concept for application of available fires assets. Guidance for joint fire support should address the following:

1. Joint force policies, procedures, and planning cycles.

2. Joint fire support assets for planning purposes.

3. Priorities for employing TA assets.

4. Areas that require joint fire support to support operational maneuver.

5. TSTs.

6. High-value targets (HVTs) and high-payoff targets (HPTs).

7. Anticipated joint fire support requirements.

8. FSCMs.

(4) **Synchronizing Command and Control Assets.** The JFC must synchronize efforts in a number of C2 arenas, such as intelligence, surveillance, and reconnaissance (ISR). Appropriate

joint, Service, and national agencies engaged in ISR activities must support the efforts to integrate and synchronize fires. To support the synchronization of fires, C2 must be responsive to the user, and be capable of real time information management and data processing.

See JP 2-0, Intelligence Support, *and JP 6-0,* Joint Communications System.

b. **Joint Targeting Coordination Board.** JFCs may establish and task their staff to accomplish broad targeting oversight functions or may delegate the responsibility to a subordinate commander. Typically, JFCs organize JTCBs. If the JFC so designates, a JTCB may be either an integrating center for this effort or a JFC-level review mechanism. In either case, it should be comprised of representatives from the staff, all components and, if required, their subordinate units. The primary focus of the JTCB is to ensure target priorities, guidance, and the associated effects are linked to the JFC's objectives. Briefings conducted at the JTCB should focus on ensuring that targeting efforts are coordinated and synchronized with intelligence and operations (by all components and applicable staff elements). The JTCB must also maintain a current joint target list, restricted target list (RTL), NSL, and current and planned FSCMs. (The JFC JFE will receive component lists and FSCMs, then collate and disseminate current and planned target lists and FSCMs.) The JTCB may assist the JFC in developing or revising the targeting guidance and/or priorities. The JTCB maintains a macro-level view of the operational area and ensures targeting nominations are consistent with the JFC's intent. In a multinational environment, the JTCB may be subordinate to a multinational targeting coordination board.

See JP 3-60, Joint Targeting.

c. **Combined Enterprise Regional Information Exchange System (CENTRIXS)**

(1) When conducting multinational operations, some contributing nations may not have connectivity to the joint force C2 systems. This will require an additional communications system to ensure that these forces and organizations have interoperability to remain a viable contribution to the multinational effort.

(2) The JFC can facilitate information sharing by coordinating with the supported commanders to establish a coalition local area network such as the CENTRIXS. **CENTRIXS provides one example of establishing and maintaining multinational connectivity at the tactical and operational level, with reachback capability to the strategic level.**

d. **Component Fires Command and Control**

(1) **Joint Force Land Component**

(a) **US Army Joint Fire Support Command and Control Agencies.** Fire support personnel are assigned at all levels from company to corps (which may also be the Army Service component commander (ASCC) or land component commander HQ). At company level, a fire support officer (FSO) leads the fire support team (FIST). The fire support coordinator (FSCOORD) leads the fire support cell found from battalion to corps level. He is assisted by cell FSOs and fire support noncommissioned officers (NCOs). The fire support cells can send representatives

(FSOs and/or fire support NCOs) as fire support elements (FSEs) to other sections or cells within the HQ. These fire support teams, elements, or cells advise the commander on fire support capabilities and joint fire support command and control, effective use of fires assets, and assist in the planning, coordination, and execution of fires.

1. **Fire Support Coordinator.** The US Army FSCOORD is the senior field artillery (FA) officer permanently assigned as the full-time fire support staff advisor to the commander and staff. The FSCOORD performs all the staff functions associated with fire support. Additionally, as fire support cell supervisor, the FSCOORD works with the commander and his staff to integrate fire support and information operations (core supporting and related capabilities) with each other and into the unit's concept of operation.

2. **Battlefield Coordination Detachment (BCD).** The US Army provides a BCD as the interface for selected operational environment functions between the Army forces (ARFOR) and the air commander, or the US Air Force Service component commander. A BCD is collocated with the joint air operations center (JAOC), combined air operations center, or the Air Force air and space operations center. The BCD interface includes exchanging current intelligence and operational data, support requirements, coordinating the integration of ARFOR requirements for ACMs, FSCMs, and theater airlift. A BCD can also be tasked to perform ARFOR interface duties for subordinate US Army HQ. The BCD is not a fire support cell, but acts as the ARFOR senior liaison element and also can perform many fires functions. When a US Army HQ is the land commander, the BCD serves as the land commander's liaison to the air component commander.

3. **Liaison.** Although liaison elements from other Services are found at supported Army units, various liaison elements such as Marine liaison, naval air liaison, special operations liaison (SOLE), and Navy surface operations liaison elements usually link up with the BCD at the JAOC when appropriate. Typically, ground liaison officers for fighter and airlift wings and other liaison officers may also be provided.

4. **Operational Fire Support Directorate.** The Operational Fire Support Directorate of the ASCC operational command post oversees the application of joint fire support, artillery, rockets, and offensive information operations in support of ASCC operations. Responsibilities include:

a. Coordinating and synchronizing all aspects of operational fires with component commands, major subordinate commands, and multinational forces.

b. Synchronizing fires with other governmental agencies.

c. Overseeing the development of the ASCC operational fires objectives, supporting target nominations, and attack guidance through the execution of joint boards and cells.

d. Participating as members of the joint and ASCC target coordination board, candidate target review boards, and other boards as required.

The US Army Air and Missile Defense Command is the Army's operational lead for joint theater air and missile defense.

5. **US Army Air and Missile Defense Command (AAMDC).** The AAMDC is the Army's operational lead for joint theater air and missile defense (JTAMD) and plans, coordinates, integrates, and synchronizes the operational elements of JTAMD. The AAMDC usually collocates with the JAOC and operates in direct support of the area air defense commander. The AAMDC attack operations and intelligence sections integrated within the JAOC conduct analysis and targeting focused specifically against the theater missile (TM) threat. Analysis includes such actions as developing TM information requirements, building operational patterns and profiles, identifying trigger events, analyzing launch events, conducting countermobility analysis, and identifying electronic warfare vulnerabilities. TM targeting actions include nominating attack strategies and submitting target nominations and mission requests directly to the JAOC. When appropriate, the AAMDC commander or representative participates in the JTCB. Also, the AAMDC and BCD will coordinate and synchronize their operations at the JAOC.

See Field Manual (FM) 3-01.20/Air Force Tactics, Techniques, and Procedures (I) (AFTTP[I]) 3-2.30, Multi-Service Tactics, Techniques, and Procedures for JAOC/AAMDC Coordination.

(b) **US Marine Corps Joint Fires Command and Control Agencies.** Depending upon the mission, and the decision of the JFC, US Marine Corps forces may be employed as the joint force land component, as part of the joint force land component, or a joint force maritime component.

In the case of an amphibious operation, Marine Corps command element may function as both the joint force land component command and the joint force maritime component command. Various agencies and elements are established within the Marine air-ground task forces (MAGTFs) to assist commanders in the execution of their fires responsibilities. These agencies may be used for either landing force or sustained land operations. The Marine expeditionary force (MEF) command element organizes a force fires coordination center (FFCC), which is responsible for overall fires coordination. At each level below the MEF command element (division, regiment, and battalion), a fire support coordination center (FSCC) is established as an advisory and coordination agency within the ground combat element (GCE). The FFCC and each FSCC is staffed with representatives of the various Marine Corps and Navy supporting arms whose roles differ at the various levels. For example, during the initial phase of an amphibious operation, while control and coordination responsibility of supporting arms is still afloat, the MAGTF typically provides the landing force representation in the Navy's supporting arms coordination center (SACC).

1. **Commanders.** In an amphibious operation, the commander, amphibious task force (CATF) exercises the overall responsibility for coordination of naval surface fire support (NSFS), air support, and landing force artillery fire support. When the commander, landing force (CLF), normally the MAGTF commander, is established ashore, the CATF may pass this responsibility to the CLF. Once the passage of control ashore is executed, the CLF will coordinate fires within the AO. When control is afloat, the senior naval fire support coordination agency is the SACC.

See JP 3-02, Joint Doctrine for Amphibious Operations.

2. **Liaison.** Landing force representatives coordinate requests of landing force elements ashore, monitor fire support activities, and plan additional requirements. This includes continued liaison with the SACC and close coordination with the Marine air command and control system (MACCS). Landing force representatives in the SACC make appropriate recommendations regarding troop safety, type and means of delivery, and record all target information for future reference ashore. Once control passes ashore, the MAGTF commander executes responsibilities through the FFCC or FSCC ashore. This responsibility includes continued liaison with the SACC along with close coordination with the MACCS.

3. **Force Fires Coordination Center.** The FFCC is the senior fire support organization for the MAGTF. As such, it assists the MAGTF commander in the planning, coordination, execution, and assessment of fires for a MAGTF. While the FFCC assists the commander in fighting the single battle, its focus in on the deep fight. The FFCC coordinates those matters that cannot be coordinated by the GCE (FSCC), aviation combat element (ACE) Marine tactical air command center (TACC), or combat service support operations center for integration of fire support plans. Additionally, it assists in providing fires in support of close and rear fight. FFCC liaisons are sourced to provide close and continuous coordination.

4. **Fire Support Coordination Center.** The FSCC is a single location that centralizes communications facilities and personnel for the coordination of all forms of fire support for the GCE. The US Marine Corps (USMC) employs a designated ground combat

officer as a fire support coordinator (FSC), who acts as the direct representative of the landing force commander for the planning and coordinating of all available fire support. The FSCC is organized and supervised by the FSC and is collocated with, and in support of, the operations officer. A USMC FSCC normally includes an air section, naval gunfire liaison section, artillery section, and mortar sections to plan and execute fires in support of the scheme of maneuver.

5. **Tactical Air Command Center.** The Marine TACC is the senior agency of the MACCS. It provides the facilities for the commander of the ACE and the battlestaff to command, supervise and direct MAGTF air operations. The Marine TACC is usually established ashore incrementally, beginning with a tactical air direction center (TADC). When the commander of Marine Corps forces is also the JFACC, he will augment the Marine Corps tactical air command center with elements from other components to create a JAOC.

6. **Direct Air Support Center (DASC).** The DASC is an organization within the MACCS and serves as the Marine Corps central coordination point for all aircraft support to GCE-user agencies at all echelons. The DASC assigns direct air support aircraft to terminal control agencies, provides aircraft ingress and egress route instructions, and disseminates advisory information. When control is afloat, the Navy tactical air control center (TACC) supervises the DASC's operation. When control is ashore, the Marine TADC or Marine TACC supervises the DASC's operations. The DASC is normally the first major air control agency to land in an amphibious operation. The DASC becomes operational when control of the operation is passed ashore and collocates (physically or electronically) with the senior FSCC.

7. **Marine Corps Tactical Air Control Party (TACP).** The Marine Corps TACP establishes and maintains facilities for liaison and communications between supported units and appropriate control agencies. An air officer leads the TACP, normally with three teams assigned per maneuver battalion. Their mission is to inform and advise the supported ground unit commander on the employment of supporting aircraft and to request and coordinate air support missions. In addition, the TACP provides terminal attack control for close air support (CAS) missions.

8. **Tactical Air Operations Center (TAOC).** The Marine Corps TAOC is subordinate to the Marine Corps TACC. Among its duties, the TAOC provides safe passage, radar control, and surveillance for CAS aircraft en route to and from target areas.

9. **Shore Fire Control Party (SFCP).** The supporting Marine Corps artillery battalions provide SFCPs to supported units. The SFCP consists of a liaison team and a spot team. The liaison team is headed by a Navy officer and is located in the supported battalion's FSCC. The spot team is led by a Marine Corps officer and is normally employed with the maneuver companies.

(2) **Joint Force Maritime Component/Commander Navy Forces**

(a) **Supporting Arms Coordination Center.** The SACC is configured with the communications facilities required to coordinate artillery, air, and naval surface fires. Functioning as an

FSE for the maritime forces, the SACC is supervised by the supporting arms coordinator. During amphibious operations, the SACC is the primary agency that coordinates and controls all supporting fires for the CATF to establish the landing force ashore.

(b) **Navy Tactical Air Control System.** The Navy tactical air control system is the principal air control system afloat. The senior Navy air control agency is the Navy TACC. During amphibious operations, and before control is passed ashore, Navy TACC controls all air operations within the amphibious objective area (AOA). The Navy TACC is responsible for planning and conducting air operations, including CAS. Typically, the Navy TACC is onboard the amphibious task force (ATF) flagship. If the JFACC's command operations center is afloat, the Navy TACC may support operations for the JAOC. The Navy TACC has two sections that control and integrate CAS:

1. **Air Traffic Control Section (ATCS).** The ATCS provides initial safe passage, radar control, and surveillance for CAS aircraft in the AOA. The ATCS can also provide early detection, identification, and warning of enemy aircraft.

2. **Air Support Control Section.** The air support control section is the section of the Navy TACC designated to coordinate, control, and integrate all CAS operations with the SACC.

(3) **Joint Force Air Component Commander.** JFCs normally will designate a JFACC, whose authority and responsibilities are defined by the establishing JFC based on the JFC's CONOPS. See JP 3-0, *Joint Operations*, and JP 0-2, *Unified Action Armed Forces (UNAAF)*, for additional guidance on the organization of joint forces. Conversely, a transition from JFACC to JFC staff may also be directed when the JFC determines that operational requirements warrant such a change. The Air Force, Navy, or Marine Corps component commander may be designated as the JFACC. However, the following discussion is based upon US Air Force fires C2 capabilities when the commander Air Force forces is designated as the JFACC. The JFACC normally exercises operational control (OPCON) over US Air Force forces through the theater air control system (TACS) and exercises tactical control or has a support relationship with other forces/capabilities made available for tasking. The focal point for tasking and exercising control of these forces is the JAOC. The JAOC performs the tasks of planning, coordinating, controlling, reporting, and monitoring the execution of joint air operations.

(a) **Joint Air Operations Center.** The JAOC is structured to operate as a fully integrated node and staffed by members of all participating components to fulfill the air commander's responsibilities. The JAOC synchronizes air operations with joint force air, land, and sea operations through centralized planning, direction, and coordination of air operations. The JAOC is the senior joint air power C2 element in the joint force and is the JFACC's agent for providing centralized planning and decentralized execution of joint air operations. The JAOC typically produces the joint air operations plan, air tasking order, airspace control plan, and air defense plan.

See JP 3-30, Command and Control for Joint Air Operations*, for additional detailed guidance on JAOC operations.*

(b) **Air Support Operations Center (ASOC).** The ASOC is the principal Air Force C2 node for integrating air power into Army land operations. As a direct subordinate element of the JAOC, the ASOC is responsible for the direction and control of air operations directly supporting the Army land operation. It processes and coordinates air missions requiring integration with other supporting arms and ground forces. The ASOC is usually collocated with the senior Army tactical echelon, and coordinates operations with the permanently aligned TACP and the JAOC. The ASOC has five primary functions. It manages CAS assets within the supported ground commander's AO; processes CAS requests and controls the flow of CAS aircraft; deconflicts airspace coordination measures and fire support coordinating measures with aircraft; assigns and directs attack aircraft, when authorized, to the joint terminal attack controllers (JTACs); and manages the Air Force air request net and its specific tactical air direction net frequencies. Additionally, the ASOC may also coordinate in other mission areas, to include air interdiction (AI), ISR, joint suppression of enemy air defenses (J-SEAD), and joint personnel recovery.

(c) **Tactical Air Control Party.** The TACP **establishes and maintains facilities for liaison and communications between supported units and appropriate control agencies**. Their mission is to inform and advise the supported ground unit commander on the employment of supporting aircraft and to request and coordinate air support missions. In addition, the TACP provides final attack control for CAS missions.

(d) **The Control and Reporting Center (CRC).** The CRC is a deployable battle management platform employed at the tactical level to support joint air operations. It is directly subordinate to the Air Force air and space operations center (AFAOC) and can operate independently or in combination with other C2 elements. CRC operators are able to support all the same mission areas as Airborne Warning and Control System (AWACS) although limited by line of sight communications and radar coverage. The JAOC assigns the CRC a geographic area, within which it manages all air defense, offensive air and airspace management activities. The CRC can disseminate air defense warnings and an air picture to other C2 nodes through data links and its extensive communications capabilities

(4) **Special Operations Component**

(a) The JFSOCC exercises overall responsibility for coordination of all fire support in support of special operations and, when tasked, fire support using SOF assets in support of other elements of the joint force. SOF coordinate fire support through both external and SOF channels. Within SOF channels, various elements are established to assist commanders in the execution of their fire support responsibilities. SOF elements that provide C2 and/or liaison capabilities include:

1. **Joint Special Operations Task Force.** The JSOTF is a joint task force (JTF) composed of special operations units from more than one Service, formed to carry out a specific special operation or prosecute special operations in support of a theater campaign or other

operations. The JSOTF may have conventional units assigned or attached to support the conduct of specific missions. The JSOTF staff coordinates joint fire support with other components of the joint force and USG agencies. As appropriate, the staff can form a joint fires element.

2. **Joint Special Operations Air Component Commander (JSOACC).** The JSOACC is the commander within a joint SO command responsible for planning and executing joint SO air activities, and for ensuring effective coordination, synchronization, and integration of such activities with conventional air operations. The JSOACC will normally be the commander with the preponderance of aviation assets and/or greatest ability to plan, coordinate, allocate, task, control, and support assigned and attached SO aviation assets. When a joint special operations air component (JSOAC) is established as a functional component of a JSOTF, the commander, joint special operations task force (CDRJSOTF) normally exercises OPCON of all assigned and attached joint SO aviation assets through the JSOACC. However, there are also circumstances where the CDRJSOTF may elect to place selected SO aviation assets under separate control. A key responsibility of the JSOACC is to ensure close liaison is accomplished with other SOF components and with the conventional air components of other Service and/or functional component commands. The JSOACC ensures liaison with the JFACC is accomplished through the SOLE in the JFACC's JAOC. Through the SOLE, the JSOACC ensures SO aviation activities are closely coordinated, synchronized, and integrated with the JFACC's operations to ensure airspace coordination, flight safety, operations security, and unity of effort.

3. **Naval Special Warfare Task Group (NSWTG) and Naval Special Warfare Task Unit (NSWTU).** Naval SOF assigned to the special operations commander are normally under the C2 of a NSWTG or NSWTU. The NSWTG is a naval special warfare organization that plans, conducts, and supports special operations in support of fleet commanders and special operations commanders. The NSWTU is a subordinate unit of a NSWTG.

4. **Special Operations Command and Control Element (SOCCE).** The SOCCE is the focal point for the synchronization of SOF activities with land and maritime operations. The SOCCE is normally employed when SOF conduct operations in conjunction with a conventional force. It collocates with the command element of the supported commander and performs C2 or liaison functions directed by the special operations commander. The focus of the coordination is on the synchronization of effects and deconfliction of joint fires.

(b) **Special Operations Fire Support Coordination.** Liaison between SOF and other elements of the joint force is critical to both effective support and the prevention of fratricide. SOF liaison elements provide SOF expertise to coordinate, synchronize, and deconflict special operations both in support of conventional forces and when special operations are conducted unilaterally. SOF C2 organizations such as a NSWTG and/or NSWTU or SOCCE may provide (or act as) liaison elements for coordination of fire support with their respective Service components. Additionally, the following elements are capable of providing fire support coordination for SOF:

1. **Special Operations Liaison Element.** The SOLE is a team provided by the special operations commander to the JFACC (if designated) or appropriate Service component air C2

organization, to coordinate, deconflict, and integrate special operations air, surface, and subsurface operations with conventional air operations. The SOLE director works directly for the special operations commander and is not in the SOF chain of command, thus command authority for mission tasking, planning, and execution of SO remains with the special operations commander. The SOLE director places SOF ground, maritime, and air liaison personnel in divisions of the JAOC to integrate with the special operations staff. The SOLE coordinates appropriate fire support coordinating measures to help avoid fratricide.

2. **Special Tactics Team (STT).** STTs are a task-organized element of US Air Force SOF that may include combat control, pararescue, and battlefield weather personnel. Functions include austere airfield and assault zone reconnaissance, surveillance, establishment, and terminal control; tactical weather observations and forecasting; combat search and rescue; combat casualty care and evacuation staging; as well as coordinating, planning and conducting air and ground fire support and terminal attack control. STTs are a part of the theater SOF and are normally under OPCON of the special operations commander. When supporting air operations, tactical control of these teams should be assigned to the air commander through the AFAOC as an extension of the TACS. However, because the STT can be employed by both SOF and theater air structures, it is imperative that apportionment, allocation, command relationships, and control authority be clearly stated and understood by special operations and air commanders.

3. **Special Operations Coordination Element (SOCOORD).** The SOCOORD serves as the primary advisor to an US Army corps or MEF commander with regard to SOF integration, capabilities, and limitations. The SOCOORD is a functional staff element of the corps (or MEF) operations officer and serves as the J-3 SOF advisor, with augmentation, if the corps (or MEF) is established as a JTF.

4. **Joint Air Coordination Center (JACE).** The JACE typically locates with the JFE at the JSOTF. The JACE provides the JSOTF with air and space power expertise. The JSOAC and JACE will exchange the necessary liaisons and information to maintain a common operational picture. The JACE functions as the focal point for preplanned air support requests and advises the CDRJSOTF on effective use of air power.

5. **Joint Fires Element.** The SOF JFE plans, coordinates, synchronizes, and executes fire support to safeguard both friendly ground and air units while expediting joint fires. Together with the JACE, the JFE will monitor and rapidly respond to SOF joint fires requests. The JFE/JACE team can efficiently determine the most responsive resource and delivery means to respond to immediate support requests. The JFE consolidates FSCMs for the JSOTF, tracks team locations, and reports them to the SOLE to aid the air-ground deconfliction process.

e. **Joint Fire Support Coordination, Targeting, Surveillance, and Management Systems**

(1) **Joint Automated Deep Operations Coordination System (JADOCS)**

(a) JADOCS facilitates the integration of joint/coalition fires. Digital integration of US and allied joint fires systems enables timely execution of TSTs, HPTs, and HVTs. The enhanced JADOCS allows for improved internal and external coordination/execution of immediate targets. The automated four dimensional deconfliction capability aids in the reduction of fratricide, thereby expediting prosecution of targets.

(b) The joint management function provides the ability to rapidly change and display operational graphics and FSCMs while conducting joint fire support. It uses the JADOCS engagement zone manager (EZM) and the common geographic reference system (CGRS) to portray operational and some tactical operational graphics and FSCMs for both linear and nonlinear situations. The EZM enables operators to quickly create and change FSCMs and coordinate them between components for rapid approval and display. When used in conjunction with the control measures manager, which enables rapid change and display of FSCMs, these tools enable the JFC and components to visualize friendly fires in three dimensions over any area. Operational graphics can also be overlaid with imagery and terrain data to improve situational awareness and planning.

(c) The AI planning and execution function provides more effective employment of AI assets through timely and improved information flow for the identification, assignment, and nomination of AI targets. It enables the joint force component commanders, and staff to allocate air resources in a more efficient manner through early assessment of potential and planned missions. AI provides the ability to monitor air tasking order (ATO) execution through all phases and provides immediate visibility into AI nominations throughout the targeting process, including periodic updates to tune AI missions and maximize joint fires.

(d) The counter fire-common operational picture (CF-COP) function provides a near real-time picture of the artillery battle. It allocates tube and rocket counterbattery resources for more efficient counterfire operations through digital integration at multi-echelons; from joint/multinational level down to tactical firing units. CF-COP also includes munitions allocation and status.

(e) The ATO manager provides a means for assessing changes and movements of the fire support coordination line (FSCL) on current and planned missions in the ATO. It provides immediate visibility of targets exposed or covered by movements in the FSCL and offers the JFC and staff opportunities to assess the consequences prior to movement.

(2) **Airborne Warning and Control System.** The AWACS provides radar control and surveillance of air traffic. The AWACS' range, flexibility, and C2 system capabilities enable it to operate directly subordinate to the JAOC. It is able to provide many of the capabilities of the CRC, depending upon mission configuration and the needs of the theater. It can establish data links with other C2 nodes, such as the ASOC and can disseminate air defense warnings and an accurate air picture.

(3) **Joint Surveillance Target Attack Radar System (JSTARS).** JSTARS performs theater-wide C2 and ISR support missions. JSTARS provides radar surveillance and targeting information to component commanders to develop an understanding of the enemy situation and to support operations.

The Airborne Warning and Control System can function as an alternate command reporting and control center.

JSTARS mission capabilities contribute to an understanding of the friendly and enemy situation and assist ground, air, and naval commanders in delaying, disrupting, and destroying enemy forces and command and control of friendly forces, in accordance with the JFC's overall objectives. JSTARS supports these component operations by providing continuous wide area surveillance and targeting support to commanders equipped with common ground station and Joint Service Work Station. JSTARS can also support air operations to include AI, CAS, offensive counterair, and other nontraditional missions.

(4) **Unmanned Aircraft Systems (UASs)**. UASs offer the joint force significant capabilities. UASs can provide timely intelligence required for attacking and assessing targets (e.g., TSTs, HPTs, and HVTs). They offer a broad range of collection capabilities, including electronic intelligence, electro-optical, infrared imagery, and real time imagery. In addition, UASs can provide target marking, laser designation, ordnance delivery, and weapons effects assessment in support of joint fire support. UASs minimize the risk associated with manned systems. Two significant advantages of these systems are that they provide persistence and minimize risk to friendly personnel.

(5) **Service Assets.** Each Service operates additional assets such as the US Navy's EP-3s or the US Army's Airborne Reconnaissance Low-Multifunctional that if allocated or used in a net-centric reporting environment can also provide timely intelligence support to joint fire support.

Unmanned aircraft systems provide timely intelligence required for engaging and assessing targets.

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CHAPTER III
JOINT FIRE SUPPORT PLANNING AND EXECUTION

"Commanders and leaders must remain flexible and therefore, must keep plans simple. Be nimble of mind."

General Shalikashvili, Chairman of the Joint Chiefs of Staff (1993-1997), quoted at Ft. Polk

1. Introduction

This chapter focuses on the planning and coordination of joint fire support. Joint fire support planning and coordination ensures that all available joint fire support is synchronized in accordance with the JFC's plan. **The key to effective integration of joint fire support is the thorough and continuous inclusion of joint fire support in the planning process, aggressive coordination efforts, and a vigorous execution of the plan.** Commanders should not rely solely on their joint fire support agencies to plan and coordinate joint fire support. A continuous dialogue between the commander, subordinate commanders, and joint fire support planners must occur.

a. Joint fire support planners and/or coordinators actively participate with other members of the staff to develop estimates, give the commander recommendations, develop the joint fire support portion of the CONOPS, and supervise the execution of the commander's decision. The effectiveness of their planning and coordination is predicated on the commander providing clear and precise guidance.

b. **All components can plan for and coordinate joint fire support.** Integral to the commander's CONOPS is the concept of fires. Just as the JFC's intent and CONOPS should take into account the integration and synchronization of tactical, operational, and strategic operations, the CONOPS for component commanders should integrate and synchronize joint fire support at the tactical as well as the operational level. Joint fire support planning and coordination must be continuous and its execution decentralized.

2. Joint Fire Support Planning

The purpose of joint fire support planning is to optimize its employment by integrating and synchronizing joint fire support with the commander's maneuver plan. **During the planning phase, commanders develop a CONOPS, including the concept for fires. Commanders determine how to shape the operational environment with fires to assist maneuver and how to use maneuver to exploit the use of joint fire support.** Objectives are restated in terms of what effects are required from joint fire support. Decisive operations, freedom of action, massing of effects, and depth and simultaneity are typical considerations. Joint fire support planners are responsible for advising commanders on the best use of available joint fires support, developing joint fire support plans, issuing necessary orders in the name of appropriate commanders, and implementing approved joint fire support plans for the component or joint force. Joint fire

support requirements are considered throughout the JFC's planning and decision-making processes and during all phases of an operation.

a. **Planning.** Contingency planning of joint fire support is a complex task. Joint fire support planning becomes even more complex during crisis action planning due to the limited time to plan and coordinate operations that may require rapid execution. During crisis situations, joint fire support planning must expeditiously organize and prioritize limited assets to synchronize fires.

b. **Basic Joint Fire Support Tasks.** Effectiveness of the joint fire support effort is measured by creating desired effects on the enemy, setting conditions for decisive operations, and supporting joint force operations. **Effective joint fire support depends on planning for the successful performance of the following four basic fire support tasks:**

(1) **Support Forces in Contact.** The commander must provide responsive joint fire support that protects and ensures freedom of maneuver to forces in contact with the enemy throughout the operational area.

(2) **Support the Concept of Operation.** Commanders set the conditions for decisive operations by successfully attacking prioritized targets.

(3) **Synchronize Joint Fire Support.** Joint fire support is synchronized through fire support coordination, beginning with the commander's estimate and CONOPS. Joint fire support must be planned both continuously and concurrently with the development of the scheme of maneuver. Further, operations providing joint fire support must be synchronized with other joint force operations (e.g., air operations, intelligence functions, special operations, and IO) in order to optimize the application of limited resources, achieve synergy, and avoid fratricide.

(4) **Sustain Joint Fire Support Operations.** Joint fire support planners must formulate joint fire support plans to reflect logistic limitations and to exploit logistic capabilities. Ammunition, fuel, food, water, maintenance, transportation, and medical support are all critical to sustaining joint fire support operations.

c. **Planning Considerations Across the Range of Military Operations**

(1) **Major Operations and Campaigns**

(a) When other instruments of national power (diplomatic, economic, and informational) are unable or inappropriate to achieve national strategic objectives or protect national interests, the **US national leadership may decide to conduct a major operation involving large-scale combat, placing the United States in a wartime posture**. In such cases, the goal is to **prevail** against the enemy as quickly as possible, conclude hostilities, and establish conditions favorable to the United States, the host nation, and its multinational partners.

(b) Major operations and campaigns are complex and require detailed planning. Joint fire support for major operations may include, but are not limited to, the lethal effects of air support by fixed and rotary-wing aircraft, NSFS, artillery, mortars, rockets, and missiles, as well as nonlethal effects such as those produced through electronic attack and computer network attack (CNA).

(2) **Crisis Response and Limited Contingency Operations**

(a) Crisis response and contingency operations often seek to maintain or reestablish a safe and secure environment and provide essential governmental services, emergency infrastructure reconstruction, or humanitarian relief. Many of these missions and tasks are the essence of civil-military operations. Crisis response and contingency operations likely will be conducted in coordination with and in support of other governmental agencies (OGAs), intergovernmental organizations (IGOs), or nongovernmental organizations (NGOs).

(b) Joint fire support employed in support of crisis response and contingency operations may be the same as those employed for major operations and campaigns but are normally more restrictive in their application. As the mission in stability operations is to restore vital national services, rather than destruction of an enemy force, the ROE will normally limit the level of fires employed.

(3) **Military Engagement, Security Cooperation, and Deterrence**

(a) Military engagement, security cooperation, and deterrence operations encompass a wide range of activities where the military instrument of national power is tasked to support OGAs and cooperate with IGOs, such as the United Nations or the North Atlantic Treaty Organization (NATO), and other countries to protect and enhance national security interests and deter conflict. These operations usually involve a combination of conventional and unconventional forces and capabilities as well as the efforts of OGAs, IGOs, and NGOs in a complementary fashion.

(b) Various joint operations, such as a show of force or enforcement of sanctions, support deterrence by demonstrating national resolve and willingness to use force when necessary. Others, such as foreign humanitarian assistance, support deterrence by enhancing a climate of peaceful cooperation, thus promoting stability.

(c) Lethal joint fire support employed in support of security cooperation and deterrence operations are normally the most restrictive in their application and may be limited to defensive fires only.

3. Other Planning Considerations

a. Datums, Coordinate Systems, and Area Reference Systems

(1) Datums are used in mapping and define a cohesive set of survey controls. All surveyed positions in one datum are reduced to a common grid reference with certain prescribed accuracy. When operating in an area where more than one datum exists, users must define the datum of their grid coordinates. Whenever possible, the operations staff should specify the datum in the OPLAN and/or OPORD. The 100,000 meter square identification for the military grid reference system (MGRS) change with different datums.

Additional guidance can be found in JP 2-03, Geospatial Intelligence Support to Joint Operations, *and Chairman of the Joint Chiefs of Staff Instruction (CJCSI) 3900.01B,* Position Reference Procedures.

(2) A coordinate system is a set of rules that specify how coordinates are to be assigned to points. In other words, it is a way of naming or labeling a particular location. The Geographic Coordinate System names a point in terms of latitude and longitude. MGRS identifies points in terms of easting and northing in an alpha-numeric format. MGRS is used for ground operations or in support of ground operations. Just because two points use the same convention (e.g., easting and northing), does not ensure that they are on the same datum.

(3) **Common Geographic Reference System.** CGRS is a reference system based on lines of latitude and longitude that provides an integrated common frame of reference for joint force situational awareness to facilitate coordination, deconfliction, integration, and synchronization.

(4) **Global Area Reference System.** For further guidance refer to JP 2-03, *Geospatial Intelligence (GEOINT) Support to Joint Operations*.

b. Terminal Guidance Operations (TGO)

(1) TGO are those actions that provide electronic, mechanical, voice, or visual communications that provide approaching aircraft and/or weapons additional information regarding a specific target location. Various ground elements or aircrews conducting a wide variety of missions can search for, identify, and provide the location of targets using systems like Global Positioning System (GPS), laser designators/range finders, aircraft targeting pods, etc. Unless qualified as a JTAC or forward air controller (airborne) (FAC[A]), personnel conducting TGO do not have the authority to control the maneuver of or grant weapons release to attacking aircraft. These functions must be done by appropriate C2 authorities or JTAC/FAC(A).

Note. Terminal guidance is guidance applied to a weapon between midcourse guidance and arrival in the vicinity of the target and may be a function of TGO, CAS, interdiction, or other missions.

Terminal guidance operations provide approaching aircraft and/or weapons additional information regarding a specific target location.

(a) TGO can be used to facilitate attacks on targets in locations where the supported commander determines that the distance from friendly forces to the target is adequate to preclude the need for a JTAC or FAC(A) to perform detailed integration of each air mission with the fire and movement of friendly forces.

(b) TGO independent of CAS [no JTAC or FAC(A)] requires personnel conducting TGO to have direct or indirect communications with the individual operating/commanding the delivery system, plus C2 connectivity with TGO personnel's maneuver commander or an appropriate weapons release authority.

(2) For TGO to be successful, C2 is essential; airspace coordination measures and radio procedures need to be established and understood by all participating units and aircrew. TGO may leverage CAS, TST, or other tactics, techniques, and procedures to aid in execution (such as the CAS 9-line briefing format), but **TGO should not be confused with CAS operations that must be performed by a qualified JTAC or FAC(A)**. JTACs or FAC(A)s may employ personnel conducting TGO to facilitate CAS using CAS terminal attack control procedures.

c. **Acquisition of Targets.** Laser designator and coordinate seeking weapons (CSW) acquisition devices can enhance current capabilities of artillery, NSFS, and aircraft in the delivery of munitions. Both aircraft (manned and unmanned) platforms and ground based observers can laser-designate targets for laser guided weapons and provide precision coordinates for CSW. Employment of lasers can provide fire support personnel with precise target marking, enhanced visual TA, and surprise. It can also reduce the weapon and/or sortie attack requirements. However, several factors — environment,

laser system inherent limits, target types, and laser code management — affect laser employment. Joint fire support planners and fire support coordinators must understand advantages and limitations when employing lasers. Additional guidance can be found in JP 3-09.1, *Laser Operations*, and JP 3-09.3, *Joint Tactics, Techniques, and Procedures for Close Air Support (CAS)*. Likewise, joint fire support planners and fire support coordinators must understand advantages and limitations when employing CSW.

d. **Nuclear Fires Planning**. Joint nuclear fires are collaboratively planned by US Strategic Command (USSTRATCOM) in support of the JFC's efforts in accordance with guidance supplied in overarching policies such as the Joint Strategic Capabilities Plan (JSCP) and JSCP-Nuclear. Planning efforts are differentiated as either strategic planning or theater planning. Only the President of the United States may authorize the employment of nuclear weapons through the Commander, USSTRATCOM. Specific execution details and operational procedures can be found in USSTRATCOM's Global Strike Plan and Emergency Action Procedures.

e. **Consequence of Execution Planning.** When targeting enemy weapons of mass destruction (WMD) storage sites, weapon systems, or production facilities, the fires cell must complete detailed consequence of execution planning to determine the potential release hazards due to the strike. Ground commanders in the target area must be advised of the predicted hazard area and must be given enough time to take appropriate force protection measures. Effects on the local civilians must be anticipated and planned for as well. This planning must be done not only for WMD sites, but also for targets known or suspected to contain toxic industrial chemicals or materials.

f. **Multinational Considerations**

(1) Military operations will normally be joint and often multinational. Fire support coordination in multinational operations demands special arrangements with multinational forces and local authorities. To maximize the fires of the multinational force and to minimize the possibility of fratricide, the multinational force commander must ensure that he develops good fire support coordination throughout the multinational force. To maximize the effects of employing fire support, the multinational force must integrate joint and multinational systems and procedures to determine priorities, identify and track targets, identify delivery systems, clear fires, and assess post-attack results. These special arrangements include communications and language requirements, liaison personnel, and interoperability procedures. A standard operating procedure (SOP) should be established for fire support to achieve the most effective results for its use by the multinational force. To maximize the effects of fire support, the multinational force staff must perform the following:

(a) Integrate joint and multinational systems and procedures to determine priorities, identify and track targets.

(b) Identify delivery systems.

(c) Assess post-attack results.

(d) Plan and coordinate the use of FSCMs.

(2) Examples of coordinated fire support arrangements:

(a) Establish NATO standardization agreements (STANAGs). These provide participants with common terminology and procedures. When operating with countries not in NATO, similar SOP agreements must be made.

(b) Use SOF teams assigned to multinational units to provide the JFC an accurate evaluation of capabilities, location, and activities of multinational forces, thus facilitating the JFC's C2.

(c) Establish guidelines for clearance of indirect fires in the ROE. See JP 3-16, *Multinational Operations*, for further information.

(d) Use a standard datum.

(e) Establish common meteorological procedures and standards.

(f) Provide liaison officers as required.

(g) Establish the multinational ROE before beginning hostilities and after committing the first hostile act.

Fire support coordination in multinational operations demands special arrangements with multinational forces and local authorities.

(h) Establish the policy for indirect fire systems using non-precision munitions within the ROE.

(i) Establish the policy for using smoke, illumination, and cluster munitions with inherent high dud potential within the ROE.

(j) Establish SOPs for how digitally and non-digitally equipped forces operate together. When automatic interfaces are unworkable, determine liaison officer requirements.

(k) Establish a multinational target numbering system.

4. Joint Fire Support Planning Process

a. Targeting

(1) Most JFC and component requirements for joint fire support are planned and executed using the joint targeting process. Targeting is the process of selecting and prioritizing targets and matching the appropriate means to engage them, considering commander's objectives, operational requirements, capabilities, and limitations. Joint targeting is a cyclical process — identify the forces necessary to achieve the desired objectives against those targets.

(2) Within military operations, targeting must be focused on creating specific effects to achieve the JFC's objectives or the subordinate component commander's supporting objectives. Targeting proceeds from the definition of the problem to an assessment of the results achieved

Targeting is the process of selecting targets and matching the appropriate response to them.

by the executed COAs. The process allows for the testing of multiple solution paths, a thorough understanding of the problem, and the refinement of proposed solutions. The joint targeting process is flexible and adaptable to a wide range of circumstances.

Detailed information on targeting can be found in JP 3-60, Joint Targeting.

b. **Component Planning Steps.** This process consists of **a series of interrelated steps**, requiring joint force staff and component cross coordination throughout.

(1) **Receipt of Mission.** Upon receipt of a mission, joint fire support personnel assist the commander in mission analysis. Joint fire support personnel must understand the commander's guidance on the following:

(a) Specific COAs.

(b) TSTs, HVTs, and HPTs.

(c) Use of weapons effects and special munitions such as blast, fragmentation, cluster, nuclear, mines, and lasers.

(d) Acceptable risks.

(e) C2.

(f) Commitment of the reserve force.

(g) Critical events to be considered.

(h) Commander's assumptions.

(i) ROE.

(2) **Target Analysis.** The commander establishes targeting guidance that must be incorporated into the joint fire support planning process. The commander establishes the priorities and describes the importance of a target set and/or category in relation to a given situation or phase of operation. During an air assault operation, for example, attacking known enemy air defense systems may be more important than attacking enemy artillery sites. Targeting tactics, techniques, and procedures are discussed in JP 3-60, *Joint Targeting*. The overall effectiveness and efficiency of the joint fire support planning process increases as leaders consider the following:

(a) The type and amount of assets or munitions available.

(b) The effectiveness (lethality) of weapon system and munitions.

(c) The size, type, ability to detect, and posture of the target.

(d) Joint fire support asset characteristics (range, accuracy, rate of fire, and response time).

(e) Civilians and damage to civilian objects.

(f) Target selection standards and decision criteria for target reattack.

(g) Damage criteria.

(3) **Preparing the Joint Fire Support Estimate. Typically component staffs employ the use of a joint fire support estimate.** This estimate influences how available joint fire support resources are employed to support the possible COAs and helps joint fire support planners and/or coordinators integrate and synchronize the employment of joint fire support resources. **The estimate is a realistic appraisal of the effort required to support the operation.** It serves as a basis for identifying joint fire support priority requirements that support the commander's intent. Any variable that could affect the mission is a factor. Examples of factors that may be considered in the joint fire support estimate include the following:

(a) The task organization of subordinate forces and their missions.

(b) The availability of joint fire support resources, including FA, CAS (by both fixed and rotary-wing aircraft), NSFS, SOF, electronic warfare (EW), ISR assets.

(c) The probable enemy fires plan.

(d) Enemy fires capability.

(e) The identification of HVTs and HPTs.

(f) Consumption factors (type and quantity), positioning requirements, and priority of logistic support.

(g) Joint fires-related decision points.

(4) **Issuing the Commander's Estimate.** Based on information provided by the commander's staff (staff estimates), the commander issues an estimate. Joint fire support planners and/or coordinators information requirements include guidance regarding prioritization of targets, desired effects, and targets that require assessment after attack.

(5) **Course of Action Analysis.** COA analysis is a systematic review process performed by a commander and staff to determine the best COA for a given operation. Each COA must be analyzed to consider the implications of both friendly and enemy options during an operation. Joint fire support planners and/or coordinators are key players in this analysis process. They advise the commanders on the joint fire support assets available and recommend the most effective use of these assets. As the analysis progresses, joint fire support planners and/or coordinators

continuously evaluate the integration of joint fire support into the commander's emerging concept of operation, to include branches and sequels. As a result of this interaction, the commander's options are influenced by the availability and allocation of joint fire support assets. The finished product of this analysis is a COA that integrates joint fire support with maneuver and synchronizes operations. Joint fire support planners use the results of COA development in the targeting process.

(6) **Initiating Planning Actions.** Once the commander decides on a COA, joint staff and fire support planners:

(a) Refine named areas of interest, decision points, and HVTs/HPTs.

(b) Integrate and refine the collection, TA, and assessment plan. All collection assets are tasked and integrated to ensure there are no gaps in the coverage of the AO.

(c) Develop joint fire support tasks, responsibilities, and requirements.

(d) Develop the joint fires employment concept and joint fire support plan.

c. **The Joint Fire Support Plan.** See Appendix B, "Notional Joint Fire Support Operation Order Format," for an example format.

5. Joint Fire Support Coordination

a. Joint fire support coordination is a **continuous process of planning and executing fires**. Joint fire support coordination involves operational, tactical, and technical considerations and the exercise of joint fire support command, control, and communications. Joint fire support coordination includes efforts to deconflict attacks, avoid fratricide, reduce duplication of effort, and assist in shaping the operational environment. **Coordination procedures must be flexible and responsive to the ever-changing dynamics of warfighting.** Simplified arrangements for approval or concurrence should be established. Coordination is reflected in the CONOPS and in the sequencing and timing of actions to achieve objectives. Coordination is enhanced when joint fire support personnel clearly understand the commander's intent. A very important part of the coordination process is the identification of potential fratricide situations and the necessary coordination measures to positively manage and control the attack of targets.

(1) **Synchronization.** Joint fire support coordination is a flexible process that must be kept as simple as possible to produce the desired results. The JFC and component commanders **synchronize joint fire support operations to place the right attack means on the correct target at the precise time**. To achieve synchronization, commanders and staffs must have a thorough knowledge of each Service's doctrine, major systems, significant capabilities and limitations, and often their tactics, techniques, and procedures.

(2) **Principles.** Agencies involved in coordinating joint fire support employ several principles. These principles are extensions of the four basic fire support tasks discussed earlier in this chapter.

(a) **Plan Early and Continuously.** To effectively integrate joint fire support with the scheme of maneuver, planning must begin when the commander states the mission and provides the command guidance. Whenever commander's guidance is needed during planning, joint fire support planners and/or coordinators should solicit that guidance from the commander. Planning is continuous and keeps pace with the dynamics of the battle. Whenever possible, direct coordination can increase the probability for success. The tactical unit providing the support should contact the unit being supported to conduct detailed tactical planning. This is especially important, and often the hardest to execute, when the support is being provided across component boundaries such as during CAS.

(b) **Ensure Continuous Flow of Targeting Information.** Joint fire support planners and/or coordinators should ensure that TA requirements for joint fire support are identified and focused on detecting priority targets. Staffs ensure that target information from all sources is evaluated and routed to the appropriate attack means. This includes information from all echelons and from adjacent and supporting elements.

(c) **Consider the Use of all Lethal and/or Nonlethal Attack Means.** Joint fire support planners and/or coordinators consider all attack means available at their level and higher levels. They also consider the command guidance for the use of these attack means in the present battle and in future battles.

(d) **Use the Lowest Echelon Capable of Furnishing Effective Support.** In order to keep joint fire support responsive, the **lowest level having effective means available should deliver it**. Joint fire support planners and/or coordinators must determine what is needed. If assets are inadequate, they must request additional joint fire support from the appropriate echelon or component. Coordination among Service and functional components should occur at the lowest possible echelon. When coordination cannot be accomplished or additional guidance is required, the next higher echelon should be consulted.

(e) **Furnish the Type of Joint Fire Support Requested.** The requester is usually in the best position to determine joint fire support requirements. However, joint fire support planners and/or coordinators are in a position to weigh the request against the commander's guidance on priority targets and the current and future needs for joint fire support. The component, unit, or organization providing the fire support is normally best able to provide the detailed targeting planning for optimum results.

(f) **Use the Most Effective Joint Fire Support Means.** Requests for joint fire support are transmitted to the force capable of delivering the most effective joint fires within the required time. When developing a recommendation for the appropriate weapon system, **the joint fire support planners and/or coordinators should consider the nature and importance of the target, the engagement time window, the availability of attack assets, and the results desired**. In some circumstances, it may be necessary to sequence the attack by fixing the enemy with immediately available joint fire support assets, while coordinating a subsequent more detailed attack by more effective assets. It may be necessary to use multiple assets to create the desired effects on a target.

(g) **Avoid Unnecessary Duplication.** A key task for joint fire support planners and/or coordinators is to ensure that duplications of joint fire support are resolved.

(h) **Coordinate Airspace**

1. All component commanders must have the freedom to use airspace to achieve the JFC's objectives and must have maximum flexibility to use assets (organic and joint) within that airspace. **Effective airspace management requires a responsive airspace control system, standardization, minimal restrictions, and continuous coordination among all airspace users**. Joint planning and coordination are necessary to minimize mutual interference while deploying and employing air defense and fire support assets.

See JP 3-52, Doctrine for Joint Airspace Control in the Combat Zone*, and JP 3-30,* Command and Control for Joint Air Operations*, for additional information.*

2. **Commanders, assisted by joint fire support planners and/or coordinators, must ensure that conflicts between surface-based indirect fire and air operations are minimized.** For example, an uncoordinated attack deep into the surface AO by the joint force land component could result in an unexpected repositioning of enemy air defense just prior to a planned air strike. Similarly, an uncoordinated air mission beyond the FSCL could influence the wrong enemy force and interfere with the ground scheme of maneuver.

3. **All Services operate systems for airspace control.** When similar Service systems are linked with the airspace control authority by communications, standardized procedures, and liaison, they become part of the integrated airspace control system. The highest probability of interference between aircraft and surface-to-surface weapons occurs at relatively low altitudes in the immediate vicinity of firing locations and target impact areas. FSCMs and ACMs exist within a network of component joint FISTs, liaison parties, and fire coordination elements. Using FSCMs and ACMs correctly can prevent fratricide and duplication of effort while increasing the effectiveness of air-to-ground and ground-to-ground ordnance.

JP 3-52, Doctrine for Joint Airspace Control in the Combat Zone*, contains a detailed discussion on airspace control.*

(i) **Provide Adequate Support.** The mission and commander's guidance determine the amount and type of joint fire support needed for success. **Joint fire support planners and/or coordinators must conserve capabilities** by ensuring that only the minimum force needed to create the desired effects is used. They must inform the maneuver commander when joint fire support requirements exceed capabilities.

(j) **Provide for Rapid Coordination. Commanders must establish procedures and responsibilities for the rapid coordination of joint fire support.** In some circumstances, coordination of joint fire support will be detailed and done in advance. In other instances, due to operational circumstances, coordination will be rapid and less detailed. Poor communication and collaboration procedures or inadequate FSCMs may delay the delivery of joint fires, or the

clearance of those fires, and jeopardize the force. Joint fire support planners and/or coordinators must know the availability of assets, the CONOPS, the commander's intent, FSCMs in effect, ROE, clearance of joint fires procedures and any other restrictions.

(k) **Protect the Force.** Given the complexity inherent in joint fire support, **prevention of fratricide must always be a high priority**. Commanders at all levels must consciously and deliberately reduce the potential for fratricide.

1. In the execution of joint fire support, joint forces must implement measures to reduce the risk of fratricide to include disciplined execution of OPORDs, the airspace control order, depth, vertical and horizontal coordination among forces, combat identification procedures, and detailed situation awareness.

2. The change of established FSCMs and/or ACMs must be coordinated as far in advance as possible. All joint force coordinating agencies must inform their forces of the effective times and locations of new FSCMs and/or ACMs. Following direction to execute the change, the component operations cells should confirm the changes to ensure that affected forces are aware of new FSCM and/or ACM locations and that associated positive control measures are being followed.

3. Additional measures that may be considered to protect the force include:

a. Guidance and restrictions governing the authority, use, reporting, marking, and clearing of mines and munitions with high sub-munitions dud rates.

b. Restrictions on the use of incendiary munitions where resulting fires might endanger maneuvering forces.

c. Policy regarding cessation of NSFS to ensure safety of amphibious shipping and joint forces operating in the AOA.

d. Policy on use of selected munitions and fuses (e.g., variable time fuse) in the JOA and/or AO.

e. Development and disciplined use of common operational graphics and associated maneuver and ACMs and FSCMs throughout the joint force.

f. Special safety precautions to be observed during ship-to-shore movement and with operations involving helicopterborne assaults.

g. Weapons employment restrictions.

h. Target identification and engagement criteria.

i. Prohibited targets.

(l) **Analyze Effectiveness.** During an operation, the effectiveness of joint fire support is continuously evaluated to ensure that it is achieving the commander's intent.

(m) **Provide for Flexibility.** Joint fire support planners and/or coordinators must anticipate and provide for future contingencies. On-order missions and the careful positioning of assets give the commander the flexibility to respond to changing battlefield conditions.

b. **Control and Coordination Measures.** Within their operational areas, land and maritime commanders employ permissive and restrictive FSCMs to expedite attack of targets; protect forces, populations, critical infrastructure, and sites of religious or cultural significance; clear joint fires; deconflict joint fire support operations; and establish conditions for future operations. Along with other control measures, FSCMs and their associated procedures help ensure that joint fire support does not jeopardize troop safety, interfere with other attack means, or disrupt operations of adjacent subordinate units. Maneuver commanders position and adjust control measures consistent with the location of friendly forces, the concept of the operation, anticipated enemy actions, and in consultation with superior, subordinate, supporting, and affected commanders. The primary purpose of permissive measures is to facilitate the attack of targets. Permissive measures facilitate reducing or eliminating coordination requirements for the engagement of targets with conventional means. Restrictive measures impose requirements for specific coordination before engagement of targets. Control and coordination measures are discussed in detail in Appendix A, "Control and Coordination Measures."

6. Joint Fire Support and Force Capabilities

a. **Lethal.** Following is a general discussion of lethal capabilities available to the JFC for joint fire support planning.

(1) **Fixed-Wing Aircraft.** The flexibility, range, speed, lethality, precision, and ability to mass at a desired time and place contributes significantly to the overall joint fire support available to a JFC. Fixed-wing aircraft offer the versatility and capability to deliver combat power against the enemy when and where needed to attain objectives across the range of military operations. The ability of aircraft to employ precision-guided munitions offers a distinct advantage over other weapon systems in many cases. Guided weapons can correct for ballistic, release, and targeting errors in flight. Manned aircraft can offer the advantage of providing immediate attack assessment. Also, stealth technology and the ability to employ air launched conventional standoff weaponry offer unique advantages and, in effect, may achieve their own local air superiority due to their reduced detectability.

(2) **Attack Helicopters.** Attack helicopters are employed in a variety of roles. Normally, they are employed by components as organic assets. Attack helicopters are usually employed as a maneuver unit capable of all normal maneuver force missions. In most circumstances though, the US Army does not consider attack helicopters a CAS system, although they can perform CAS functions when operating in support of another component. Attack helicopters are capable of employing precision-

Fixed-wing aircraft forces offer the versatility and capability to deliver combat power against the enemy.

guided weapons and providing terminal guidance for other weapon platforms. They are also capable of operating during periods of limited visibility.

Attack helicopters are usually employed as a maneuver unit.

(3) **Missiles**

(a) ATACMS provides long-range, surface-to-surface fires against high value, well-defended targets, day or night, and in near-all weather conditions. The ATACMS missiles fired from the Multiple Launch Rocket System (MLRS) and the High Mobility Artillery Rocket System (HIMARS) launchers deliver warheads that include antipersonnel/antimateriel bomblets, unitary high-explosive charges, or guided submunitions. ATACMS can support a full range of operations including TSTs, J-SEAD, and in strikes requiring high levels of accuracy.

(b) US Navy TLAMs can be effective in engaging well-defended targets at long distances and provide a potent precision employment option to the joint force. Their inherent low risk, accuracy, and range make these missiles a very viable option against stationary, non- hardened targets. The TLAM weapon system may require coordination between strike planners in-theater and supporting mission planners out of theater. This is an ongoing process independent of the decision to use the weapon. With proper planning, TLAMs are capable of conducting short-notice strikes, without aircraft support, against targets in heavily defended areas where the probability of the loss of manned aircraft is too high. TLAMs are also capable of neutralizing enemy air defenses to facilitate a much larger attack by land- and maritime-based airpower. In theater, the associated afloat planning systems suites provide the joint force maritime component commander with the capability to plan new missions or modify selected missions in the operational area.

US Army Tactical Missile System provides long-range, surface-to-surface fires.

(c) The US Air Force conventional air-launched cruise missile (CALCM) is a near-precision, GPS aided standoff weapon launched from a B-52. Mission planning for the CALCM is accomplished by reachback, and close coordination is required between missile planners, B-52 aircraft planners, and AFAOC planning staffs.

(d) The Joint Air-to-Surface Standoff Missile (JASSM) is a US Air Force air launched, low observable (LO), subsonic cruise missile specifically designed to penetrate air defense systems. The missile incorporates GPS guidance with an infrared seeker in the terminal phase of flight. Optimizing JASSM's full precision and LO capabilities requires prior coordination with both strike units and target intelligence agencies.

(4) **Rockets.** The MLRS and the HIMARS launchers provide the joint force with effective counterfire and attack of enemy defenses, light materiel, and personnel targets. These weapon systems supplement cannon artillery fires by delivering large volumes of firepower against selected targets. The MLRS and HIMARS typically fire free-flight rockets against area targets and guided munitions against point targets.

Tomahawk land attack missiles can be effective in engaging well-defended targets at long distances.

(5) **Cannon Artillery.** Although cannon artillery primarily provides close supporting fires to maneuver forces, it can also perform other roles such as interdiction to support maneuver, or J-SEAD to facilitate air operations.

(6) **Naval Surface Fire Support**

(a) The general mission of NSFS ship units in an amphibious operation is to support the assault by destroying or neutralizing shore installations that oppose the approach of ships and aircraft, defenses that may oppose the landing force (LF), and defenses that may oppose the post-landing advance of the LF.

The conventional air-launched cruise missile is a near-precision Global Positioning System aided stand-off missile that can operate in varying threat environments and is ideally suited for high value targets and as a first-strike enabler for follow-on operations.

(b) When the number of ships permits, each assault battalion will be assigned a ship in direct support (DS). The DS mission establishes a one-to-one relationship between a NSFS ship and the supported unit. The ship delivers fires on planned targets and targets of opportunity in her zone of fire, which normally corresponds to the zone of action of the supported unit. When possible, ships capable of performing simultaneous missions will be given a DS mission to allow for maximum firepower to the forward units of the LF.

Rockets provide the joint force with effective counterfire and attack of enemy defenses, light materiel, and personnel targets.

Artillery primarily provides close supporting fires to maneuver forces.

(c) The general support (GS) mission requires a NSFS ship to support the force as a whole or that portion of the force to which the ship is assigned. A ship in GS attacks targets in the zone of fire which corresponds to the zone of action of the supported unit. Prearranged fires are delivered in accordance with a schedule of fires published in the ATF OPORD and the NSFS plan in the LF

Naval surface fire support may include fires provided by US Navy surface gun systems.

OPORD. Fires may also be allocated to a subordinate unit for a specific mission(s). Upon completion of the mission(s), the ship reverts to GS. Ships in GS support regimental-sized units or larger.

For further details and information on lethal joint fires assets, see FM 3-09.32, Marine Corps Reference Publication (MCRP) 3-16.8B, Navy Tactics, Techniques, and Procedures (NTTP) 3-09.2, AFTTP(I) 3-2.6, J-FIRE, Multiservice Procedures for the Joint Application of Firepower.

b. **Nonlethal.** Following is a general description of nonlethal capabilities available to the JFC that support joint fire planning and support.

(1) **Electronic Attack.** EA is the division of EW involving the use of electromagnetic (EM) energy, directed energy, or antiradiation weapons to attack personnel, facilities, or equipment with the intent of degrading, neutralizing, or destroying enemy combat capability and is considered a form of fires. EA includes: actions taken to prevent or reduce an enemy's effective use of the EM spectrum, such as jamming and EM deception; and, employment of weapons that use either EM or directed energy as their primary destructive mechanism (e.g., lasers, radio frequency weapons, particle beams).

(2) **Computer Network Attack.** CNA is the division of computer network operations that uses computer networks to disrupt, deny, degrade, or destroy information resident in computers and computer networks, or the computers and networks themselves.

(3) **Other.** Other nonlethal joint fire support includes obscurant fires to mask friendly positions and illumination fires when required for night operations.

7. Joint Fire Support Coordination Measures and Reference Systems

a. **Fire Support Coordination Measures.** See Appendix A, "Control and Coordination Measures," for a detailed discussion of FSCMs.

b. **Global Area Reference System (GARS).** GARS provides commanders a worldwide common frame of reference for joint force situational awareness to facilitate coordination, deconfliction, integration, and synchronization. For further guidance refer to JP 2-03, *Geospatial Intelligence (GEOINT) Support to Joint Operations*.

c. **Common Geographic Reference System.** CGRS is a local, combatant commander established reference system based on lines of latitude and longitude that also provides an integrated common frame of reference for joint force situational awareness to facilitate coordination, deconfliction, integration, and synchronization.

8. Combat Identification

Combat identification is the process of attaining an accurate characterization of detected objects in the operational environment sufficient to support an engagement decision. Depending on the situation and the operational decisions that must be made, this characterization may be limited to, "friend," "enemy," or "neutral." In other situations, other characterizations may be required — including, but not

limited to class, type, nationality, and mission configuration. CID characterizations, when applied with combatant commander ROE, enable engagement decisions and the subsequent use, or prohibition of use, of lethal and nonlethal weaponry to accomplish military objectives. CID is used for force posturing, C2, situational awareness and strike/no-strike employment decisions.

a. The JFC's CID procedures should be developed early during planning and ROE development. When developing the JFC's CID procedures, important considerations include the missions, capabilities, and limitations of all participants including multinational forces, OGAs, IGOs, and NGOs. There are many different CID procedures and systems currently in use by US and multinational forces. Experience has proven that early identification of common CID procedures significantly increases CID effectiveness.

b. CID-related information exchange orients on situational awareness for friendly and neutral forces, restricted sites and structures, and identification of threat objects. During mission execution CID information requires constant coordination and should be conveyed to decision makers in an understandable manner. Effective CID not only reduces the likelihood of fratricide — it also enhances joint fire support by instilling confidence that a designated target is, in fact, as described.

9. Mitigation of Collateral Damage

a. Collateral damage is defined as, "The unintentional or incidental injury or damage to persons or objects that would not be lawful military targets in the circumstances ruling at the time." Such damage is not unlawful so long as it is not excessive in light of the overall military advantage anticipated from the attack.

b. Under the law of armed conflict, the principle of proportionality requires that the anticipated loss of civilian life and damage to civilian property incidental to attacks must not be excessive in relation to the concrete and direct military advantage expected to be gained. **Commanders therefore have the responsibility to attempt to minimize collateral damage to the greatest extent practicable**. Collateral damage estimation is an important step in the target development process. However, it should not preclude the inclusion of valid military targets on a target list.

c. WMD targets are a particular problem. Although, the initial impact of a conventional munition on a WMD target may cause little collateral damage, secondary effects could include a release/dispersal of chemical, biological, or radiological material or even an imperfect detonation of a nuclear device. For this reason, WMD targets are usually placed on a RTL; however, mission priorities to combat WMD and/or military necessity may require JFCs to engage joint fires on WMD targets. JFCs should plan for follow-on consequence management operations to mitigate the effects of collateral damage from WMD.

For more information on WMD and consequence management, see JP 3-40, Joint Doctrine for Combating Weapons of Mass Destruction, *and JP 3-41,* Chemical, Biological, Radiological, Nuclear, and High-Yield Explosives Consequence Management.

d. In most operations, political or legal constraints require the creation of a NSL. These are locations with legally protected status, or that are placed off-limits to attack for important policy reasons.

e. **Collateral damage may be minimized through many different methods**. Choosing an appropriate weapons system, munition warhead, warhead fuzing, and final attack axis are all methods used to mitigate collateral damage.

f. Nonlethal fires can be used to confuse, damage, deceive, delay, deny, disorganize, disrupt, influence, or locate the enemy. The development of nonlethal weapons has recently drawn greater interest due to the restraints imposed on using lethal fires and greater public sensitivity to military and civilian casualties. Accordingly, **JFCs and planners should seek joint fire support options that mitigate collateral damage and minimize noncombatant casualties, particularly in heavily populated areas**. The employment of nonlethal fires in supporting these operations will also be governed by their political impact.

g. For further information on mitigating collateral damage, see JP 3-60, *Joint Targeting*, and the methodology contained within Chairman of the Joint Chiefs of Staff Manual (CJCSM) 3160.01, *Joint Methodology for Estimating Collateral Damage and Casualties for Conventional Weapons: Precision, Unguided, and Cluster*.

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APPENDIX A
CONTROL AND COORDINATION MEASURES

1. Fire Support Coordination Measures

Locations and implementing instructions for FSCMs are disseminated electronically by message, database update, and/or overlay through both command and joint fire support channels to higher, lower, and adjacent maneuver and supporting units. Typically they are further disseminated to each level of command, to include the establishing command and all concerned joint fire support agencies. Not all measures may apply to a joint operation. However, knowledge of the various FSCMs used by each component is necessary for the effective use of joint fire support.

a. **Planning and Coordination Considerations.** The establishment or change of an FSCM established by the joint force land component commander (JFLCC) is typically initiated through the J-3 operations cell and ultimately approved by the JFC. FSCMs enhance the expeditious engagement of targets, protect forces, populations, critical infrastructure, and sites of religious or cultural significance, and set the stage for future operations. Commanders position and adjust FSCMs consistent with the operational situation and in consultation with superior, subordinate, supporting, and affected commanders. The operations cell informs coordination elements of the change and effective time. Conditions which dictate the change of FSCMs are also coordinated with the other agencies and components as appropriate. As conditions are met, the new FSCM effective time can be projected and announced. Following direction to execute the change, the operations cell should confirm with all liaison elements that the FSCM changes have been disseminated. This ensures that affected units are aware of new FSCM locations and associated positive control measures are being followed, thus reducing the risk of fratricide.

b. STANAG 2245, *Field Artillery and Fire Support Data Interoperability*, and STANAG 5620, *Standards for the Interoperability of Fire Support Automated Data Processing Systems*, are examples of international joint fire support agreements. Before commencing operations both joint force and component staff members must verify the status of FSCMs in a multinational operation.

2. Permissive Measures

a. **Coordinated Fire Line**

(1) **Purpose.** The coordinated fire line (CFL) is a line beyond which conventional indirect surface joint fire support means may fire at any time within the boundaries of the establishing HQ without additional coordination. The purpose of the CFL is to expedite the surface-to-surface engagement of targets beyond the CFL without coordination with the land commander in whose area of operation the targets are located.

(2) **Establishment.** The CFL is usually established by a brigade or division commander equivalent, but it can also be established, especially in amphibious operations, by a maneuver

battalion. It is located as close to the establishing unit as possible without interfering with the maneuver forces. There is no requirement for the CFL to be placed on identifiable terrain. However, additional considerations include the limits of ground observation, the location of the initial objectives in the offense, and the requirement for maximum flexibility in both maneuver and the delivery of supporting fires. Subordinate CFLs may be consolidated by higher HQ.

(3) **Graphic Portrayal.** The CFL is graphically portrayed by a dashed black line, with "CFL" followed by the establishing HQ above the line and the effective date-time group (DTG) below the line (see Figure A-1).

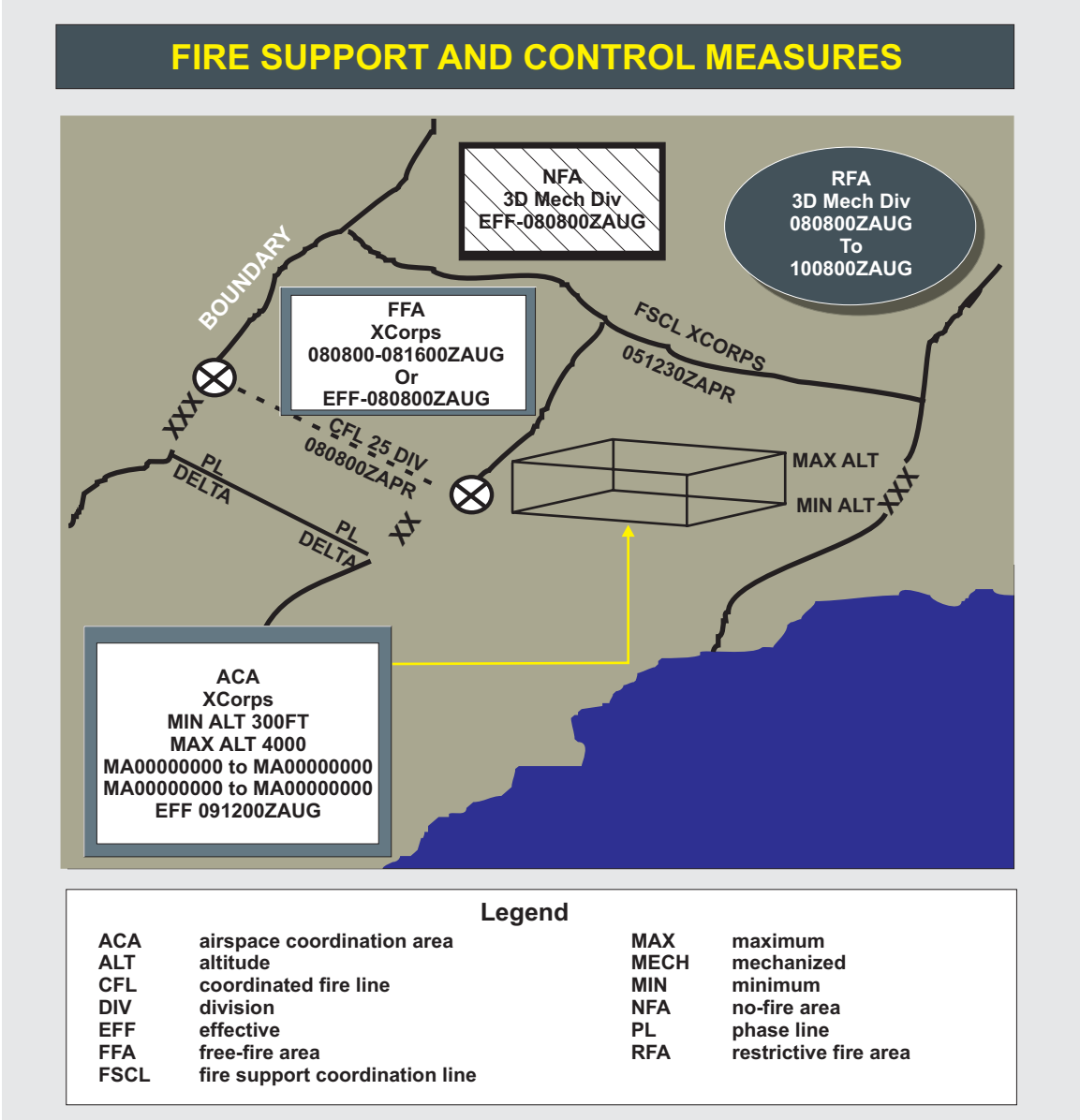

Figure A-1. Fire Support and Control Measures

b. **Fire Support Coordination Line**

(1) **Purpose.** FSCLs facilitate the expeditious engagement of targets of opportunity beyond the coordinating measure. An FSCL does not divide an AO. The FSCL applies to all fires of air, land, and sea-based weapon systems using any type of munition against surface targets (see Figure A-2).

(2) **Establishment.** An FSCL is established and adjusted by the appropriate land or amphibious force commanders within their boundaries in consultation with superior, subordinate, supporting, and affected commanders. The FSCL is a term oriented to air-land operations and is normally located only on land, however in certain situations, such as littoral areas, the FSCL may affect both land and sea areas. If possible, the FSCL should follow well-defined terrain features to assist identification from the air. In amphibious operations, the FSCL is normally established by the CLF after coordination with the CATF. Changes to the FSCL require notification

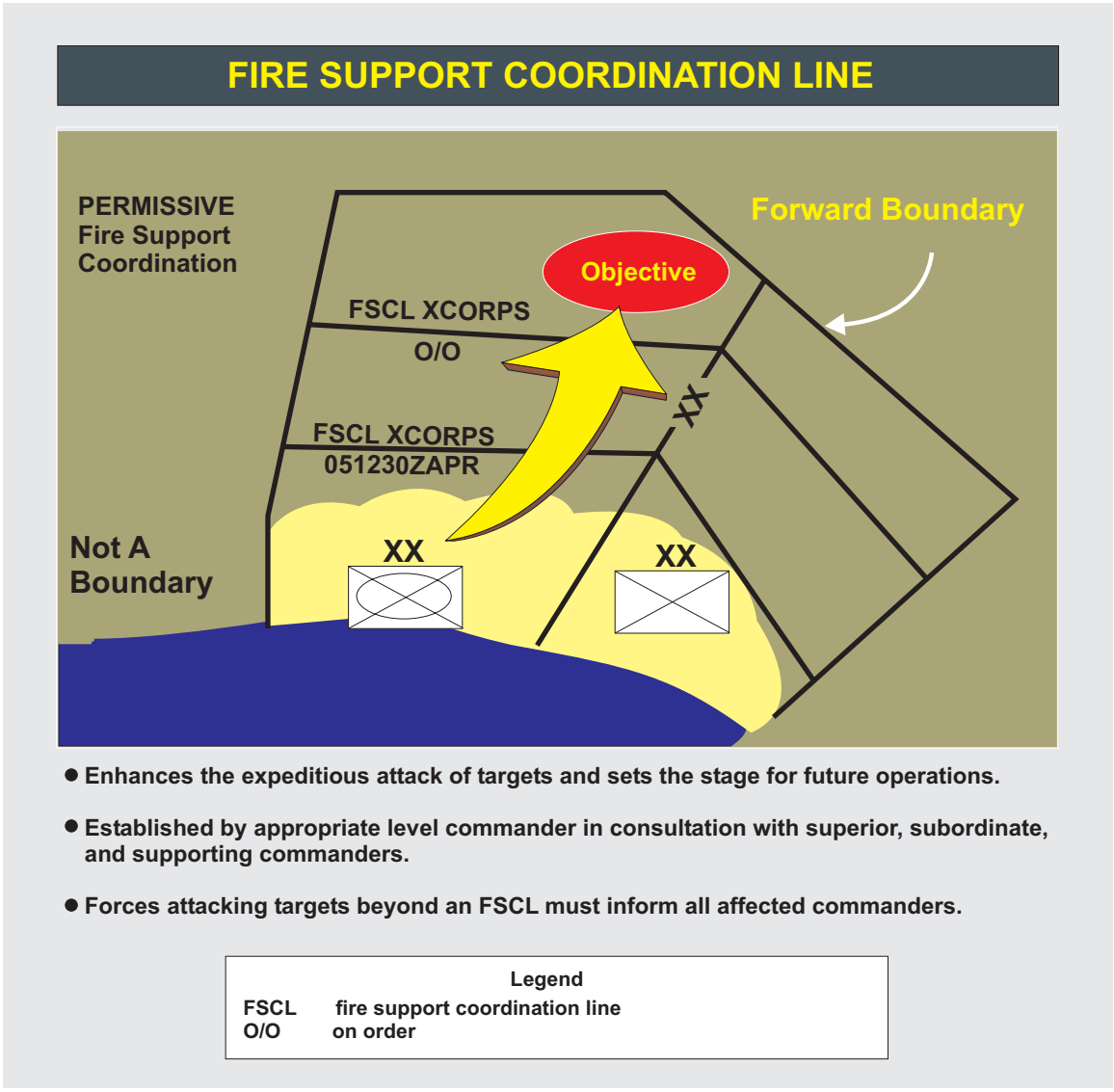

Figure A-2. Fire Support Coordination Line

of all affected forces within the AO and must allow sufficient time for these forces and/or components to incorporate the FSCL change. Current technology and collaboration tools between the elements of the joint force determine the times required for changing the FSCL. The JFC should establish a time standard in his guidance for shifting FSCLs. Whenever possible, restrictive measures are employed by commanders to enhance the protection of friendly forces operating beyond the FSCL — measures such as restrictive fire areas (RFAs) and no-fire areas (NFAs).

(3) **Graphic Portrayal.** The FSCL is graphically portrayed by a solid black line extending across the assigned areas of the establishing HQ. The letters "FSCL" are followed by the establishing HQ above the line and the effective DTG below the line. FSCLs do not have to follow "traditional" straight-line paths. Positioning the FSCL on terrain identifiable from the air is a technique that may further assist in fratricide prevention. Curved and/or enclosed FSCLs have applications in nonlinear joint operations (see Figure A-2).

(4) **Employment.** Use of an FSCL is not mandatory. Forces engaging targets beyond an FSCL must inform all affected commanders in sufficient time to allow necessary reaction to avoid fratricide, both in the air and on the land. In exceptional circumstances, the inability to conduct this coordination will not preclude the engagement of targets beyond the FSCL. However, failure to do so may increase the risk of fratricide and waste resources. Short of an FSCL, all air-to-ground and surface-to-surface engagement operations are controlled by the appropriate land or amphibious force commander. This control is exercised through the operations staff or with predesignated procedures. The FSCL is not a boundary — the synchronization of operations on either side of the FSCL is the responsibility of the establishing commander out to the limits of the land or amphibious force boundary. The establishment of an FSCL does not create a free-fire area (FFA) beyond the FSCL. When targets are engaged beyond an FSCL, supporting element's engagements must not produce adverse effects on or to the rear of the line. Engagements beyond the FSCL must be consistent with the establishing commander's priorities, timing, and desired effects and deconflicted whenever possible with the supported HQ.

(5) **Considerations.** The decision on where to place or even whether to use an FSCL requires careful consideration. If used, its location is based on estimates of the situation and CONOPS. Location of enemy forces, anticipated rates of movement, concept and tempo of the operation, organic weapon capabilities, and other factors are all considered by the commander. The FSCL is normally positioned closer to the forward line of own troops in the defense than in the offense; however, the exact positioning depends on the situation. Placing the FSCL at greater depths will typically require support from higher organic HQ and other supporting commanders. Also, when the FSCL is positioned at greater depth, there is greater requirement for detailed coordination with the establishing commander.

(a) Air strikes short of the FSCL (both CAS and AI) must be under positive or procedural control to ensure proper clearance of joint fires (e.g., JTACs or FAC[A]s). Land commanders must consider the need for extra control measures.

(b) By establishing an FSCL close-in, yet at sufficient depth so as to not limit high-tempo maneuver, land and amphibious force commanders ease the coordination requirements

for engagement operations within their AOs by forces not under their control such as NSFS or AI.

(c) Coordination of engagements beyond the FSCL is especially critical to commanders of air, land, and SOF units operating beyond the FSCL. Such coordination is also important when engaging forces are employing wide-area munitions or those with delayed effects. Finally, this coordination assists in avoiding conflicting or redundant engagement operations.

(d) The establishing commander adjusts the location of the FSCL as required to keep pace with operations. In high-tempo maneuver operations, the FSCL may change frequently. A series of predisseminated "on-order" FSCLs will help accelerate the coordination required. The establishing commander quickly transmits the change to higher, lower, adjacent, and supporting HQ to ensure engagement operations are appropriately coordinated by controlling agencies. Anticipated adjustments to the location of the FSCL are normally transmitted to other elements of the joint force sufficiently early to reduce potential disruptions in their current and near-term operations. Careful planning and coordination is essential for changes to the FSCL. This planning is necessary to minimize the risk of fratricide and avoid disrupting operations.

(e) Varying capabilities for acquisition and engagement may exist among adjacent commanders in a multinational operation. Normally, corps level commanders may establish an FSCL to support their operations. Layered FSCLs and multiple, separate, noncontiguous corps and/or MEF FSCLs positioned at varying depths create a coordination and execution challenge for supporting commanders (e.g., tracking effective times, lateral boundaries, and multiple command guidance). In cases such as these when the components share a mutual boundary, the JFC or JFLCC may consolidate the operational requirements of subordinates to establish a single FSCL. This FSCL may be noncontiguous, to reflect the varying capabilities of subordinate commands. A single FSCL facilitates air support, accommodates subordinate deep operations requirements, and eases coordination of FSCL changes.

c. **Free-Fire Area**

(1) **Purpose.** An FFA is a specific designated area into which any weapon system may fire without additional coordination with the establishing HQ. It is used to expedite joint fires and to facilitate emergency jettison of aircraft munitions.

(2) **Establishment.** An FFA may be established only by the military commander with jurisdiction over the area (usually, a division or higher commander). Preferably, the FFA should be located on identifiable terrain; however, it may be designated by grid coordinates or GARS.

(3) **Graphic Portrayal.** The FFA is graphically portrayed by a solid black line defining the area and the letters "FFA" within, followed by the establishing HQ and the effective DTG (see Figure A-1).

d. **Kill Boxes**

(1) **Definition.** A kill box is a three-dimensional area used to facilitate the integration of joint fires.

(2) **Purpose.** When established, the primary purpose of a kill box is to allow lethal attack against surface targets without further coordination with the establishing commander and without terminal attack control. When used to integrate air-to-surface and surface-to-surface indirect fires, the kill box will have appropriate restrictions. The goal is to reduce the coordination required to fulfill support requirements with maximum flexibility, while preventing fratricide.

(3) **Establishment.** A kill box is established and adjusted by supported component commanders in consultation with superior, subordinate, supporting, and affected commanders, and is an extension of an existing support relationship established by the JFC.

See FM 3-09.34/MCRP 3-25H/NTTP 3-09.2.1/AFTTP(I) 3-2.59, Multi-Service Tactics, Techniques, and Procedures for Kill Box Employment*, for further information.*

Note: The term "joint fires area" may replace "kill box" following testing.

3. Restrictive Measures

a. **Restrictive Fire Line**

(1) **Purpose.** The restrictive fire line (RFL) is a line established between converging friendly forces — one or both may be moving — that prohibits joint fires or the effects of joint fires across the line without coordination with the affected force. The purpose of the line is to prevent fratricide and duplication of engagements by converging friendly forces.

(2) **Establishment.** The commander common to the converging forces establishes the RFL. It is located on identifiable terrain when possible. In link-up operations, it is usually closer to the stationary force to allow maximum freedom of action for the maneuver and joint fire support of the linkup force.

(3) **Graphic Portrayal.** The RFL is graphically portrayed by a solid black line, with "RFL" followed by the establishing HQ above the line and the effective DTG below the line (see Figure A-3).

b. **No-Fire Area**

(1) **Purpose.** The purpose of the NFA is to prohibit joint fires or their effects into an area. There are two exceptions:

(a) When the establishing HQ approves joint fires within the NFA on a mission-by-mission basis.

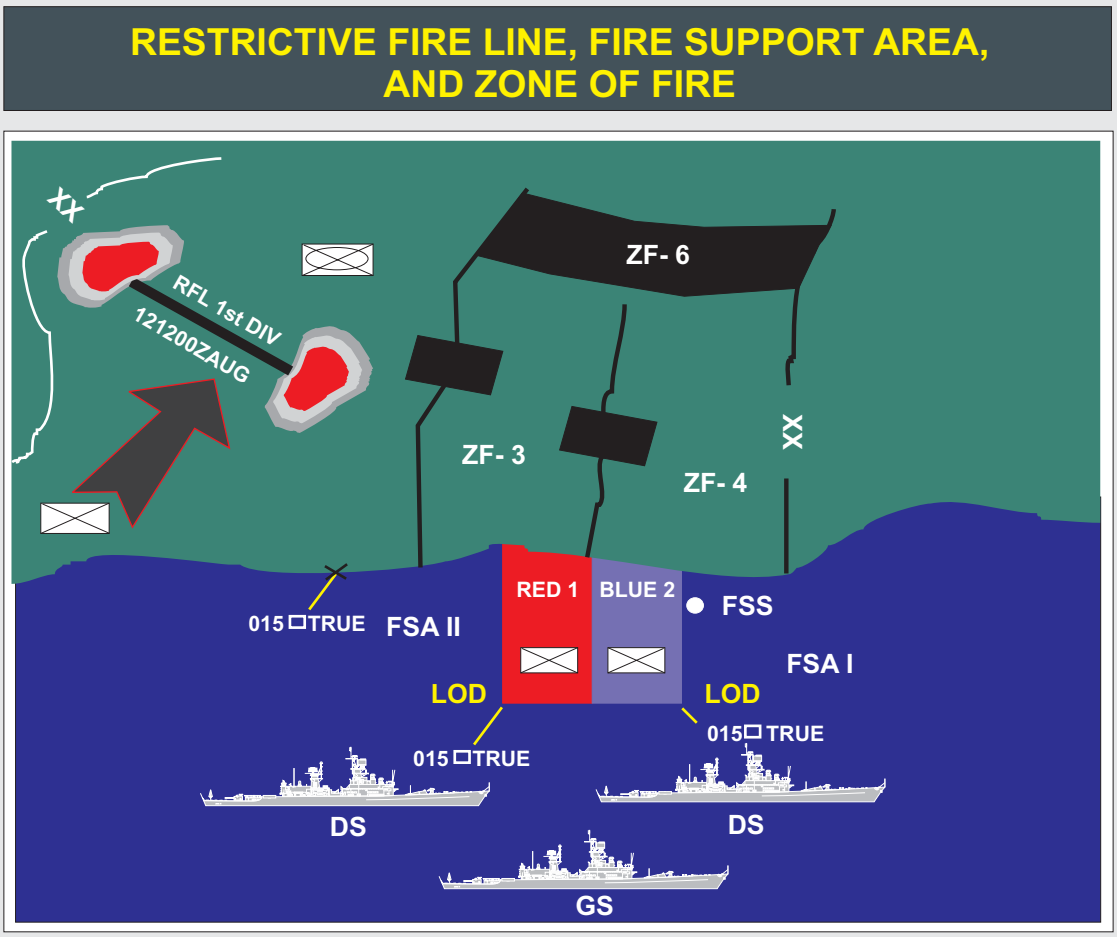

Figure A-3. Restrictive Fire Line, Fire Support Area, and Zone of Fire

(b) When an enemy force within the NFA engages a friendly force and the engaged commander determines there is a requirement for immediate protection and responds with the minimal force needed to defend the force.

(2) **Establishment.** Any size unit may establish NFAs. If possible, the NFA is established on identifiable terrain. It may also be located by a series of grids or by a radius from a center point.

(3) **Graphic Portrayal.** The NFA is graphically portrayed as an area outlined with a solid black line with black diagonal lines inside. The letters "NFA" are within, followed by the establishing HQ and the effective DTG (see Figure A-1).

c. **Restrictive Fire Area**

(1) **Purpose.** An RFA is an area where specific restrictions are imposed and in which joint fires, or the effects of joint fires, that exceed those restrictions will not be delivered without coordination with the establishing HQ. The purpose of the RFA is to regulate joint fires into an area according to the stated restrictions.

(2) **Establishment.** A maneuver battalion or higher echelon normally establishes an RFA. Usually, the RFA is located on identifiable terrain, by grid, or by a radius from a center point. To facilitate rapidly changing operations, on-call RFAs may be used. The dimensions, locations, and restrictions of the on-call RFA are prearranged.

(3) **Graphic Portrayal.** The RFA is graphically portrayed by a solid black line defining the area and the letters "RFA" within, followed by the establishing HQ and the effective DTG. The restrictions may be included within the graphic if space allows, or reference may be made to a specific OPORD or OPLAN (see Figure A-1).

d. **Zone of Fire**

(1) **Purpose.** A zone of fire (ZF) is an FSCM that includes the area within which a designated ground unit or fire support ship delivers, or is prepared to deliver, joint fire support. Joint fires may or may not be observed. Land is divided into ZFs which are assigned to gunfire support ships and units as a means to coordinate their efforts with each other and with the scheme of maneuver of the supported ground unit. Units and ships assigned ZFs are responsible for engaging known targets and targets of opportunity according to their mission and the guidance of the supported commander.

(2) **Establishment.** The commander of the maritime force providing NSFS establishes and assigns ZFs for the forces. The ZF for an artillery battalion or a ship assigned the mission of DS normally corresponds to the AO of the supported unit. The ZF for an artillery battalion or a ship assigned the mission of GS should be within the boundaries of the supported unit. When used in conjunction with naval gunfire, the size and shape of a ZF will depend on the following:

(a) **Boundaries of Zone of Fire.** In order to permit ready identification by the spotter and the individual fire support ship, the boundaries of the ZFs should be recognizable both on the terrain and on a map. It may be necessary to divide a large ZFs into two or more smaller zones due to considerations discussed below. The boundaries of ZFs of DS ships should correspond to the zones of action of the LF units supported.

(b) **Size.** The size of each ZF should be such that the fire support ships, or ships assigned to observe and/or destroy targets, will be able to accomplish the mission in the time allocated. When ZFs are delineated, known or suspected targets scheduled for destruction in each zone are plotted, and then the number and type of targets are compared to the capability of the ship.

(c) **Visibility.** Observation from seaward is a desirable feature for ZFs, since it permits a ship to deliver more accurate and rapid fire.

(d) **Accessibility to Fire.** The ZFs must be accessible to the trajectory of the fire support ship(s) assigned to the zone.

(3) ZFs are also assigned to FA units by their higher HQ. The ZF for FA units assigned to a maneuver unit or assigned the mission of DS corresponds to the AO of the parent or supported maneuver unit. The ZF for an artillery unit assigned the mission of reinforcing corresponds to the ZF of the reinforced artillery unit. The ZF for an artillery unit assigned the mission of general support-reinforcing corresponds to the ZF of the reinforced artillery unit and is within the AO of the supported maneuver unit. The ZF for an artillery unit assigned the mission of GS corresponds to the AO of the supported maneuver unit.

(4) **Graphic Portrayal.** ZFs are delineated by the use of broken lines (solid lines if unit boundaries are used) and are designated by Arabic numerals, e.g., "ZF3" (see Figure A-3).

4. Maneuver Control Measures

a. Boundaries

(1) **Purpose.** A boundary is a maneuver control measure. In land warfare, it is a line by which surface AOs between adjacent units and/or formations are defined. Boundaries designate the geographical limits of the AO of a unit. Within their own boundaries, units may execute joint fires and maneuver without close coordination with neighboring units unless otherwise restricted. Normally, units do not fire across boundaries unless the fires are coordinated with the adjacent unit or the fires are beyond an FSCM, such as a CFL. These restrictions apply to conventional and special munitions and their effects. When fires such as smoke and illumination affect an adjacent unit, coordination with that unit is normally required. A commander can, in certain situations, decide to fire across boundaries at positively identified enemy elements without coordination. However, direct and observed joint fires should be used when firing across boundaries at positively identified enemy forces when there is no time to coordinate with adjacent friendly units.

(2) **Establishment and/or Portrayal.** Any commander given an AO can establish boundaries for subordinate units. These boundaries will be respected by all Service and functional components. Boundaries are depicted as solid black lines with a symbol placed on the boundary to show the size and designation of the highest echelons that have the boundary in common. If the units are of unequal size, the symbol of the higher unit is shown and the designation of the lower unit is given completely (see Figure A-1).

b. Phase Lines

(1) **Purpose.** A phase line (PL) is a maneuver control measure used by land forces for control and coordination of military operations. It is usually a recognizable terrain feature

extending across the zone of action. Units normally report crossing PLs, but do not halt unless specifically directed. PLs can be used to identify limits of advance, control joint fires or define an AO. The purpose of each PL and any actions required by forces affected by the PL will be specified on the OPORD of the establishing HQ.

(2) **Establishment and/or Portrayal.** Any commander given an AO can establish PLs. A PL is depicted as a solid black line labeled "PL" and assigned letters, numbers, or code name designations (see Figure A-1).

c. **Fire Support Area and/or Fire Support Station**

(1) **Purpose.** A fire support area (FSA) is an appropriate maneuver area assigned to fire support ships by the maritime commander from which they deliver surface joint fire support to an operation ashore. An FSA is normally associated with amphibious operations but can be used whenever it is desirable to have a fire support ship occupy a certain geographic position. A fires support station (FSS) is an exact location at sea within an FSA from which a fire support ship delivers joint fire. This designation is used to station ships within boat lanes of the assaulting force, or in areas where maneuvering room is restricted by other considerations.

(2) **Establishment.** The officer in tactical command, typically the CATF establishes FSAs and FSSs. In amphibious operations when engagement groups are formed and separate landing areas are designated, the CATF may assign each engagement group commander the responsibility for control of naval gunfire support within the area.

(3) **Graphic Portrayal.** FSAs are designed with Roman numerals (FSA I, II, III) and are shown on the NSFS operations overlay. FSS' are designated by numbers (FSS 1, 2, 3) and are shown on the NSFS operations overlay as a black dot indicating the exact position of the ship (see Figure A-3).

5. Airspace Coordinating Measures

a. **Airspace Coordinating Measures.** ACMs are critical to the successful employment of joint fires. A key to effectively coordinating joint fires is to constantly view the operational environment as a three dimensional area. ACMs are nominated from subordinate HQ through component command HQ, and forwarded to the airspace control authority in accordance with the air control plan. Most ACMs impact on direct and indirect joint fires trajectories and UAS because of their airspace use. Some ACMs may be established to permit surface joint fires or UAS operations. The component commanders ensure that ACM nominations support and do not conflict with joint operations prior to forwarding to the JAOC. The airspace control authority approves formal ACM nominations and includes them in the airspace control order (ACO). The airspace control authority consolidates, coordinates, and deconflicts the airspace requirements of the components and publishes the ACMs in the ACO. The ACO is normally published at least daily and is often distributed both separately and as a section of the ATO.

See JP 3-52, Joint Airspace Control in the Combat Zone*, and JP 3-30,* Command and Control for Joint Air Operations*, for further information on C2 of air operations.*

b. Normally, ACMs such as low level transit routes will terminate in the vicinity of the FSCL. However, the situation may require establishing active and planned ACMs beyond the FSCL to facilitate rapid change of both the FSCL and ACM. ACMs may be established to facilitate operations between the FSCL and the land force commander's forward boundary. Ground infiltration and aerial insertion and/or extraction of SOF or long-range surveillance teams as well as attack helicopter maneuver are operational examples.

c. Changes to ACMs within a land force AO are initiated by the component's air control element with airspace control authority approval. One common procedural ACM that impacts on the delivery of aerial fire support is a coordinating altitude. A coordinating altitude separates fixed and rotary-wing aircraft. The JFC approves the coordinating altitude, which is normally specified in the air control plan. The airspace control authority is the final approving authority for changes, which are requested through airspace coordination channels. Fixed or rotary-wing aircraft planning extended operations penetrating this altitude should, whenever possible, notify the appropriate airspace control facility.

d. **Airspace Coordination Area (ACA).** The ACA is the primary ACM which reflects the coordination of airspace for use by air support and indirect joint fires.

(1) **Purpose.** ACAs are used to ensure aircrew safety and the effective use of indirect supporting surface joint fires by deconfliction through time and space. The ACA is a block or corridor of airspace in which friendly aircraft are reasonably safe from friendly surface joint fires. A formal ACA (a three dimensional box of airspace) requires detailed planning. More often an informal ACA is established using time, lateral separation, or altitude to provide separation between surface-to-surface and air-delivered weapon effects.

For additional information on the ACA see JP 3-09.3, Joint Close Air Support (CAS), *and JP 3-52,* Joint Airspace Control in the Combat Zone.

(2) **Establishment.** The airspace control authority establishes formal ACAs at the request of the appropriate component commander. ACAs require detailed planning. Though not always necessary, formal ACAs should be considered. Vital information defining the formal ACA includes minimum and maximum altitudes, a baseline designated by grid coordinates at each end, the width (on either side of the baseline), and the effective times. When time for coordination is limited, an informal ACA is used. In an informal ACA, aircraft and surface joint fires may be separated by time or distance (lateral, altitude, or a combination of the two). The informal ACA can be requested by the maneuver commander requesting CAS or employing helicopters, and is approved at battalion or higher level. Both types of ACAs are constructed with the assistance of the air liaison officer to ensure they meet the technical requirements of the aircraft and weapon systems.

(3) **Graphic Portrayal.** A formal ACA is shown as an area enclosed by a solid black line. Depicted inside the enclosed area are "ACA," the establishing HQ, the minimum and maximum altitudes, the grid coordinates for each end of the baseline, and the effective DTG or the words "on order." Informal ACAs are not normally displayed on maps, charts, or overlays (see Figure A-1).

APPENDIX B
NOTIONAL JOINT FIRE SUPPORT OPERATION ORDER FORMAT

ANNEX XX (JOINT FIRE SUPPORT) TO OPERATION ORDER NO## [code name] — [issuing headquarters]

(Include heading if annex distributed separately from OPLAN/OPORD.)

1. **SITUATION**

a. Enemy Forces

(1) Include a detailed description of enemy fire support and air defense assets.

(2) List enemy rocket, cannon, and missile units. Include those organic to maneuver units. List all fire support units that can be identified as being committed or reinforcing. Consider all identified fire support units within supporting range as being in support of the committed force. Include the number of possible enemy air sorties by day, if known. Estimate the number, type, yield, and delivery means of enemy chemical, biological, radiological, and nuclear weapons available to the committed force.

b. Friendly Forces

(1) State the concept of fires.

(2) Provide adjacent units' concept of fires, if applicable.

(3) Include supporting air, land, and maritime forces.

c. Environment

(1) **Terrain.** List terrain aspects that would impact operations.

(2) **Weather.** List weather aspects that would impact operations.

(3) **Civil considerations.** List civil considerations that would impact operations. Refer to civil-military operations annex as required.

2. **MISSION.** State the joint fire support mission for the operation.

3. **EXECUTION**

a. **Concept of Joint Fires.** Describe how joint fires will be used to support the CONOPS. State the priority of joint fire support. This must be consistent with what is in the concept of fires in the OPORD/OPLAN. Address the objectives for using air, land, and maritime fires.

b. **Air Component**

(1) **General.** Briefly describe the air commander's concept for the use of air power.

(2) **Air interdiction (AI).**

(3) **Close air support (CAS).**

(4) **Electronic attack (EA).** Refer to information operations annex as required.

(5) **Reconnaissance and surveillance operations.** Refer to ISR annex as required.

(6) **Miscellaneous.** State the following:

(a) The ATO's effective time period.

(b) Deadlines for submission of AI, CAS, search and rescue, and EW requests.

(c) The mission request numbering system based on the target numbering system.

(d) Joint suppression of enemy air defense taskings from the land component commander.

(e) Essential ACA measures — such as coordinating altitude, target areas, low-level transit route requirements — identified in the ACA annex.

c. **Land Component**

(1) **General.** Include the concept for use of cannon, rocket, and missile fires in support of shaping operations.

(2) **Organization for combat.**

(3) **Allocation of ammunition.**

(4) **Miscellaneous.** Include the following:

(a) Changes to the targeting numbering system.

(b) The use of pulse repetition frequency codes.

(c) Positioning restrictions.

d. **Maritime Component**

(1) **General.** Include the concept for use of NSFS and TLAMs.

(2) **NSFS Organization.**

(3) **Miscellaneous.**

(a) Trajectory limitations or minimum safe distances.

(b) Frequency allocations.

(c) Reference to a NSFS annex.

e. **Nuclear Operations**

f. **Smoke Operations**

g. **Target Acquisition.** Include information pertaining to the employment and allocation of TA systems and EW assets.

h. **Coordinating Instructions**

(1) List the targeting products (target selection standards matrix, HPT list, and attack guidance matrix).

(2) List FSCMs.

(3) Refer to time of execution of program of fires.

(4) Include ROE.

(5) List fire support rehearsal times and requirements.

(6) List target allocations.

(7) Specify the datum or coordinate system to be used.

4. **SERVICE SUPPORT.** Identify the location of munition transfer points and ammunition supply points, or refer to the logistics annex. List the controlled supply rate.

5. **COMMAND AND SIGNAL**

APPENDIXES:

1. Air Component Support
2. Land Component Support
3. Maritime Component Support
4. Special Operations Component

DISTRIBUTION: (If distributed separately from OPLAN/OPORD)

APPENDIX C
REFERENCES

The development of JP 3-09 is based upon the following primary references:

1. JP 0-2, *Unified Action Armed Forces (UNAAF)*.
2. JP 1, *Joint Warfare of the Armed Forces of the United States*.
3. JP 1-02, *Department of Defense Dictionary of Military and Associated Terms.*
4. JP 2-0, *Intelligence Support to Joint Operations.*
5. JP 2-01, *Joint and National Intelligence Support to Military Operations.*
6. JP 2-03, *Geospatial Intelligence Support to Joint Operations*.
7. JP 3-0, *Joint Operations.*
8. JP 3-01, *Countering Air and Missile Threats.*
9. JP 3-02, *Joint Amphibious Operations.*
10. JP 3-03, *Joint Interdiction Operations.*
11. JP 3-05, *Joint Special Operations.*
12. JP 3-09.1, *Joint Laser Designation Procedures.*
13. JP 3-09.3, *Joint Close Air Support (CAS).*
14. JP 3-13, *Information Operations.*
15. JP 3-13.1, *Electronic Warfare.*
16. JP 3-16, *Multinational Operations.*
17. JP 3-30, *Command and Control for Joint Air Operations*.
18. JP 3-33, *Joint Task Force Headquarters.*
19. JP 3-52, *Joint Airspace Control in the Combat Zone.*
20. JP 3-60, *Joint Targeting.*

21. JP 6-0, *Joint Communications System*.

22. CJCSI 3900.01 Series, *Position Reference Procedures*.

23. CJCSM 3160.01 Series, *Joint Methodology for Estimating Collateral Damage and Casualties for Conventional Weapons: Precision, Unguided, and Cluster*.

24. FM 3-01.20/AFTTP(I) 3-2.30, *Multi-Service Tactics, Techniques, and Procedures for JAOC/AAMDC Coordination*.

25. FM 3-09.32/MCRP 3-16.8B/NTTP 3-09.2/AFTTP(I) 3-2.6, *JFIRE, Multi-Service Procedures for the Joint Application of Firepower*.

26. FM 3-09.34/MCRP 3-25H/NTTP 3-09.2.1/AFTTP(I) 3-2.59, *KILL BOX, Multi-Service Tactics, Techniques, and Procedures for Kill Box Employment*.

27. USSTRATCOM Global Strike Plan and Emergency Action Procedures.

APPENDIX D
ADMINISTRATIVE INSTRUCTIONS

1. User Comments

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

2. Authorship

The lead agent for this publication is the United States Joint Forces Command, Joint Warfighting Center. The Joint Staff doctrine sponsor for this publication is the Joint Staff, J-3.

3. Supersession

This publication supersedes JP 3-09, 12 May 1998, *Doctrine for Joint Fire Support*.

4. Change Recommendations

a. Recommendations for urgent changes to this publication should be submitted:

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Routine changes should be submitted electronically to Commander, Joint Warfighting Center, Joint Doctrine Group and info the Lead Agent and the Director for Operational Plans and Joint Force Development J-7/JEDD via the CJCS JEL at http://www.dtic.mil/doctrine.

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

c. Record of Changes:

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GLOSSARY
PART I — ABBREVIATIONS AND ACRONYMS

AAMDC	US Army Air and Missile Defense Command
ACA	airspace coordination area
ACE	aviation combat element
ACM	airspace coordinating measure
ACO	airspace control order
AFAOC	Air Force air and space operations center
AFTTP(I)	Air Force tactics, techniques, and procedures (instruction)
AI	air interdiction
AO	area of operations
AOA	amphibious objective area
ARFOR	Army forces
ASCC	Army Service component commander
ASOC	air support operations center
ATACMS	Army Tactical Missile System
ATCS	air traffic control section
ATF	amphibious task force
ATO	air tasking order
AWACS	Airborne Warning and Control System
BCD	battlefield coordination detachment
C2	command and control
CALCM	conventional air-launched cruise missile
CAS	close air support
CATF	commander, amphibious task force
CDRJSOTF	commander, joint special operations task force
CENTRIXS	Combined Enterprise Regional Information Exchange System
CF-COP	counterfire common operational picture
CFL	coordinated fire line
CGRS	common geographic reference system
CID	combat identification
CJCSI	Chairman of the Joint Chiefs of Staff instruction
CJCSM	Chairman of the Joint Chiefs of Staff manual
CLF	commander, landing force
CNA	computer network attack
COA	course of action
COG	center of gravity
CONOPS	concept of operations
CRC	control and reporting center
CSW	coordinate seeking weapons

DASC	direct air support center
DS	direct support
DTG	date-time group
EA	electronic attack
EM	electromagnetic
EW	electronic warfare
EZM	engagement zone manager
FA	field artillery
FAC(A)	forward air controller (airborne)
FECC	fires and effects coordination cell
FFA	free-fire area
FFCC	force fires coordination center
FIST	fire support team
FM	field manual
FSA	fire support area
FSC	fire support cell
FSCC	fire support coordination center
FSCL	fire support coordination line
FSCM	fire support coordination measure
FSCOORD	fire support coordinator
FSE	fire support element
FSO	fire support officer
FSS	fire support station
GARS	Global Area Reference System
GCE	ground combat element
GPS	Global Positioning System
GS	general support
HIMARS	High Mobility Artillery Rocket System
HPT	high-payoff target
HQ	headquarters
HVT	high-value target
IGO	intergovernmental organization
IO	information operations
ISR	intelligence, surveillance, and reconnaissance
J-3	operations directorate of a joint staff
JACE	joint air coordination center
JADOCS	Joint Automated Deep Operations Coordination System
JAOC	joint air operations center
JASSM	Joint Air-to-Surface Standoff Missile

JFACC	joint force air component commander
JFC	joint force commander
JFE	joint fires element
JFLCC	joint force land component commander
JFSOCC	joint force special operations component commander
JOA	joint operations area
JP	joint publication
JSCP	Joint Strategic Capabilities Plan
J-SEAD	joint suppression of enemy air defenses
JSOA	joint special operations area
JSOAC	joint special operations air component
JSOACC	joint special operations air component commander
JSOTF	joint special operations task force
JSTARS	Joint Surveillance Target Attack Radar System
JTAC	joint terminal attack controller
JTAMD	joint theater air and missile defense
JTCB	joint targeting coordination board
JTF	joint task force
LF	landing force
LO	low observable
MACCS	Marine air command and control system
MAGTF	Marine air-ground task force
MCRP	Marine Corps reference publication
MEF	Marine expeditionary force
MGRS	military grid reference system
MLRS	Multiple Launch Rocket System
NATO	North Atlantic Treaty Organization
NCO	noncommissioned officer
NFA	no-fire area
NGO	nongovernmental organization
NSFS	naval surface fire support
NSL	no-strike list
NSWTG	naval special warfare task group
NSWTU	naval special warfare task unit
NTTP	Navy tactics, techniques, and procedures
OGA	other government agency
OPCON	operational control
OPLAN	operation plan
OPORD	operation order

PL	phase line
RFA	restrictive fire area
RFL	restrictive fire line
ROE	rules of engagement
RTL	restricted target list
SACC	supporting arms coordination center
SFCP	shore fire control party
SO	special operations
SOCCE	special operations command and control element
SOCOORD	special operations coordination element
SOF	special operations forces
SOLE	special operations liaison element
SOP	standard operating procedure
STANAG	standardization agreement (NATO)
STT	special tactics team
TA	target acquisition
TACC	tactical air command center (USMC); tactical air control center (USN)
TACP	tactical air control party
TACS	theater air control system
TADC	tactical air direction center
TAOC	tactical air operations center
TGO	terminal guidance operations
TLAM	Tomahawk land attack missile
TM	theater missile
TST	time-sensitive target
UAS	unmanned aerial systems
USMC	US Marine Corps
USSTRATCOM	US Strategic Command
WMD	weapons of mass destruction
ZF	zone of fire

PART II — TERMS AND DEFINITIONS

air interdiction. Air operations conducted to divert, disrupt, delay, or destroy the enemy's military potential before it can be brought to bear effectively against friendly forces, or to otherwise achieve objectives. Air interdiction is conducted at such distance from friendly forces that detailed integration of each air mission with the fire and movement of friendly forces is not required. (JP 1-02)

airspace control area. Airspace that is laterally defined by the boundaries of the operational area. The airspace control area may be subdivided into airspace control sectors. (JP 1-02)

airspace control authority. The commander designated to assume overall responsibility for the operation of the airspace control system in the airspace control area. Also called ACA. (JP 1-02)

airspace coordinating measures. Measures employed to facilitate the efficient use of airspace to accomplish missions and simultaneously provide safeguards for friendly forces. Also called ACMs. (JP 1-02)

airspace coordination area. A three-dimensional block of airspace in a target area, established by the appropriate ground commander, in which friendly aircraft are reasonably safe from friendly surface fires. The airspace coordination area may be formal or informal. Also called ACA. (JP 1-02)

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. Normally provides specific instructions to include call signs, targets, controlling agencies, etc., as well as general instructions. Also called ATO. (JP 1-02)

area of operations. An operational area defined by the joint force commander for land and maritime forces. Areas of operation do not typically encompass the entire operational area of the joint force commander, but should be large enough for component commanders to accomplish their missions and protect their forces. Also called AO. (JP 1-02)

boundary. A line that delineates surface areas for the purpose of facilitating coordination and deconfliction of operations between adjacent units, formations, or areas. (JP 1-02)

center of gravity. The source of power that provides moral or physical strength, freedom of action, or will to act. Also called COG. (JP 1-02)

close air support. Air action by fixed- and rotary-wing aircraft against hostile targets that are in close proximity to friendly forces and that require detailed integration of each air mission with the fire and movement of those forces. Also called CAS. (JP 1-02)

collateral damage. Unintentional or incidental injury or damage to persons or objects that would not be lawful military targets in the circumstances ruling at the time. Such damage is not unlawful so

long as it is not excessive in light of the overall military advantage anticipated from the attack. (JP 1-02)

combat identification. The process of attaining an accurate characterization of detected objects in the operational environment sufficient to support an engagement decision. Also called CID. (JP 1-02)

computer network operations. Comprised of computer network attack, computer network defense, and related computer network exploitation enabling operations. Also called CNO. (JP 1-02)

concept of operations. A verbal or graphic statement, in broad outline, of a commander's assumptions or intent in regard to an operation or series of operations. The concept of operations frequently is embodied in campaign plans and operation plans; in the latter case, particularly when the plans cover a series of connected operations to be carried out simultaneously or in succession. The concept is designed to give an overall picture of the operation. It is included primarily for additional clarity of purpose. Also called commander's concept or CONOPS. (JP 1-02)

coordinated fire line. A line beyond which conventional and indirect surface fire support means may fire at any time within the boundaries of the establishing headquarters without additional coordination. The purpose of the coordinated fire line is to expedite the surface-to-surface attack of targets beyond the coordinated fire line without coordination with the ground commander in whose area the targets are located. Also called CFL. (This term and its definition modify the existing term and its definition and are approved for inclusion in the next edition of JP 1-02.)

electronic warfare. Any military action involving the use of electromagnetic and directed energy to control the electromagnetic spectrum or to attack the enemy. Also called EW. The three major subdivisions within electronic warfare are: electronic attack, electronic protection, and electronic warfare support. a. electronic attack. That division of electronic warfare involving the use of electromagnetic energy, directed energy, or antiradiation weapons to attack personnel, facilities, or equipment with the intent of degrading, neutralizing, or destroying enemy combat capability and is considered a form of fires. Also called EA. EA includes: 1) actions taken to prevent or reduce an enemy's effective use of the electromagnetic spectrum, such as jamming and electromagnetic deception, and 2) employment of weapons that use either electromagnetic or directed energy as their primary destructive mechanism (lasers, radio frequency weapons, particle beams). b. electronic protection. That division of electronic warfare involving passive and active means taken to protect personnel, facilities, and equipment from any effects of friendly or enemy employment of electronic warfare that degrade, neutralize, or destroy friendly combat capability. Also called EP. c. electronic warfare support. That division of electronic warfare involving actions tasked by, or under direct control of, an operational commander to search for, intercept, identify, and locate or localize sources of intentional and unintentional radiated electromagnetic energy for the purpose of immediate threat recognition, targeting, planning, and conduct of future operations.

Thus, electronic warfare support provides information required for decisions involving electronic warfare operations and other tactical actions such as threat avoidance, targeting, and homing. Also called ES. Electronic warfare support data can be used to produce signals intelligence, provide targeting for electronic or destructive attack, and produce measurement and signature intelligence. (JP 1-02)

fires. The use of weapon systems to create a specific lethal or nonlethal effect on a target. (JP 1-02)

fire support. Fires that directly support land, maritime, amphibious, and special operations forces to engage enemy forces, combat formations, and facilities in pursuit of tactical and operational objectives. (JP 1-02)

fire support area. An appropriate maneuver area assigned to fire support ships by the naval force commander from which they can deliver gunfire support to an amphibious operation. Also called FSA. (JP 1-02)

fire support coordination. The planning and executing of fire so that targets are adequately covered by a suitable weapon or group of weapons. (JP 1-02)

fire support coordination center. A single location in which are centralized communications facilities and personnel incident to the coordination of all forms of fire support. Also called FSCC. (JP 1-02)

fire support coordination line. A fire support coordination measure that is established and adjusted by appropriate land or amphibious force commanders within their boundaries in consultation with superior, subordinate, supporting, and affected commanders. Fire support coordination lines facilitate the expeditious attack of surface targets of opportunity beyond the coordinating measure. A fire support coordination line does not divide an area of operations by defining a boundary between close and deep operations or a zone for close air support. The fire support coordination line applies to all fires of air, land, and sea-based weapon systems using any type of ammunition. Forces attacking targets beyond a fire support coordination line must inform all affected commanders in sufficient time to allow necessary reaction to avoid fratricide. Supporting elements attacking targets beyond the fire support coordination line must ensure that the attack will not produce adverse effects on, or to the rear of, the line. Short of a fire support coordination line, all air-to-ground and surface-to-surface attack operations are controlled by the appropriate land or amphibious force commander. The fire support coordination line should follow well-defined terrain features. Coordination of attacks beyond the fire support coordination line is especially critical to commanders of air, land, and special operations forces. In exceptional circumstances, the inability to conduct this coordination will not preclude the attack of targets beyond the fire support coordination line. However, failure to do so may increase the risk of fratricide and could waste limited resources. Also called FSCL. (This term and its definition modify the existing term and its definition and are approved for inclusion in the next edition of JP 1-02.)

fire support coordination measure. A measure employed by land or amphibious commanders to facilitate the rapid engagement of targets and simultaneously provide safeguards for friendly forces. Also called FSCM. (JP 1-02)

fire support element. That portion of the force tactical operations center at every echelon above company or troop (to corps) that is responsible for targeting coordination and for integrating fires delivered on surface targets by fire-support means under the control, or in support, of the force. Also called FSE. (JP 1-02)

fire support station. An exact location at sea within a fire support area from which a fire support ship delivers fire. Also called FSS. (JP 1-02)

free-fire area. A specific area into which any weapon system may fire without additional coordination with the establishing headquarters. Also called FFA. (JP 1-02)

high-payoff target. A target whose loss to the enemy will significantly contribute to the success of the friendly course of action. High-payoff targets are those high-value targets that must be acquired and successfully attacked for the success of the friendly commander's mission. Also called HPT. (JP 1-02)

high-value target. A target the enemy commander requires for the successful completion of the mission. The loss of high-value targets would be expected to seriously degrade important enemy functions throughout the friendly commander's area of interest. Also called HVT. (JP 1-02)

information operations. The integrated employment of the core capabilities of electronic warfare, computer network operations, psychological operations, military deception, and operations security, in concert with specified supporting and related capabilities, to influence, disrupt, corrupt or usurp adversarial human and automated decision making while protecting our own. Also called IO. (JP 1-02)

interdiction. An action to divert, disrupt, delay, or destroy the enemy's military potential before it can be used effectively against friendly forces, or to otherwise achieve objectives. (JP 1-02)

joint fires. Fires delivered during the employment of forces from two or more components in coordinated action to produce desired effects in support of a common objective. (JP 1-02)

joint fires element. An optional staff element that provides recommendations to the operations directorate to accomplish fires planning and synchronization. Also called JFE. (JP 1-02)

joint fire support. Joint fires that assist air, land, maritime, and special operations forces to move, maneuver, and control territory, populations, airspace, and key waters. (JP 1-02)

joint force air component commander. The commander within a unified command, subordinate unified command, or joint task force responsible to the establishing commander for making recommendations on the proper employment of assigned, attached, and/or made available for tasking air forces; planning and coordinating air operations; or accomplishing such operational missions as may be assigned. The joint force air component commander is given the authority necessary to accomplish missions and tasks assigned by the establishing commander. Also called JFACC. (JP 1-02)

joint force commander. A general term applied to a combatant commander, subunified commander, or joint task force commander authorized to exercise combatant command (command authority) or operational control over a joint force. Also called JFC. (JP 1-02)

joint 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 and priorities, and refining the joint integrated prioritized target list. The board is normally comprised of representatives from the joint force staff, all components, and if required, component subordinate units. Also called JTCB. (JP 1-02)

kill box. A three-dimensional area used to facilitate the integration of joint fires. (This term and its definition modify the existing term and its definition and are approved for inclusion in the next edition of JP 1-02.)

no-fire area. An area designated by the appropriate commander into which fires or their effects are prohibited. Also called NFA. (JP 1-02)

nonlethal weapon. A weapon that is explicitly designed and primarily employed so as to incapacitate personnel or materiel, while minimizing fatalities, permanent injury to personnel, and undesired damage to property and the environment. (This term and its definition modify the existing term "nonlethal weapons" and its definition and are approved for inclusion in the next edition of JP 1-02.)

no-strike list. A list of geographic areas, complexes, or installations not planned for capture or destruction. Attacking these may violate the law of armed conflict or interfere with friendly relations with indigenous personnel or governments. Also called NSL. (JP 1-02)

phase line. A line utilized for control and coordination of military operations, usually an easily identified feature in the operational area. Also called PL. (This term and its definition modify the existing term and its definition and are approved for inclusion in the next edition of JP 1-02.)

positive control. A method of airspace control that relies on positive identification, tracking, and direction of aircraft within an airspace, conducted with electronic means by an agency having the authority and responsibility therein. (JP 1-02)

procedural control. A method of airspace control which relies on a combination of previously agreed and promulgated orders and procedures. (JP 1-02)

restrictive fire area. An area in which specific restrictions are imposed and into which fires that exceed those restrictions will not be delivered without coordination with the establishing headquarters. Also called RFA. (JP 1-02)

restrictive fire line. A line established between converging friendly surface forces that prohibits fires or their effects across that line. Also called RFL. (JP 1-02)

rules of engagement. Directives issued by competent military authority that delineate the circumstances and limitations under which United States forces will initiate and/or continue combat engagement with other forces encountered. Also called ROE. (JP 1-02)

targeting. The process of selecting and prioritizing targets and matching the appropriate means to engage them, considering commander's objective, operational requirements, capabilities, and limitations. (This term and its definition are provided for information and are proposed for inclusion in the next edition of JP 1-02 by JP 3-60.)

target of opportunity. 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. (JP 1-02)

terminal guidance operations. Those actions that provide electronic, mechanical, voice or visual communications that provide approaching aircraft and/or weapons additional information regarding a specific target location. Also called TGO. (Approved for inclusion in the next edition of JP 1-02.)

time-sensitive targets. Those targets requiring immediate response because they pose (or will soon pose) a danger to friendly forces or are highly lucrative, fleeting targets of opportunity. Also called TSTs. (JP 1-02)

zone of fire. An area into which a designated ground unit or fire support ship delivers, or is prepared to deliver, fire support. Fire may or may not be observed. Also called ZF. (This term and its definition modify the existing term and its definition and are approved for inclusion in the next edition of JP 1-02.)

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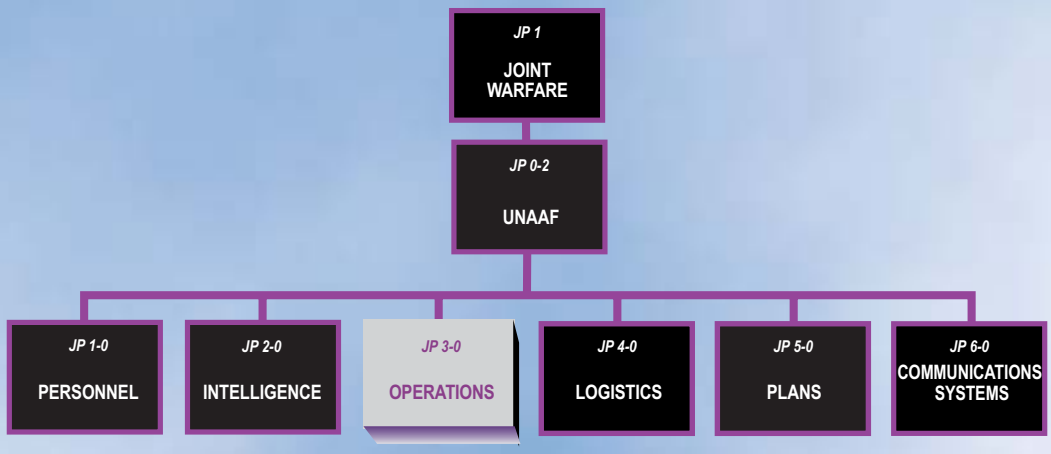

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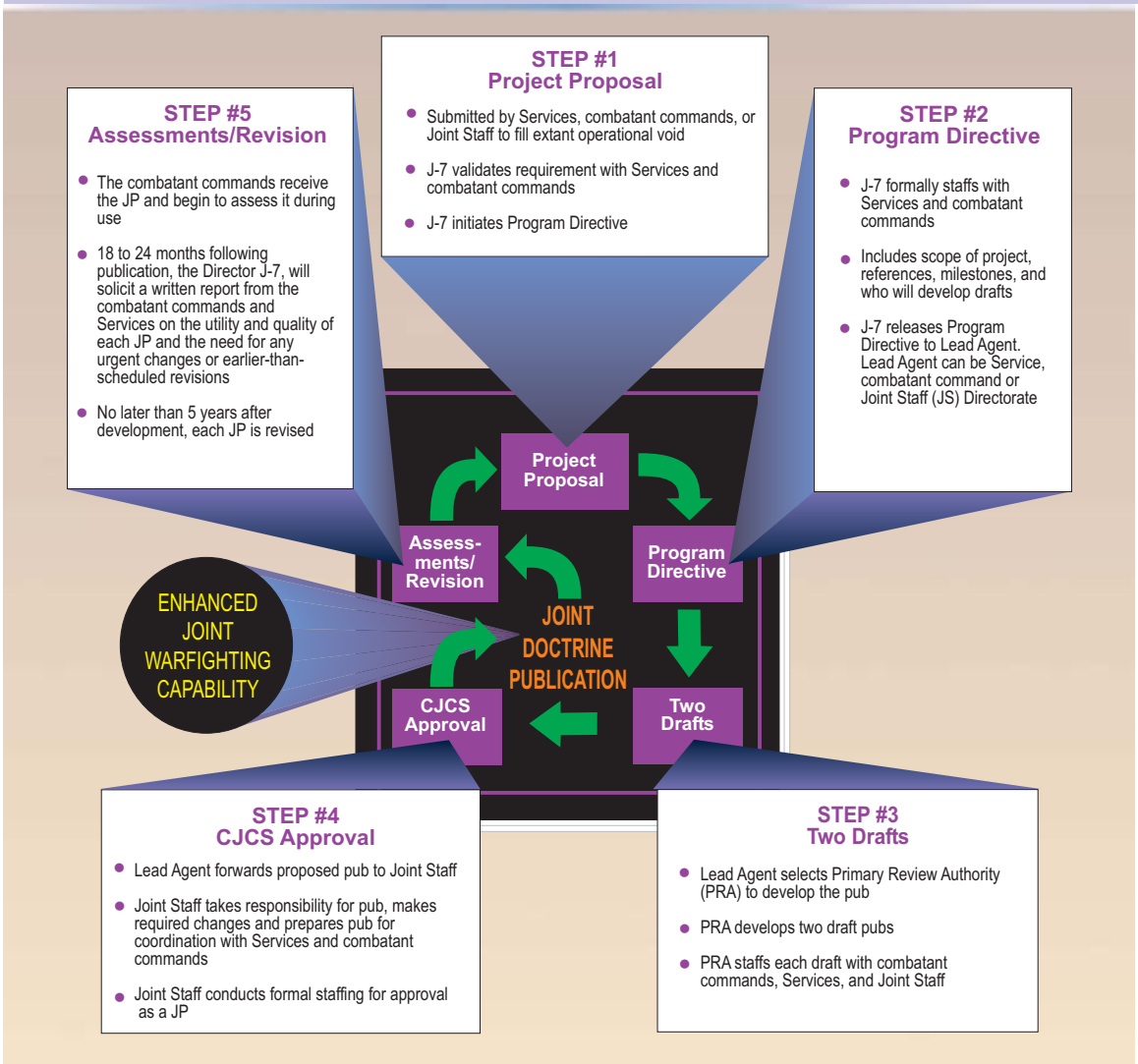


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