

FIRE SUPPORT IN THE AIRLAND BATTLE

DISTRIBUTION RESTRICTION: Distribution authorized to U.S. Government agencies only to protect technical or operational information from automatic dissemination under the International Exchange Program or by other means. This determination was made on 17 December 1987. Other requests for this document will be referred to Commandant, U.S. Field Artillery School, ATTN: ATSF-DD, Fort Sill, OK 73503-5600.

DESTRUCTION NOTICE: Destroy by any method that will prevent disclosure of contents or reconstruction of the document.

FIRE SUPPORT IN THE AIRLAND BATTLE

TABLE OF CONTENTS

	Page
PREFACE	
CHAPTER 1 FOUNDATIONS OF FIRE SUPPORT	
COMBAT POWER	1-1
MANEUVER	1-1
FIREPOWER	1-1
PROTECTION.....	1-1
LEADERSHIP	1-2
FIRE SUPPORT	1-2
FIRE SUPPORT SYSTEM	1-2
NATURE OF FIRE SUPPORT	1-2
BASIC TASKS OF FIRE SUPPORT	1-3
FIRE SUPPORT AND THE PRINCIPLES OF WAR	1-5
FIRE SUPPORT AND THE AIRLAND BATTLE	1-7
FIRE SUPPORT AND THE THREAT	1-7
FLEXIBILITY OF FIRE SUPPORT	1-8
CHAPTER 2 COMPONENTS OF THE FIRE SUPPORT SYSTEM	
Section I	
FIELD ARTILLERY RESPONSIBILITIES.....	2-1
FIELD ARTILLERY-FIRE SUPPORT RELATIONSHIP	2-1
COMMAND AND STAFF RESPONSIBILITIES	2-1
FIELD ARTILLERY COMMAND STRUCTURE	2-1

DISTRIBUTION RESTRICTION: Approved for public release; distribution is unlimited.

*This publication supersedes FM6-20, 31 December 1984.

Section II

FIRE SUPPORT COMMAND, CONTROL, AND COORDINATION

FACILITIES AND PERSONNEL	2-2
FIRE SUPPORT RESPONSIBILITY	2-2
FIRE SUPPORT AT ECHELONS ABOVE CORPS	2-2
FIRE SUPPORT ORGANIZATIONS AT CORPS AND DIVISION	2-3
FIRE SUPPORT AT BRIGADE AND BATTALION	2-3
FIRE SUPPORT AT COMPANY	2-4

Section III

TARGET ACQUISITION AND BATTLEFIELD SURVEILLANCE	2-4
TARGET ACQUISITION FOR FIRE SUPPORT	2-4
TARGETING PROCESS	2-4
TARGET ACQUISITION SOURCES	2-5
WEAPONS LOCATING	2-6
SENSOR TASKING	2-6
TARGET AREA SURVEY	2-7
COORDINATION INSTRUCTIONS	2-7

Section IV

FIRE SUPPORT RESOURCES	2-7
SOURCES	2-7
ATTACK CHARACTERISTICS	2-8
FIELD ARTILLERY	2-9
MORTARS	2-12
NAVAL GUNFIRE	2-13
TACTICAL AIR	2-14
ARMY AVIATION	2-16
ELECTRONIC WARFARE	2-18
NUCLEAR WEAPONS	2-20
CHEMICAL WEAPONS	2-22

CHAPTER 3 FIRE SUPPORT PLANNING AND COORDINATION

RESPONSIBILITIES	3-1
BASIC FIRE SUPPORT TASKS	3-1
SUPPORT FORCES IN CONTACT	3-2
SUPPORT THE BATTLE PLAN	3-3
SYNCHRONIZE THE FIRE SUPPORT SYSTEM	3-3
SUSTAIN THE FIRE SUPPORT SYSTEM	3-4
FIRE SUPPORT PLANNING/COORDINATION PRINCIPLES	3-5
PLANNING PROCESS	3-8

INTELLIGENCE ESTIMATE	3-9
COMMANDER'S ESTIMATE	39
LOGISTIC ESTIMATE	3-10
FIRE SUPPORT ESTIMATE	3-10
ENGINEER ESTIMATE	3-12
AIR DEFENSE ARTILLERY ESTIMATE	3-12
FIRE SUPPORT PLAN	3-12
DEEP ATTACK	3-13
FIRE SUPPORT FOR REAR OPERATIONS	3-14
GLOSSARY	Glossary-1
REFERENCES	References-1
AUTHORIZATION LETTER	

PREFACE

This publication is the Army's capstone manual for fire support. It embodies the doctrinal tenets for the employment of fire support in the AirLand Battle. It establishes a basis for understanding fire support as an essential element of combat power.

The aim of this publication is to establish the principles of fire support and to describe the fire support system in terms of its major components, functions, and required products. The scope of this publication is broad in its focus in order to deal with the fire support system as a complete entity. It gives equal treatment to all of the diverse assets that are designated as fire support resources. The theme of this publication is that the successful delivery of fire depends on the synchronization of all forms of fire support assets with the maneuver, engineer, logistics, electronic warfare (EW), air defense artillery (ADA), and intelligence plans for one purpose. This is to place the correct type and volume of fire at the right time and on the right target to ensure the success of the force commander's battle plan.

This publication provides the foundation for the development of subordinate fire support doctrine, force design, materiel acquisition, professional education, and individual and unit training. As the manual of fire support principles, it is designed to be used in conjunction with three other fire support publications. These manuals, which are to be published, are:

- FM 6-20-30, *Fire Support in Corps and Division Operations*.
- FM 6-20-40, *Fire Support in Brigade Operations (Heavy)*.
- FM 6-20-50, *Fire Support in Brigade Operations (Light)*.

These three publications will demonstrate how the principles of fire support contained in this publication will be applied and practiced at the various levels of command. For this reason, they are referred to as fire support "techniques" manuals.

This publication, as the capstone manual, establishes for the artilleryman the basic principles of fire support. It should be used by commanders who must employ fire support within the context of the entire battle plan. The three fire support techniques manuals go into further detail to explain specific duties for those individuals who actually work within the fire support system. However, this distinction is not meant to be an exclusive one. This capstone manual should be studied by those members of the combined arms team or other services who are responsible for the delivery of fires in support of ground combat operations.

The reader will find no radical doctrinal changes in this publication. The underlying principles of supporting the maneuver arms with fire and giving depth to the battle have origins which are rooted deep in the universal military experience. These principles are constant, and they will apply to future operations just as they apply to the present. Emerging technology and future missions and capabilities may change the methods of employing fire support as well as the degree by which fire support is

balanced with maneuver. However, the basic premise for why we provide fire support will remain unchanged.

The new format of presenting fire support doctrine in a series of four manuals, as opposed to the single FM 6-20, does constitute a major modification in the packaging of fire support doctrine. This change is another significant step in the evolution of fire support doctrine which began in 1977 when FM 6-20 was changed from *Field Artillery Tactics and Techniques* to *Fire Support for Combined Arms Operations*.

The source document for FM 6-20 continues to be FM 100-5, *Operations*. This publication states that fire support includes mortars, field artillery, naval gunfire, Army aviation, and air-delivered weapons. It describes field artillery as the principal means of fire support available to the commander, and it charges the field artillery to integrate all available fire support into the commander's plan for the battle. FM 100-5 no longer refers to fire support as a single battlefield functional area. It now speaks of fire support in terms of several major functional areas. Among them are:

- Conventional, nuclear, and chemical fires.
- Tactical air operations.
- Joint suppression of enemy air defenses (J-SEAD).

These functional areas still comprise one separate fire support function. For this reason, commanders at both operational and tactical levels of warfare are responsible for ensuring that these functional areas become melded into a synchronized fire support effort. This is the ultimate challenge of fire support. FM 6-20 helps commanders and their fire support coordinators (FSCOORDs) meet this challenge by providing a clear and concise picture of fire support and why it must work as a unified system. This capstone manual lays the groundwork for determining why the many assets that make up the fire support system must function in harmony in producing fire support.

This publication, in addition to the adjunct techniques manuals of the FM 6-20 series, should be used with the following publications:

- FM 100-5, *Operations*.
- FM 100-6, *Large Unit Operations*.
- FM 100-15, *Corps Operations*.
- FM 71-100, *Division Operations*.

The proponent of this publication is HQ TRADOC. Submit changes for improving this publication on DA Form 2028 (Recommended Changes to Publications and Blank Forms) and forward it directly to:

Commandant
US Army Field Artillery School
ATTN: ATSF-DD
Fort Sill, Oklahoma 73503-5600

Unless otherwise stated, whenever the masculine gender is used, both men and women are included.

CHAPTER 1 FOUNDATIONS OF FIRE SUPPORT

[Figure 1-1](#). This chapter explains the characteristics of fire support. It addresses the following general areas:

- *What fire support is.*
- *How fire support functions as a system.*
- *What the fire support system does to support the force commander (it's essential).*
- *How the principles of war affect the employment of fire support.*
- *The challenge of fire support for the AirLand Battle in view of the emerging Soviet threat.*

**Combat Power = Maneuver + Firepower +
Protection + Leadership**

COMBAT POWER

In war, the generation of maximum combat power results from the most efficient use of firepower and maneuver. These elements are different but inseparable, and both are equally important in the conduct of battle. But combat power consists of other elements, to include leadership and protection.

MANEUVER

Maneuver is the movement of forces in relation to the enemy to secure or retain positional advantage. It is the dynamic element of combat--the means of concentrating forces at the critical point to achieve the surprise, psychological shock, physical momentum, and moral dominance which enable smaller forces to defeat larger ones.

FIREPOWER

Firepower is produced by all weapons and attack systems available to the force commander. Many of these weapons and attack systems, with the exception of certain ground direct-fire weapons, are in the category of fire support, which constitutes a major source of firepower.

PROTECTION

Protection is the conservation of the fighting potential of a force so that it can be applied at the decisive time and place. Protection has two components. The first includes all actions that are taken to counter enemy firepower and maneuver by making soldiers, systems, and units difficult to locate, strike, and destroy. The second includes actions to keep soldiers healthy and to maintain their fighting morale.

LEADERSHIP

The most essential element of combat power is competent and confident leadership. Leadership provides purpose, direction, and motivation in combat. It is the leader who will determine the degree to which maneuver, firepower, and protection are maximized; who will ensure these elements are effectively balanced; and who will decide how to bring them to bear against the enemy.

FIRE SUPPORT

Fire support is the collective and coordinated use of indirect-fire weapons, armed aircraft, and other lethal and nonlethal means in support of a battle plan. Fire support includes mortars, field artillery, naval gunfire, air defense artillery in secondary mission, and air-delivered weapons. Nonlethal means are EW capabilities of military intelligence organizations, illumination, and smoke. The force commander employs these means to support his scheme of maneuver, to mass firepower, and to delay, disrupt, or destroy enemy forces in depth. Fire support planning and coordination exist at all echelons of maneuver. Fire support destroys, neutralizes, and suppresses enemy weapons, enemy formations or facilities, and fires from the enemy rear area. In a large-scale nuclear conflict, fire support could be the principal means of destroying enemy forces. In this event, the scheme of maneuver would be designed specifically to capitalize on the effects of fire support.

FIRE SUPPORT SYSTEM

Fire support is the product of a system consisting of three parts:

- Fire support command, control, and coordination (C3) facilities and personnel.
- Target acquisition and battlefield surveillance.
- Fire support resources.... weapons.

NATURE OF FIRE SUPPORT

The fire support system is a single entity composed of a diverse group of systems, personnel, and materiel, most of which operate in different ways. The methods of providing individual fire support assets such as mortars, field artillery, air support, naval gunfire, and EW may vary in terms of command and control (C²) and tactics and techniques. However, the fire support system must function as a unified force.

Because of the diversity of the individual fire support means, the total fire support system does not function through a common chain of command as does a maneuver organization. The force commander does exercise C² over his organic fire support assets, but he has limited control over external fire support resources that are made available for his use. The force commander's ability to employ all available fire support, as a system, and to integrate and synchronize fire support with his battle plan results from an established process known as fire support planning and coordination.

Fire support planning and coordination is the operational linchpin of the fire support system. Formal coordination binds fire support resources together in a common effort so that the multiple effects of each fire support asset are synchronized with the force commander's battle plan. Fire support coordination

entails the planning and execution of fires so that targets are adequately attacked by a suitable weapon or group of weapons. In discussing the coordination of fire support, it becomes obvious that cooperation among the various fire support agencies is necessary for the effective delivery of fires. This is especially true in fire support coordination in joint operations. However, it must be acknowledged that military operations that rely solely on actions based on a cooperative consensus are ultimately doomed to failure. The FSCOORD is the driving force behind fire support coordination. Therefore, cooperation must be thought of as a product of the directive force the commander exerts to drive the fire support system as a whole and the authority he gives the FSCOORD to execute it. Command direction of fire support can be expressed in the following principles:

- *The fire support system must operate as one force.* This means that all fire support assets in all three components (command, control, and coordination facilities and personnel; target acquisition and battlefield surveillance; and weapons) must function with a unity of effort and purpose--the effective delivery of fire support.
- *The fire support system must be responsive to the needs of the force commander.* Individual interests and concerns of each fire support agency or asset must be made subordinate to the overall mission and to the maneuver commander as represented by his FSCOORD .
- *Direction of the fire support system is the responsibility of the field artillery commander.* The force commander charges him to ensure that all available means of fire support are fully integrated and synchronized with the battle plan. He serves as the force commander's fire support coordinator and speaks for the force commander on all matters pertaining to fire support.

BASIC TASKS OF FIRE SUPPORT

The FSCOORD discharges his responsibility for coordinating fire support by applying the four tenets of AirLand Battle--initiative, agility, synchronization, and depth--to ensure the whole system accomplishes its essential tasks. These tasks are the basic requirements the fire support system must fulfill to destroy, neutralize, or suppress the enemy. The fire support tasks give the force commander and the FSCOORD a frame of reference to evaluate the overall effectiveness of the fire support system. These requirements, referred to as the four basic tasks of fire support, are:

- Support forces in contact.
- Support the force commander's battle plan.
- Synchronize fire support.
- Sustain fire support.

These four basic tasks serve as unifying factors for the fire support system. They unite the fire support resources. Each of these four tasks, in addition to applying to the system as a whole, applies to the individual fire support parts. The four basic tasks do not change or replace the traditional missions, roles, and operations of the different fire support assets. They do, however, provide a common point of departure for an operationally unified fire support system. For example, tactical air forces in support of ground operations must accomplish the four basic tasks simultaneously. However, a tactical air force does not consciously plan to work the four tasks. Rather, it accomplishes its ground support mission through its normal provision of close air support (CAS), interdiction (air interdiction [AI] and battlefield air interdiction [BAI]), and suppression of enemy air defenses (SEAD). It synchronizes and sustains its operations through the functioning of the tactical air control system/Army air-ground system

(TACS/AAGS). The final assessment of the ground support mission must be made in terms of the four tasks. To further clarify these points, it is necessary to examine each basic task.

Support Forces in Contact

Prerequisite to the performance of this task is the ability to respond to forces engaged with the enemy. This responsiveness includes ground and air maneuver forces, naval gunfire, and the air arm flying in support of ground operations. Also, this task enhances the survivability of friendly forces and the freedom of maneuver. Individual fire support assets support forces in contact in various time-tested roles and missions. The field artillery supports forces in contact by performing its traditional roles of close support, counterfire, and interdiction. The Air Force operations of CAS and SEAD are specifically intended to support forces in contact, although BAI can directly affect ground maneuver forces.

Support the Force Commander's Battle Plan

The performance of this task enables the force commander to influence the battle with firepower. It gives him the means to attack designated high-payoff targets whose destruction, neutralization, or suppression will be most beneficial to the successful accomplishment of his mission. The fire support system responds to the force commander's plan through the provision of timely and accurate fires.

Synchronize Fire Support

Synchronization, in addition to being one of the four basic tasks, is also one of the tenets of AirLand Battle doctrine. In terms of fire support, it is the precise arrangement of coordinated activities in time, space, and purpose to produce the most effective fires. Synchronization is both a process and a result. It requires unity of effort throughout the force. The artillery force commander synchronizes the fire support system and thereby gains the right attack means delivered on the right target at the right time. Synchronization must occur within the fire support system itself and also with other battlefield operating systems such as maneuver, command control, air defense, intelligence, mobility and survivability, and combat service support.

Fire support coordination is the primary means of synchronizing fire support. It involves the tactical and technical considerations necessary to deliver fires on target. This includes the exercise of fire support C3. The FSCOORD accomplishes fire support coordination for the force commander. The key ingredient stems from the commander's initial visualization of his mission objectives and how specific actions must be sequenced and timed to achieve them. Fire support synchronization should not require explicit and repeated coordination if all fire support representatives understand the commander's intent. The requirement for coordination is reduced when fire support personnel clearly understand the commander's intent. Rehearsal of the fire plan as an integral part of the operation plan is the key to synchronization.

[Figure 1-2.](#)

Sustain Fire Support

The accomplishment of this task ensures the survivability of the entire fire support system. It involves the performance of those actions necessary to achieve the survival of logistic and technical support for the fire support assets available to the commander.

FIRE SUPPORT AND THE PRINCIPLES OF WAR

The study of fire support should be in with a review of the basic principles for all military actions. These are the principles of war, and they have an indirect bearing on the employment of fire support.

PRINCIPLES OF WAR
Objective
Offensive
Mass
Maneuver
Economy of Force
Unity of Command
Security
Surprise
Simplicity

Objective

A fire support plan must have a clearly defined objective that is in consonance with the force commander's intent. The objectives of an operation must be translated into specific targeting guidance as recommended by the FSCOORD for the fire support system. This guidance will include instructions concerning the fire support attack and defeat criteria for predetermined high-payoff targets.

In applying the principle of objective to fire support, the FSCOORD must ensure that a detailed comparison of friendly fire support strengths versus enemy capabilities is made early in the operational planning cycle. This means that fire support personnel must know the functional and operational aspects of the enemy force. The fire support system must aggressively seek out those targets whose destruction will degrade the enemy effort the most and enable the force commander to accomplish the mission.

Offensive

Fire support must always be conducted in the spirit of the offense. Effective fire support must attain and maintain the initiative in attacking the enemy. Regardless of whether the combat force is engaged in the offense or is in a defensive posture, its fire support must be offensively oriented as it strikes high-payoff targets throughout the depth of enemy echelons. It is important that the fire support system be used to seek out the enemy and force him to alter his battle plan. The use of fire support in a constantly reactive mode violates the principle of offense. Fire support must be proactive not reactive.

Mass

The principle of mass applies to fire support as it does to all other resources at the disposal of a commander. The operational and tactical employment of fire support weapons and exploit the Principle of mass. Fire support weapons and units are not physically massed, but they must be able to provide maximum massed fires when and where they are required to support the battle plan. The actual methods of achieving massed fires vary with each fire support attack system. The use of nuclear and chemical weapons greatly increases the power of massed fires. FM 100-5 states that maneuver forces may be used to exploit the massed effects of nuclear weapons.

Maneuver

Maneuver, as it pertains to the fire support system, is maneuver by fire. This implies the capability to transfer and distribute massed fire quickly from one point or area to another over a wide frontage and out to a great depth. It also implies the mobility to displace rapidly and to keep pace with the maneuver arms. The fire support system must maintain a sufficient degree of flexibility in altering missions, command relationships, and priorities of fire as battlefield conditions mature.

Economy of Force

Through the use of decide-detect-deliver methodology, the economy-of-force principle is exercised to avoid an overload of the system by establishing priorities on how and when fire support will be used to meet critical demands. Economy of force requires that fire support be employed in conformance with the principles of mass and maneuver. Seldom will enough fire support assets, particularly field artillery, be available to support the total requirements of rear, close, and deep operations concurrently. This means that an operation or a committed force might not be given all the fire support it fully needs. A unit may be given only minimum adequate support to meet the commander's intent of the operations, and this may involve taking certain risks. The use of any one means of fire support must be such that the full weight of that particular attack means is placed on those targets that cannot be attacked with equal or greater success by any other type of fire support asset. Economy of force also implies that the fire support effort allocated to a given task shall not exceed the effort necessary to produce the desired result. The ability of the fire support system to fulfill its objective depends on the capability to sustain critical resources, especially munitions.

Unity of Command

The principle of unity of command supports the necessity for synchronizing fires within the fire support system and with the commander's scheme of maneuver. The achievement of unity of command is a critical objective of a successful fire support system. Unity of command is established by vesting in the FSCoord the requisite authority to direct and coordinate all fire support on behalf of the force commander and on the basis of his guidance and delineation of fire support tasks. To ensure this unity, the air liaison officer (ALO) and air/naval gunfire liaison company (ANGLICO) personnel at each level should be under the direction of the FSCoord at that level.

Security

There are two aspects of security in relation to fire support. The first aspect concerns the general security the fire support system must provide the force as a whole. Protecting the force is a prime consideration in the basic task of supporting forces in contact. The second aspect involves sustaining the survivability of the fire support system. The commander must weigh the importance of providing continuous fire support to the maneuver commander against the possibility of receiving counterfire as a result of enemy target acquisition capabilities. Certain fire support assets, such as nuclear delivery units, present high-value targets for the Threat force. These assets must be afforded a greater measure of security. Risk is another consideration concerning security. The application of the principle of security does not suggest overcautiousness or the avoidance of calculated risk. The principle of security is directly related to the task of sustainment.

Surprise

The principle of surprise is as important to the employment of fire support as it is to any other battlefield function. Fire support enables the commander to achieve surprise with the instantaneous delivery of a high volume of fire on the enemy without warning. Deception and secrecy are prime means of achieving surprise with fire support.

Simplicity

The process of fire support coordination is a complex series of interactions. For this reason, the fire support plans are clear, concise, and uncomplicated in their stated objectives.

FIRE SUPPORT AND THE AIRLAND BATTLE

The development of AirLand Battle as the Army fighting doctrine does not pose any revolutionary challenges for the fire support system. Instead, It reestablishes a requirement to increase the scope of fire support to an operational level that has not existed since the Second World War.

FM 100-5 describes AirLand Battle as encompassing three inseparable operational aspects. These are the deep operation, the close operation, and the rear operation. The force commander is responsible for conducting these operations on a simultaneous basis. The requirement to integrate and synchronize fire support with these three operations is inherent in this responsibility.

At the higher echelons of command, echelons above corps, the execution of the three operations of AirLand Battle will take place at the operational level of warfare. (NOTE: A corps could be involved at the operational level of warfare.) The objective of fire support at the operational level is to destroy, neutralize, or suppress high-payoff targets affecting the outcome of- a campaign or major operation. The synchronization of operational-level fire support usually results from the joint campaign planning process. This process entails high-level coordination and cooperation among fire support assets representing the various services. Specific examples of operational fire support include the campaign J-SEAD, the joint attack of the second echelon (JSAC), and the conduct of deep operations by fire support. Fire support assets that will be used at the operational level include Air Force support providing air interdiction and battlefield air interdiction as well as field artillery providing long-range rocket and missile fires.

"How can any man say what he should do himself if he is ignorant of what his adversary is about."-Jomini

FIRE SUPPORT AND THE THREAT

A Soviet or Soviet-styled force continues to represent the greatest potential threat to the United States from now into the next century. Soviet technological achievements over the past decade have made possible great qualitative improvements in their weaponry in addition to their already significant quantitative edge. These qualitative advances, as well as the realization that the premature massing of units for breakthrough operations will likely result in their destruction, have caused a departure from their more traditional tactics. Soviet planners now recognize that the traditional massing of men and materiel in a breakthrough sector can be defeated by modern target acquisition and weapons; that is, fire support. Soviet doctrinal solutions to this observation, which may be applied either alone or m

combination, are as follows:

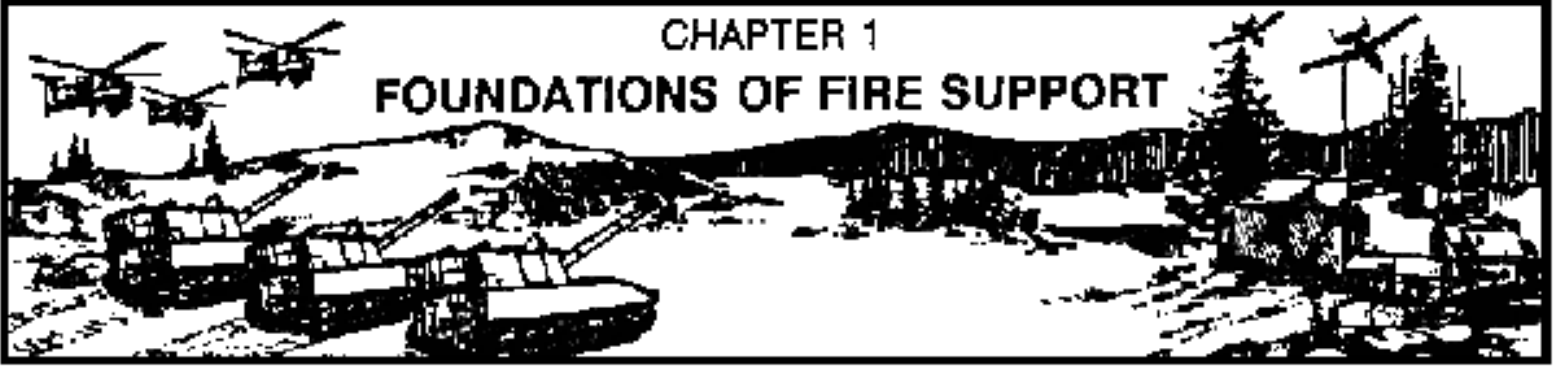
- Concentrate nuclear fires instead of conventional forces.
- Conduct a surprise attack with conventional forces that advance upon multiple axes to meet US/allied forces still undeployed.
- Orchestrate a conventional breakthrough before nuclear or chemical weapons can be brought to bear by US or allied forces.

It is likely that US and allied forces will continue to be outnumbered by a wide margin. To defeat Soviet forces, US forces must retain the initiative and prevent Soviet, or Soviet-style, forces from achieving mass, momentum, and continuous land combat. A balanced application of both firepower and maneuver is essential for US forces to achieve these goals. This calls for a synchronization of all fire support to attack critical high-payoff targets across the width and depth of the battlefield.

FLEXIBILITY OF FIRE SUPPORT

The principles of fire support must apply to an ever-increasing number of hostile world situations that extend across the spectrum of conflict from thermonuclear warfare to low-intensity conflicts. The fire support system must be flexible enough to respond to a number of battlefield situations ranging from the nonlinear characteristics of the high- and mid-intensity conflicts to the special demands of low-intensity conflict. Threat nuclear, biological, chemical (NBC) attacks will significantly degrade all aspects of fire support, from target acquisition to delivery. This will be most acutely felt in the loss of accuracy and timeliness of fires.

CHAPTER 1
FOUNDATIONS OF FIRE SUPPORT



FIRE SUPPORT COORDINATION AND SYNCHRONIZATION

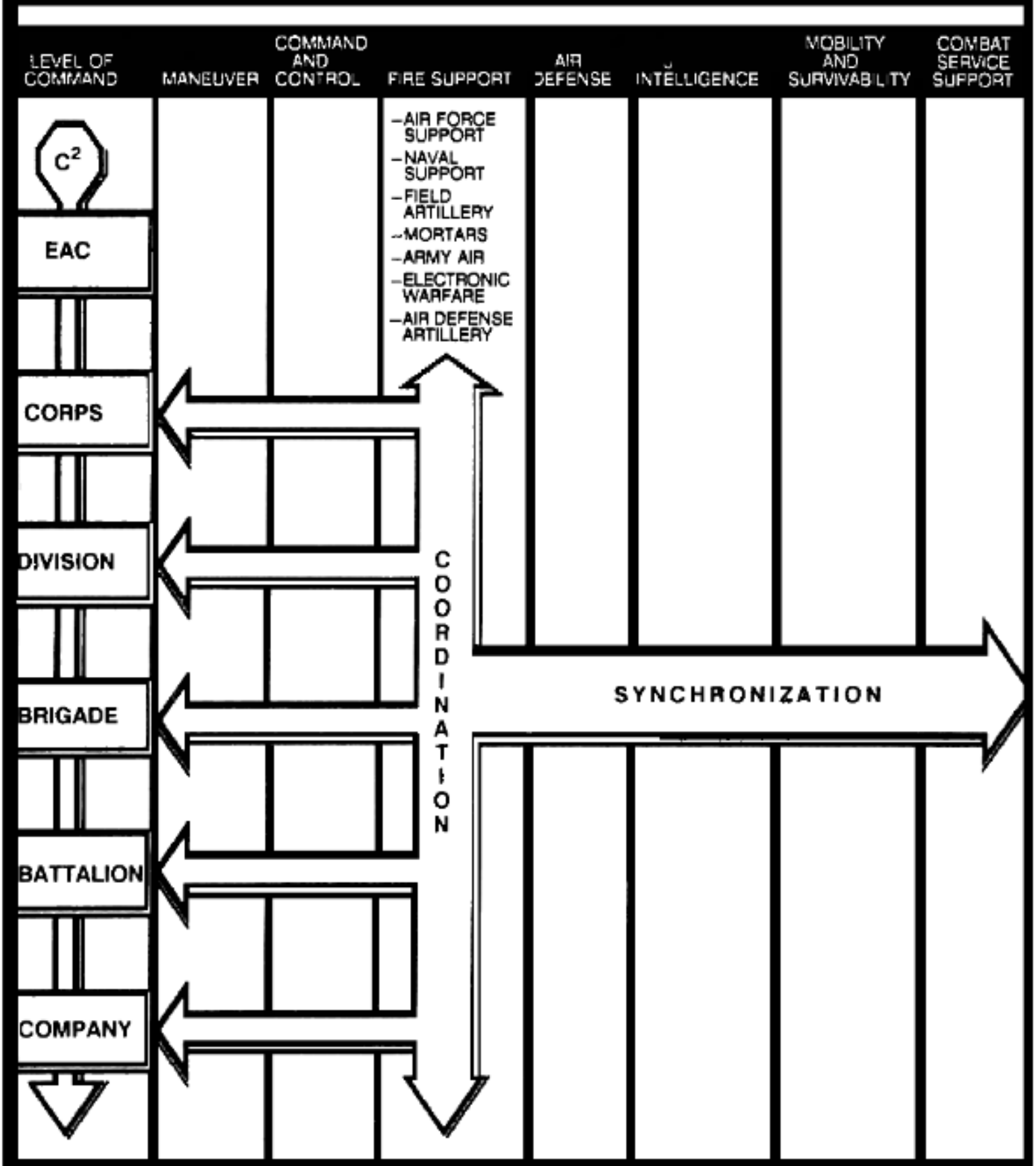


Figure 1-2

[Figure 2-1.](#)

This chapter focuses on each component of the system in terms of its capabilities and functions. It provides a general reference for the force commander and his staff on what these fire support assets do and how they contribute to the delivery of effective fire support. It addresses field artillery (FA) responsibilities and the three components of the fire support system.

Section I

FIELD ARTILLERY RESPONSIBILITIES

FIELD ARTILLERY-FIRE SUPPORT RELATIONSHIP

In recent years, the mission of the field artillery has consisted of dual responsibilities. FM 100-5 states these two responsibilities as follows: "The principal fire support element in fire and maneuver is the field artillery. It not only provides conventional, nuclear, or chemical fires with cannon, rocket, and missile systems; but it also integrates all means of fire support available to the commander." The dual nature of this mission dictates a definite division of responsibility for the field artillery commander.

COMMAND AND STAFF RESPONSIBILITIES

Field artillery commanders at corps, division, and brigade levels supervise the operation of the force commander's fire support coordination agencies in addition to commanding their respective field artillery organizations. This dual responsibility requires the field artillery commander to know the functions and objectives of the force, the operation of the force fire support system, and the technical aspects of field artillery fire.

FIELD ARTILLERY COMMAND STRUCTURE

Field artillery is organized at corps, division, and brigade with a specific command and control structure that enables the field artillery commander to accomplish both aspects of his mission. There is a field artillery headquarters and headquarters battery (HHB) in each corps and division artillery (div arty) organization, field artillery brigade, and close support field artillery battalion.

The HHB provides a command post (CP) for the command and control of field artillery and also provides the nucleus of a fire support element (FSE) to the force commander. Both the field artillery CP and the FSE are supervised on a full-time basis by the field artillery commander's designated representative.

The S3 operations officer usually is in charge of the field artillery CP. The fire support officer (FSO) or assistant fire support coordinator (AFSCOORD) is in charge of the FSE. How the field artillery

commander divides his time and emphasis between the FSE and the field artillery CP will depend on the force commander's guidance, the combat situation, and the general fire support state of readiness.

As the FSCOORD, the field artillery commander will spend most of his time either with the force commander or in the FSE. It is important that the commander and key staff officers within the maneuver command recognize and understand that the field artillery commander is equally responsible for both aspects of the field artillery-fire support mission. Also, the field artillery commander must recognize and understand that he bears the full responsibility for ensuring the efficient, effective operation of the FSE, just as he bears the command responsibility for ensuring timely and effective field artillery fire.

Section II

FIRE SUPPORT COMMAND, CONTROL, AND COORDINATION FACILITIES AND PERSONNEL

FIRE SUPPORT RESPONSIBILITY

Responsibility for command, control, and coordination of the fire support system begins with the force commander. He alone is responsible for what his command does in determining the outcome of battle. The effective control of fire support is as critical as the control of maneuver forces. For this reason, the force commander seeks and may accept counsel on fire support from his FSCOORD, but he must decide how his command will accomplish its mission. Fire support agencies are established in unit command posts from echelons above corps (EAC) to company level to assist in this decision and execution process. These organizations enable the force commander, advised by the FSCOORD, to direct the use of fire support.

FIRE SUPPORT AT ECHELONS ABOVE CORPS

Battlefield Coordination Element

The primary fire support consideration at EAC is the allocation of resources, especially air support assets, and the corresponding requirements to provide J-SEAD for air assets. The major Army organization that exists at EAC and is involved in the coordination of fire support is the battlefield coordination element (BCE). The BCE provides a complete interface between the land component commander (LCC) and the air component commander (ACC) for conducting the battle. BCE is established by the LCC and is collocated with the Air Force tactical air control center (TACC). As the combat operations center of the ACC, the TACC supervises the activities of assigned and attached air forces, air defense operations, and airspace control matters. It monitors the actions of both friendly and enemy forces. The BCE processes land force requests for tactical air support, monitors and interprets the land battle situation for the TACC, and provides the necessary interface for the exchange of current operational and intelligence data.

Army Groups and Armies

If a theater of war is organized into army groups and armies, it will be necessary to provide (from Army troops) fire support officers and fire support sections at the headquarters of these units. The primary responsibility of the fire support officer at these levels will be to advise the respective commanders of the

operational aspects of fire support capabilities. This includes the apportionment and allocation of fire support assets, logistical considerations, and nuclear and chemical fire planning.

FIRE SUPPORT ORGANIZATIONS AT CORPS AND DIVISION

The FSEs at corps and division are essentially similar in structure. Both corps and division have FSEs located in the main and tactical command posts. They are supervised by the FSCOORD. The FSCOORD and his staff are the nucleus of the FSE, which also includes the fire support resources discussed in the following paragraphs.

Air Support Operations Center

The focal point for coordinating air support at corps is the air support operations center (ASOC). The ASOC should be collocated with the FSE and the corps Army airspace command and control (A2C2) element at the main CP. The ASOC should have the air liaison officer or his designated representative in the FSE. At division, the tactical air control party (TACP) should be positioned near the FSE and the A C element at the main CP. The ALO or his designated representative should be in the FSE.

Air/Naval Gunfire Liaison Company

The division coordinates naval fire support through the division air/naval gunfire section of the ANGLICO. This US Marine Corps organization also collocates with the division A2C2 element and the FSE. The ANGLICO commander serves as the divisional naval gunfire officer. Because of the design of the ANGLICO, the division is normally the highest echelon that establishes liaison with naval fire support assets.

Army Aviation

When Army aviation is employed as fire support, representatives of the corps and division aviation officers coordinate directly with the FSE.

Electronic Warfare Section

The G3 controls the use of electronic warfare; however, the electronic warfare section (EWS) usually collocates with the FSE to facilitate target acquisition and fire support planning and execution. This group is responsible for advising the brigade on the capabilities of supporting intelligence assets and for coordinating the employment of supporting EW assets.

Air Defense Artillery

When Army air defense artillery is employed as fire support, ADA representatives of the corps and division A C element and ADA officers coordinate directly with the FSE.

FIRE SUPPORT AT BRIGADE AND BATTALION

The direct support battalion commander is the FSCOORD for the maneuver brigade he supports. In separate maneuver brigades, the FSCOORD is the commander of the brigade organic field artillery battalion. The brigade FSCOORD is assisted by a fire support officer. The field artillery battalion commander, in his capacity as the brigade FSCOORD, establishes fire support organizations in each maneuver battalion and in each company. The brigade and battalion FSEs are located in the maneuver

unit tactical operations center (TOC). Air support is coordinated through the brigade and battalion ALOs/G3/S3 air and their corresponding TACPs. When naval support is available, a brigade air/naval gunfire platoon from the ANGLICO will be deployed at brigade level. The ANGLICO provides the battalion FSE with a battalion supporting arms liaison team (SALT) from the brigade air/naval gunfire platoon. The battalion mortar platoon leader provides effective coordination with the FSE on all mortar matters. Although not doctrinally a part of the FSE, the brigade and task force engineers must coordinate closely with the fire support officer. This is to ensure obstacles are covered by fire, fire support is coordinated for breaching operations, and scatterable mines are delivered as planned.

NOTE

Armored cavalry regiments organized with separate howitzer batteries contain organic FSEs, at squadron and regimental levels, which are supervised by FSOs.

FIRE SUPPORT AT COMPANY

The fire support organization at the maneuver company is the fire support team (FIST). The FIST is supervised by the company FSO. The primary means of fire support available at the company level are field artillery and battalion mortars and, in light units, company mortars. The company FSO usually coordinates close air support through the Air Force forward air controller (FAC). He coordinates employment of naval resources through the firepower control team (FCT), which is provided by the SALT at battalion.

[Figure 2-2.](#)

NOTE

FM 6-20-30, 6-20-40, and 6-20-50 will provide an in-depth discussion of the duties and responsibilities of the FSCOORD and the key fire support personnel in the FSE at the various echelons of command.

Section III

TARGET ACQUISITION AND BATTLEFIELD SURVEILLANCE

TARGET ACQUISITION FOR FIRE SUPPORT

The FSCOORD relies on input from many individuals, units, and resources on the battlefield which acquire targets by reconnaissance, surveillance, and target acquisition activities.

The FSO can request collection missions through the command G2 and/or S2. The G2s and/or S2s, through the TOC support elements or battlefield information coordination center (BICC), task organic military intelligence (MI) organizations and other elements of command with collection missions. The G2s and/or S2s, through the TOC/BICC, request collection support and receive intelligence from higher echelons, other services, allies, and national sources.

TARGETING PROCESS

The AFSCOORD, G2 representative, field artillery intelligence officer (FAIO), G3 representative, EW officer, targeting officer, A2C2 representative, ALO, chemical officer, and engineer representative integrate the targeting effort and coordinate the targeting process. They jointly analyze target indicators from various sources. The sources include the all-source production section (ASPS), the FSE, the G3 (combat information), and the ALO (Air Force information). This information is compared to the high-payoff target selection standards. Then the selected attack means is tasked or requested to attack the target. The coordinated effort between staff members and the targeting process result in the rapid analysis and attack of high-payoff targets.

At brigade, the intelligence electronic warfare (IEW) personnel provide near-real-time target intelligence to the FSE when tasked by the G2.

At division and corps, the FAIO and IEW elements identify and analyze targets on the basis of priorities established by the FSCOORD/G3 and G2. The FAIO (considering the high-payoff target matrix) passes the targeting information on to the targeting cell(s).

TARGET ACQUISITION SOURCES

Target acquisition sources may be considered under two basic headings, ground and air.

Ground Sources

Target information may be obtained by patrols, combat reports, remote sensors, locating and surveillance devices, and observation. The effectiveness of any subsequent attack will depend on the accuracy and timeliness of this information.

Surveillance. Much of the information produced from combat surveillance is of a time-sensitive nature. It is essential that the command and control systems provide for the rapid passage of information to commanders at all levels. After processing by the intelligence staff, information from battlefield surveillance may result in intelligence. Battlefield surveillance may be enhanced, under suitable conditions, by the use of--

- Image intensification and thermal imagery equipment.
- Moving-target-locating radars.
- Laser range finders and designators.
- Remote sensors.

Locating Devices. Locating devices may often determine the accurate locations of elements such as C2 facilities, radars, enemy artillery, rocket launchers, and mortar positions. The locating devices used could be electronic direction-finding equipment and weapons-locating and moving-target-locating radars. (Reference FM 6-161.)

Combat Reports. Reports of enemy activity by reconnaissance patrol s and maneuver units are a valuable source of information for target acquisition. It is a combined arms responsibility to ensure that such information is passed as quickly as possible.

Air Sources

Unmanned Aerial Vehicles. Unmanned aerial vehicles (UAVs) provide a relatively survivable means of

maintaining surveillance over the battlefield. They can locate and identify targets by day and by night and provide real-time surveillance by use of television. They also can provide laser designation of targets for attack by fire support means. Normally, corps or division controls UAV missions. Tasking of the UAV is the responsibility of the G3, and it can be allocated to subordinate units.

Aircraft. Aerial reconnaissance and target acquisition are carried out by Army, Navy, Air Force, and Marine Corps aircraft. The information may provide suitable detail for target attack purposes. However, in some circumstances, this information may require confirmation from other sources. Tactical air reconnaissance will depend on the air situation and on the availability of aircraft. Information may be acquired by visual, photographic, radar, or infrared reconnaissance. Pilot reports are a valuable source of information.

Satellites. Overhead platforms can provide imagery information from radar, infrared, and photographic sensor packages. The examination of imagery and film (imagery interpretation) can be used to identify and locate enemy installations, equipment, concentrations, and activities to deduce their significance. It is likely that this information could also be used to provide targeting and limited weather information.

WEAPONS LOCATING

The location of enemy mortars, artillery, and rocket launchers provides detailed target information for attack as well as information on enemy future intentions. Weapons may be located as a result of the information collection effort or the use of specific locating devices and procedures. Enemy mortars guns, cannons, and rocket launchers may be located by the following:

- Radars.
- Air assets.
- Remote sensors.
- Air and ground observers.
- Crater analysis.
- Bombing, shelling, mortaring, and location reports.

SENSOR TASKING

Tasking the right sensor for a collection task at the right time is a critical function in the targeting process as determined by the methodology of decide-detect-deliver. Clear and concise taskings must be given to each agency controlling sensors within the force or unit. Staffs should use the following principles when planning, allocating tasks, and initiating sensor requests to higher echelons:

- Units and forces are tasked, not equipment.
- Tasks must complement system capabilities.
- Units and forces may elect to pursue a task of greater resolution than directed.
- Large-area surveillance is rarely effective, and small areas should be chosen selectively on the basis of analysis of the intelligence preparation of the battlefield (IPB) product most likely to produce the desired targets.
- Surveillance should be used to seek positive information.
- Constant coordination is required among operations, intelligence, and fire support staffs to ensure

the effective employment of surveillance and target acquisition resources.

TARGET AREA SURVEY

In addition to acquisition assets designed specifically to locate enemy units, the maneuver commander has laser range finders, artillery survey, and laser-equipped observers to determine accurate preplanned target locations in engagement areas and on obstacles. These can greatly enhance the accuracy of fire support.

COORDINATION INSTRUCTIONS

When tasking a force or unit that controls sensors, the collection manager should consider mission, enemy, troops available, terrain and weather, and time available (METT-T). Emphasis should be placed on the following:

- Observable features of the target.
- Boundaries of named areas of interest and target areas of interest.
- Required location accuracy.
- Cueing to maximize target locations and sensor system survivability.
- Limitations on reconnaissance.
- Limitations on the use of fire support to attack acquired targets.
- Restrictions on the use of illuminating ammunition and flares.
- Restrictions on the use of active infrared (IR).
- Restrictions of smoke and obscurants on target acquisition systems.
- Electronic warfare threat.
- Restrictions on the use of electronic emitters.
- Routes to be used (air and ground).
- Reporting procedures and communications links to be established between the sensor and the fire support control elements.

The commander must have timely and accurate combat information and target acquisition to be successful in battle. To achieve synchronization of information, target acquisition, and combat power with the maneuver commander's battle plan, he must ensure complete coordination among his operations, intelligence, and fire support staffs during the planning and conduct of the operation.

Section IV FIRE SUPPORT RESOURCES

SOURCES

This section considers the main sources of fire support and other attack means available to forces in AirLand operations. These sources are discussed under the following headings:

- Field artillery.
- Mortars.

- Naval gunfire (NGF).
- Tactical air.
- Army aviation.
- Electronic warfare.
- Nuclear weapons.
- Chemical weapons.

NOTE

Nuclear and chemical weapons are types of ammunition that can be delivered by several of the resources listed above. However because their use in fire support imposes some special considerations and significantly changes the battlefield, they are discussed separately.

ATTACK CHARACTERISTICS

Attack systems can be divided into two categories: lethal and nonlethal.

Lethal Attack Characteristics

Indirect Fire. The projectile, rocket, missile, and bomb are the weapons of indirect-fire systems. Indirect fire can cause casualties to troops, inhibit mobility, suppress or neutralize weapon systems, damage equipment and installations, and demoralize the enemy. Most casualties to troops in an indirect-fire attack are caused by the initial rounds. Best results are achieved by a short engagement at a high rate from as many weapons as possible.

Effects of Fire. A commander will decide what effect fire support must have on a particular target. There are three types of fire: destruction, neutralization, and suppression.

Destruction. Destruction puts a target out of action permanently. Direct hits with high-explosive (HE) or concrete-piercing (CP) shells are required to destroy hard materiel targets. Usually, destruction requires large expenditures of ammunition and is not considered economical, except for nuclear weapons.

Neutralization. Neutralization knocks a target out of action temporarily. It can be achieved by use of any type of shell-fuze combination suitable for attacking a particular type of target. Neutralization does not require an extensive expenditure of ammunition and is the most practical type of mission. Most missions are neutralization fire.

Suppression. Suppression of a target limits the ability of the enemy Personnel in the target area to perform their jobs. Firing HE/VT or smoke creates apprehension and confuses the enemy. The effect of suppressive fires usually lasts only as long as the fires are continued. Suppression requires a low expenditure of ammunition; however, since its effects are not lasting, it is unsuitable for most targets.

Categories of Indirect Fire. Indirect fires are divided into two basic categories: observed and unobserved.

Observed fire. Observed fire is fire for which the points of impact or burst can be controlled by an observer. Seldom will there be enough indirect-fire units or ammunition available to meet all the demands for indirect-fire support. By ensuring fire is observed when accuracy cannot be guaranteed, the most effective and economical use of indirect-fire weapons is attained. Observed fire will result in target

damage assessment (TDA) reports.

Unobserved fire. Unobserved fire is fire for which the points of impact or burst are not observed. It involves predicting where targets are, or will be, and placing fire on them. Use of unobserved fire requires follow-up activity to assess effectiveness.

Nonlethal Attack Systems and Munitions

Smoke, illumination, and offensive electronic warfare can exploit, disrupt, and deceive the enemy. Jammers can affect the command and control system, radars, and navigational aids by causing the enemy to receive false information. This degrades the overall effectiveness of the enemy system.

FIELD ARTILLERY

Mission

The mission of field artillery is to destroy, neutralize, or suppress the enemy by cannon, rocket, and missile fire and to help integrate all fire support assets into combined arms operations.

Roles

The field artillery system provides close support to maneuver forces, counterfire, and interdiction as required. These fires neutralize, canalize, or destroy enemy attack formations or defenses; obscure the enemy's vision or otherwise inhibit his ability to acquire and attack friendly targets; and destroy targets deep in the enemy rear with long-range rocket or missile fires. Field artillery support can range from conventional fires in a company zone to massive nuclear and chemical fires across a corps front.

Close Support Fires. These fires are used to engage enemy troops, weapons, or positions that are threatening or can threaten the force in either the attack or the defense. They allow the commander to rapidly multiply combat power effects and shift fires quickly about the battlefield. Close support expands battlefield depth, erodes enemy forces, and inflicts damage well beyond direct-fire ranges.

Counterfires. Counterfires are used to attack enemy indirect-fire systems, to include mortar, artillery, air defense, missile, and rocket systems. Observation posts and field artillery command and control facilities are also counterfire targets. Counterfire allows freedom of action to supported maneuver forces and is provided by mortars, cannons, guns, and aircraft. Within the field artillery, counterfire is normally the primary responsibility of general support (GS) and general support reinforcing (GSR) units. However, it may be fired by any unit.

Interdiction Fires. These fires are used to disrupt, delay, and destroy enemy forces that, because of range limitations or intervening terrain, cannot fire their primary weapon systems on friendly forces. Targets include first-echelon forces not participating in the direct battle and follow-on echelons. Interdiction fires create "windows" for friendly unit offensive maneuver.

Command and Control

Clearly defined, systematic, and positive command and control ensures that the field artillery contributes to the fire support system in a responsive manner and that it is adequate to support the mission. Command and control relationships are established through a process referred to as organization for combat.

Establishment of Command Relationships. One of the following relationships with a tactical unit is established for each field artillery unit:

- Organic.
- Assigned.
- Attached
- Operational control (OPCON).

Assignment of Tactical Missions. Each field artillery unit is assigned a tactical mission of direct support (DS), reinforcing (R), general support reinforcing, or general support.

Direct support. A battalion operating in direct support of a maneuver brigade is concerned primarily with the field artillery support needs of only that brigade. The DS battalion commander is the FSCOORD for the supported maneuver force. Fires are planned and coordinated with the maneuver unit, and the DS battalion commander positions his unit where it can best support the scheme of maneuver. If the battalion cannot provide the support required for a planned scheme of maneuver, the FSCOORD must inform the supported maneuver commander. The same battalion should support the same maneuver force habitually to enhance coordination and the training effort. Direct support is the most decentralized standard tactical mission.

Reinforcing. Reinforcing is a tactical mission that causes one FA battalion to augment the fires of another FA battalion. When a direct support FA battalion needs additional fires to meet the FA support needs of a maneuver force, the reinforcing mission may be assigned to another FA battalion.

General support reinforcing. The GSR mission requires the FA battalion to furnish artillery fires for the force as a whole and to reinforce the fires of another FA battalion as a second priority. A GSR battalion remains under the control of the force artillery headquarters, which has priority of fires. The GSR mission offers the force commander flexibility to meet the requirements of a variety of tactical situations.

General support. A battalion assigned the mission of general support supports the force as a whole and stays under the immediate control of the force artillery headquarters. This mission makes artillery immediately responsive to the needs of the force commander. It is the most centralized of the standard tactical missions.

NOTE

If the commander's intent cannot be conveyed accurately with one of the standard field artillery tactical missions, a nonstandard tactical mission may be assigned. These missions amplify limit, or change one or more of the inherent responsibilities or spell out contingencies not covered by those responsibilities

[Figure 2-3.](#)

Fundamentals of Organization for Combat

Field artillery is organized for combat to provide responsive and effective FA fires and to coordinate all

fire support. The objective of the FA organization for combat is to ensure that each FA unit is in a tactical organization and is assigned a tactical mission. The FSCOORD recommends and the supported force commander approves an FA organization for combat after analyzing the factors of METT-T:

- Mission/commander's concept.
- Enemy targets and fire support capabilities.
- Troops/fire support units available, targeting sources, and ammunition status.
- Terrain and weather conditions.
- Time available.

Fundamentals. The five fundamentals of organization for combat are:

- Adequate field artillery support for committed combat units.
- Weight to the main attack in offense or most vulnerable area in defense.
- Facilitate future operations.
- Immediately available field artillery support for the commander to influence the action.
- Maximum feasible centralized control.

Adequate field artillery support for committed combat units. Field artillery support is most responsive to committed maneuver elements when it is given the DS tactical mission. The minimum adequate support for committed units is considered to be one FA battalion in direct support of each committed brigade. In no instance can there be more than one FA unit in direct support of a maneuver unit.

Weight to the main attack in offense or most vulnerable area in defense. This fundamental can be implemented in any of the following ways:

- A tactical mission of reinforcing or general support reinforcing can be assigned to provide additional responsive fires to maneuver forces in contact.
- Field artillery units can be positioned and assigned directions of fire to concentrate their fires in the appropriate sector or zone. In this manner, units with the mission of general support can add weight to the main attack or strength to the most vulnerable area.
- Ammunition may be allocated to provide for more support in the affected area.

Facilitate future operations. This fundamental is essential to ensure success in the face of unforeseen events and to ensure smooth transition from one phase of an operation to another. The fundamental can be implemented through the assignment of tactical missions, positioning of artillery, and allocation of ammunition. The assignment of an on-order mission allows a unit to anticipate an FA support need in a future situation. Another way to facilitate future operations is to modify the current tactical mission in accordance with anticipated requirements.

Immediately available field artillery support for the commander to influence the action. The force FA commander should retain some artillery with which the force commander can influence the action. This is done by assigning GS or GSR missions to artillery units, making them responsive to the force commander.

Maximum feasible centralized control. Field artillery is most effective when control is centralized at the highest force level consistent with the fire support capabilities and requirements of the overall

mission. Centralized control of field artillery permits flexibility in its employment and facilitates effective support to each subordinate element of the command and to the force as a whole. Standard tactical missions represent varying degrees of centralized control and responsiveness to committed units. The optimum degree of centralized control varies with each tactical situation. Fighting the AirLand Battle will require more careful planning because of the limited resources available to attack targets and the need for carefully coordinated employment of acquisition, attack, and assessment means. A high degree of centralized control is desired in a defensive situation. Since the enemy has the initiative, it is difficult to accurately predict where and when he will strike. A lesser degree of centralized control is required in an offensive situation, because the supported force has the initiative.

Field Artillery Organizations. The following are examples of typical FA organizations for combat:

Division artillery. The division commander normally places at least one FA battalion in direct support of each committed maneuver brigade. Additional FA units may reinforce DS battalions and/or provide fires in general support of the division. Target acquisition weapons-locating radars may be attached one to each committed DS field artillery battalion while other weapons-locating and moving-target-locating radars remain in general support of the division.

Field artillery brigade. An FA brigade is organized with corps field artillery battalions. The brigade headquarters can control up to six battalions of field artillery. Organization of the brigade and missions assigned may provide for centralized control of fires immediately responsive to the corps commander (GS and GSR) or decentralized control with brigade fires immediately responsive to a particular corps maneuver force (DS or R).

Corps artillery. The corps commander normally retains some field artillery under corps control. He provides additional field artillery support to divisions and other corps maneuver elements; for example, armored cavalry regiments. He does this by attaching FA assets to the division and/or by assigning FA units tactical missions that make them more responsive to the fire support needs of the division or other maneuver element. **Delivery System Characteristics**

Field artillery delivery systems include cannons, rockets, and missiles. These systems can provide fires under all conditions of weather and in all types of terrain. They can shift and mass fires rapidly without having to displace. The extended ranges of rockets and missiles enable the commander to strike deep. A variety of cannon munitions provides increased flexibility in attacking targets. Field artillery units are as mobile as the units they support. Field artillery units also have several limitations:

- A firing signature that makes the unit vulnerable to detection by enemy target acquisition assets.
- Limited self-defense capability against ground and air attacks.
- Limited ability to destroy armored, moving targets.

MORTARS

Mission

The mission of mortars is to provide immediate and close supporting fires to the maneuver forces in contact.

Roles

Maneuver unit mortars provide close, immediately responsive fire support for committed battalions, companies, and troops. These fires neutralize, canalize, suppress, or destroy enemy attack formations and defenses; obscure the enemy's vision; or otherwise inhibit his ability to acquire friendly targets. They also can be used for final protective fires, smoke, and illumination.

Command and Control

Mortars are organic to certain maneuver battalions and to the companies of light units. The maneuver commander decides how and when mortars, as a key fire support asset, will be integrated into his battle plan. However, since they are fire support assets, the FSO should give advice and make recommendations to the commander. The amount of control the fire support officer has over the employment of available mortars is a matter for the supported unit commander to decide. The commander may specify mortar support for subordinate units by changing the command relationship, assigning priority of fires, or assigning priority targets.

Delivery System Characteristics

Mortars are high-angle, relatively-short-range, high-rate-of-fire, area-fire weapons. Their mobility makes them well-suited for close support of maneuver. Their positions are seldom surveyed; hence, they require adjustment, which results in loss of surprise and greater ammunition expenditure. Also, because of their high-angle fire, they are more susceptible to enemy target acquisition and to winds that can make their dispersion greater than that of low-angle-fire weapons. They are ideal weapons for attacking targets on reverse slopes, in narrow gullies, in ditches, in military operations on urban terrain (MOUT), and in other areas that are difficult to reach with low-angle fire. However, ammunition-carrying capacity limits periods of firing. Mortars are especially effective for smoke and illumination missions.

NAVAL GUNFIRE

Mission

The mission of naval gunfire support is to help the AirLand force by destroying, neutralizing, or suppressing the enemy during amphibious operations and subsequent operations ashore.

Roles

Naval gunfire can provide large volumes of immediately available, responsive fire support to land combat forces operating near coastal waters. Naval gunfire has a great variety of weapons extending from light conventional armament to heavy missiles and nuclear weapons. It can play a vital role in reducing the enemy capability of action by destroying enemy installations before the assault, protecting and covering the amphibious assault, and supporting offensive actions of the land force after the assault.

Command and Control

Naval gunfire and the ships it comes from remain under the naval command of the amphibious task force (ATF) commander. Relationships between assigned ships and supported ground force units after the assault are on a basis of limited, delegated responsibility. Ships placed in support of land forces provide the requested fire within their capability. Ship positioning and method of delivery are left to the ship captain, within parameters established by the commander, ATF. The supported ground force unit selects the targets, the timing of fires on the targets, and the method of adjustment of fires. Naval gunfire ships

are assigned one of two missions, direct support or general support. A ship in direct support of a maneuver battalion delivers both planned and on-call fires (targets of opportunity). The naval commander is assisted in the control of naval gunfire by navy liaison representatives located with supported ground forces. General support missions are assigned to ships supporting forces of brigade size and larger. Fire missions can be processed by the air observer of the shore fire control party. If threats are made to naval operations, the target attack priorities of the ship may cause it to hold or cancel land force fire missions until the other threats can be subdued.

Delivery System Characteristics

Naval gunfire ships are very mobile, which allows them to be positioned to take advantage of their limited deflection pattern. Very close supporting fire can be delivered when the gun-target line is parallel to friendly front lines. The relatively flat trajectory of naval gunfire results in a large range probable error. Hydrographic conditions may cause the ship to take up firing positions that cause the gun-target line to be perpendicular to friendly front lines. When this change in the gun-target line happens, it makes naval gunfire unsuitable to attack targets close to the forward line of own troops (FLOT). Naval gunfire ships have a large variety of ammunition and high rates of fire, which make them suitable for attacking any type of target. The position of the ship must be fixed before each firing in order to achieve firing accuracy. Bad weather and poor visibility make it difficult to fix the ship position, and they reduce the ability of spotters on the ship to engage targets on the shore. Radio communications can be interrupted by equipment limitations, enemy electronic warfare, and unfavorable atmospheric conditions.

TACTICAL AIR

Mission

The mission of the tactical air forces is to maintain and operate assigned combat forces capable of conducting tactical air operations anywhere in the world.

Roles

The tactical air mission can be subdivided into five roles:

- Offensive counterair.
- Interdiction.
- Close air support.
- Tactical air reconnaissance.
- Tactical airlift.

Offensive Counterair. Counterair operations are conducted to attain and maintain a desired degree of air superiority by the destruction or neutralization of enemy air forces and air defense forces. Counterair operations can be further subdivided into offensive counterair (OCA) operations, defensive counterair (DCA) missions and suppression of enemy air defenses.

Interdiction. Interdiction is a mission undertaken to destroy, neutralize, disrupt, or delay an enemy's military potential before it can be effectively brought to bear against friendly forces. There are two types of interdiction missions performed by tactical air forces: air interdiction and battlefield air interdiction.

Air Interdiction. Air interdiction (AI) is an operation directed against targets that are not near friendly

forces and will not have a near-term effect on the ground commander's scheme of maneuver. Joint planning between land and air forces is not required for AI missions.

Battlefield Air Interdiction. Air interdiction in attacks against targets that are in a position to have a near-term effect on friendly forces is referred to as battlefield air interdiction. Joint coordination is required at the component level during planning. Once planned, BAI is controlled and executed by the air component commander as an integral part of the total air interdiction campaign.

Close Air Support. Close air support is an operation directed against a target that is near friendly forces and requires detailed planning and integration with the fire and movement of those forces.

Tactical Air Reconnaissance. Tactical air reconnaissance is the collection of information by aerial vehicles on the following:

- Terrain and weather.
- Installations.
- Lines of communication.
- Electronic and communications emissions.
- Distribution, composition, and movement of enemy forces.

Tactical Airlift. Tactical airlift is the air movement of personnel and cargo by the Air Force available to the joint force commander.

NOTE

For a detailed discussion of each role and its employment, see FM 6-20-30.

Apportionment, Allocation, and Distribution

Air support may be provided by Navy, Marine, Air Force, or allied aircraft. Modern aircraft have an inherent flexibility that allows them to be used in different roles as the situation dictates. This means that even if an aircraft was designed for a specific mission, it can be made to perform other missions as well. This flexibility usually prevents the dedication of aircraft to specific ground units or missions. To obtain the most use from the air assets, the joint force commander apportions all assigned tactical combat aircraft to one of three air support roles: counterair, interdiction, and close air support. The air component commander ensures that the best-suited aircraft are used to fill each role. The aircraft sorties assigned to the role of close air support are distributed to the ground force commanders by the land component commander to weight an attack or to reinforce a particularly critical sector of the battlefield. Ground units that are not located in the most critical sectors of the battlefield will get little tactical air support. For maximum effectiveness, all allocated air support missions must be coordinated and synchronized with other fire support assets. Tactical air reconnaissance missions are corps-level or higher assets. They are flown on request of the ground units according to the priorities set by the Joint force commander.

NOTE

For a detailed discussion of this apportionment and allocation process and of the command, control, and coordination of air assets by the air-ground operations system, see FA 6-20-30.

Delivery System Characteristics

The types of aircraft used in tactical air support operations can be categorized as ground attack, interdiction/fighter, and reconnaissance. The flexibility of most aircraft, the similarity of the above categories, and the ability to interchange acquisition and attack platforms allow a particular model of aircraft to fulfill multiple roles. When planning the employment of aircraft, the following factors should be considered:

- Suppression of enemy air defenses must be planned.
- Safety of friendly troops must be ensured.
- Communications must be compatible.
- The pilot in the aircraft can seek, locate, and Identify the correct target. He can deliver ordnance on it even though it may not have been accurately located or may have moved.
- The pilot is an excellent source of intelligence for poststrike reporting and acquisition of other targets and general information.
- Aircraft can carry only a limited combination of weapons and fuel. Their response and station time capability may be restricted.
- Although certain aircraft and weapons have all-weather and night operation capability, weather and darkness still may affect the ability to deliver the optimum weapon on a particular target.

NOTE

For more discussion on specific types of aircraft and their capabilities see FM 6-20-30, FM 6-20-40, or FM 6-20-50.

ARMY AVIATION

Mission

Army aviation performs the full spectrum of combat, combat support, and combat service support missions. Aviation units destroy enemy forces by fire and maneuver; perform target acquisition and reconnaissance; enhance command and control; and move combat personnel, supplies, and equipment in compliance with the overall scheme of maneuver.

Roles

In support of the fire support mission area, Army aviation functions in the following roles:

- Dedicated aerial forward observation.
- Air movement of weapon systems and/or ammunition.
- Air reconnaissance.
- Intelligence electronic warfare.
- Attack helicopter operations.
- Aerial mine delivery.
- Aeromedical evacuation.
- C• for joint air attack team (JAAT) operations.

Dedicated Aerial Forward Observation. Target acquisition reconnaissance platoons and companies

provide aerial observation or transport field artillery forward observers to vantage points that otherwise are impractical to reach. With their lasing capability, these units can provide terminal guidance information for a variety of precision-guided munitions.

Air Movement of Weapon Systems and/or Ammunition. Utility and cargo aircraft carry artillery to firing positions deep into enemy territory to achieve surprise. These aircraft also move weapons and ammunition to support widely dispersed field artillery units in support of close operations. This offers both speed of movement and flexibility of employment to the ground commander. Also, Army helicopters can move special munitions in support of field artillery operations.

Air Reconnaissance. Air reconnaissance units obtain and report near-real-time intelligence information that is used for fire support targeting.

Intelligence Electronic Warfare. Fixed- and rotary-wing special electronic mission aircraft (SEMA) serve as IEW platforms for acquiring targets for fire support assets SEMA helicopters provide airborne communications intercept, direction finding (DF), and jamming in support of division and armored cavalry regiment (ACR) IEW operations. Also, corps fixed-wing SEMA provide aerial reconnaissance, surveillance communications intercept, and EW target acquisition in support of corps IEW operations.

Attack Helicopter Operations. The primary mission of attack helicopter units is to destroy armor and mechanized forces. Attack helicopters are employed as maneuver forces in combined arms operations to maximize their weapons and aircraft capabilities in accomplishing the commander's antiarmor missions. They are ideally suited for situations in which rapid reaction time is important or where terrain restricts ground forces. On the basis of the commander's risk-versus-payoff assessment, attack helicopter units may be infrequently tasked to provide fire support when no other fire support elements or assets are available (for example, in deep operations or while operating with ground maneuver forces in a low-intensity conflict environment out of range of friendly artillery). When tailored for this mission, attack helicopters lose their antiarmor systems to provide aerial rocket fire. (They trade precision antiarmor weapons for area suppression weapons.) Although these aircraft have the capability to fire aerial rockets indirectly at extended ranges the fires delivered are not accurate enough to warrant the large expenditure of ammunition required to perform this type of mission. To accurately employ aerial rockets, the aircraft, using running fire techniques, have to close with the enemy forces within ranges that make them vulnerable to a multitude of Threat air defense weapon systems. This loss of the antiarmor capability and increased vulnerability dictate that attack helicopters be used in a dedicated fire support role only on rare occasions.

Aerial Mine Delivery. The Army is fielding the Volcano aerial mine delivery system. This system gives assault helicopter units the capability to lay hasty antitank and antipersonnel minefields. When integrated with the obstacle/barrier plan, the fire support plan, and the ground commander's scheme of maneuver, this capability increases the effect of canalizing and defeating the opposing force.

Aeromedical Evacuation. Aeromedical units provide evacuation for wounded and injured personnel on a mission-by-mission basis.

C for JAAT Operations. Upon receipt of a JAAT mission, the aviation commander assumes responsibility for the coordination and execution of the JAAT operations. He should be keenly aware of the ground and air tactical plan.

Command and Control

The command and control of Army aviation elements rests with the unit commander to whom they are organic, OPCON, or attached. The force commander decides how aviation will be integrated into his overall battle plan and if and when aviation will be used in a fire support role. When integrating the fires of aviation assets into the commander's scheme of maneuver, both supporting and supported elements must understand the commander's intent and purpose for the integration of these fires. Coordination between the ground force and the aviation unit ensures that the commander's conditions are established and known by all concerned. These conditions describe what support the aviation will provide and assign responsibilities concerning priority of fires, available munitions, liaison, communications requirements, positioning, and fire planning.

Delivery System Characteristics

Army aviation has the capability to quickly reach and move throughout the depth and breadth of the battlefield. This mobility and flexibility aid the combined arms commander in seizing or retaining the initiative. The types of aircraft used in the fire support mission area are categorized into the following areas:

Cargo and Utility. These aircraft have the primary mission of transporting soldiers, weapon systems, ammunition, and supplies throughout the battlefield. These units can conduct air assault or air movement operations. These aircraft allow the commander to influence the action by introducing combat power at critical times and crucial locations to defeat the enemy forces.

Target Acquisition and Reconnaissance. These aircraft serve as the "eyes" for the commander. They provide near-real-time intelligence and terminal guidance for a variety of weapon systems; for example, Hellfire and Copperhead.

Attack Helicopters. These aircraft are equipped with a considerable array of accurate and lethal weapons. They can deliver pinpoint destruction by firing antiarmor missiles or suppressive area fires with rockets and cannons.

ELECTRONIC WARFARE

Mission

The mission of electronic warfare is to exploit, disrupt, and deceive the enemy command and control system while protecting friendly use of communications and noncommunications systems.

Roles

Electronic warfare is an essential element of fire support. In addition to its intelligence-producing capability, it is considered a nonlethal attack means. As such, it is a key resource to be integrated and synchronized with fire support assets in support of the battle plan. It can, when integrated into the overall concept of operation, confuse, deceive, delay, disorganize, and locate the enemy. It can delay the enemy long enough for the force commander to exploit a situation that otherwise would have been missed. Jamming, in particular, provides a nonlethal alternative or supplement to attack by fire and maneuver. It is especially well suited for targets that cannot be located with targeting accuracy or that require only temporary disruption. Electronic warfare has two facets, offensive and defensive.

Offensive Electronic Warfare. Offensive EW is the employment of assets to disrupt or deny the enemy's

effective use of his electronic systems. It consists of electronic support measures (ESM) and electronic countermeasures (ECM). Generally, ESM produce combat information that can be used for attack by ECM, fire, or maneuver with little systematic analysis or processing. ECM consist of jamming and deception. One function of jamming is to degrade the enemy's combat power by denying effective operations in the electromagnetic spectrum. Another function of jamming is to reduce the signal security of enemy operators and thereby gain information through ESM. Jamming may be subtle and difficult to detect, or it may be overt and obvious. It can be accomplished from both aerial and ground platforms. Electronic deception is used to deceive enemy forces through their own electronic systems. Through electronic devices, it gives false information to the enemy to induce him to act in accordance with the supported battlefield commander's desires. It is integrated with, extends, and reinforces tactical deception operations .

Defensive Electronic Warfare. Defensive EW consists of those actions taken to ensure friendly use of the electromagnetic spectrum.

NOTE

Although all these components of EW are of significant interest to the fire support system, the intent of this discussion is to focus on electronic countermeasures as an attack means. See FM 34-1 and FM 34-40 for more detailed information.

Command and Control

Electronic warfare assets are in military intelligence units at all levels and in other services. The electronic warfare section (EWS) is the staff element at corps and division that coordinates the employment of ECM. The EWS falls under the staff supervision of the G3. The G3, in coordination with the G2 and MI brigade battalion, is responsible for the integration of ECM into the fire and maneuver scheme. The EWS coordinates jamming directed at high-payoff targets and targets of opportunity. In coordination with the signal officer, the section minimizes the effects of ECM on friendly systems and operations. The EWS, the FSE and the G3 section operate together to plan the attack of high-payoff targets to support the commander's battle plan. The use of ECM should always be considered when deciding to attack a particular target. More importantly, the synchronized, simultaneous use of ECM and lethal attack means requires the EWS to maintain a close, continuing working relationship with the FSE. The best means of ensuring a close working relationship between the EWS and the FSE is to collocate them.

Jamming Characteristics

Types of Jamming. The ECM system consists primarily of jamming. This jamming can be divided into two types: communications and noncommunications Jamming.

Communications jamming. Communications jamming interferes with enemy communications systems. It may be applied to secure communications systems to force the enemy to transmit in the clear so that the communications can be exploited for combat information. Jamming can also aid in direction finding by forcing the enemy to transmit longer, allowing time for tip-off and multiple locator cueing from different locations for position determination. Radiation jamming against communications equipment is accomplished by using spot, sweep or barrage jamming.

Noncommunications jamming. Noncommunications jamming consists primarily of reradiation

jamming. It is directed against such electronic devices as radars, navigational aids, guidance systems, and proximity fuzes to disrupt them. It causes those systems to receive false information and targets, thereby degrading system effectiveness. Reradiation jamming is accomplished by the use of special equipment to receive enemy transmissions, change them in some way, and retransmit the signal back to the enemy.

Effectiveness. Jamming effectiveness is governed primarily by the distance of the target receiver from the jammer and the distance between the transmitter and the receiver of the targeted enemy communications. Jammers are high-priority targets for destruction. Because of their high-power output and unique electronic signature, they are relatively easy to detect and locate. Jammers have to move for survivability and to maintain favorable transmission paths against enemy radios, which are moving as the battle progresses.

Frequency Management

To ensure minimized jamming effects on friendly systems and operations, the EWS and the FSE must coordinate directly with the corps or division signal element responsible for frequency management. Before a jamming mission, this frequency coordination determines if any friendly units will be affected. Enough time will be allowed for previously unidentified critical frequencies to be added to the guarded list. Warnings are given to commanders, who can then plan for potential degradation in communications. With the fielding of the new generation of frequency-hopping radios and careful use of redundant communications assets, the field commander will experience minimum disruption to his communications due to friendly ECM operations.

Joint Army-Air Force ECM Operations

The corps G3 is responsible for the coordination of joint EW support to the AirLand Battle within the corps. At division level, coordination between the G3/EWS and the TACP is consolidated and sent to the G3/EWS and air support operations center (ASOC) at the corps and the BCE in the Air Force TACC. The BCE monitors and analyzes the land battle for the TACC and provides the link for the exchange of operational data and intelligence between the corps tactical operations center (CTOC) AND TACC. The BCE establishes priorities for corps requests for Air Force EW support. The ASOC in the CTOC conducts a similar mission for the Air Force when it coordinates air operations for the corps. It is the ASOC-BCE link that provides the line over which frequency lists for inclusion in the Air Force data base. This will preclude inadvertent disruption of critical friendly communications by friendly assets.

NUCLEAR WEAPONS

Policy

US policy concerning nuclear warfare is to deter it by maintaining a strong nuclear capability and, if deterrence fails, to terminate the conflict at the lowest possible level of violence consistent with national and allied interests. The US position is that deterrence is achieved if the Threat assesses the outcome of war to be so uncertain and so debilitating under any circumstances that the incentive for initiating a nuclear attack is removed. This policy does not preclude the first use of nuclear munitions by US forces. Restraint is viewed by the US as a means to control the escalation of warfare by providing leverage for a negotiated termination of military operations. US nuclear weapons may, of course, be used only following specific directives by the President through the National Command Authority (NCA) and, when applicable, after appropriate consultation with allies. Even were such authority granted, the

employment of nuclear weapons likely would be guided more by political and strategic objectives than by the tactical effect a particular authorized employment might produce. When this is the case, escalation control becomes crucial. Commanders and FSCOORDs at corps and division levels must plan to employ nuclear weapons. These weapons must be integrated with all other forms of fire support to achieve the greatest operational and tactical advantage. To achieve this integrated planning, there must be no transition between conventional and nuclear planning. Nuclear fire support planning must be continuous and congruent with all other fire planning.

Employment

Use of nuclear weapons on the AirLand battlefield will increase the tempo and destructiveness of operations. The use of nuclear weapons will alter the balance between firepower and maneuver and will tend to enlarge the geographic area of conflict. Employment of nuclear weapons must be closely synchronized with the force commander's battle plan to preclude creating obstacles to friendly maneuver. Decisive battles could last hours instead of days or weeks. Nuclear weapons could be employed in the AirLand Battle to--

- Interdict follow-on forces or formations in depth.
- Destroy enemy forces when integrated with other fire support means.
- Allow small units to accomplish missions that would normally require a larger force.
- Achieve surprise.
- Enhance flexibility in the application of maneuver and firepower.

Command and Control

Once approval to employ nuclear weapons is granted by NCA, command and control consists of positive control over use of nuclear weapons by use of specific release procedures and permissive action links (PALs).

Release Procedures. Release is the approval to use nuclear weapons and is conveyed with specific employment constraints. The President approves the use of nuclear weapons and conveys this decision to the NCA and through the military chain of command. Each theater of operation is required to implement positive release procedures. Release may be accomplished by two methods.

- Bottom-up request. The corps commander, on the basis of the tactical situation, may initiate a request for release.
- Top-down release. The NCA may direct the use of nuclear weapons for a specific situation.

Control. In addition to the control provided by the release procedures, each commander has specific control over individual weapons through locking devices known as PALs. Once release is approved, each weapon must be unlocked before it is employed. In most cases within the corps, final control for the employment of nuclear weapons rests with the corps commander. It is his responsibility to ensure that nuclear weapons are used to the greatest tactical advantage, integrated into the battle plan, and employed in accordance with guidance from higher commanders.

Delivery Systems

Nuclear weapons can be delivered by a variety of tactical delivery systems.

Cannons. Cannons permit a higher degree of flexibility because of the low yields available and their

short response times. They are most useful in support of forces in contact and where it is important to minimize collateral damage and ensure troop safety. Cannons are more survivable because of large numbers and wide dispersion.

Missiles. Missile systems are characterized by longer ranges, larger payloads, slower response time, and increased vulnerability due to limited numbers of launchers.

Air-Delivered Weapons. Air-delivered weapons are characterized by very long ranges, maneuverability, large payloads, and reduced effectiveness in bad weather.

NOTE

For a more detailed discussion of the uses, planning employment, and integration of nuclear weapons see FC 50-25 (S). FM 6-20-30. and FM 101-31-1 For nuclear delivery system effects data. see FM 101-31-2 (S).

CHEMICAL WEAPONS

Policy

The primary purpose of chemical weapons is to deter their use by others. If, however, deterrence should fail, they would be used to cause the enemy to terminate use and to deny him a significant military advantage. The United States national policy precludes first use of chemical agents. They will be used only if authorized by the President. If the enemy uses chemical agents, the primary concern is the termination of chemical warfare on favorable terms, at the lowest possible level. Chemical weapons can quickly and decisively alter combat force ratios to change the course of battle. Knowing what these weapons will do and how they are planned, coordinated, and integrated with maneuver, EW, and nuclear and nonnuclear fire support is essential to conducting effective retaliatory operations.

Employment

Use of chemical weapons on the battlefield of today adds a new dimension to the planning of operations and affects all aspects of those operations in a manner much like the use of nuclear weapons. While the use of chemical weapons does not bear the enormous strategic risks associated with nuclear weapons, it could significantly change the course of operations in a theater. Properly used, chemical warfare becomes a combat multiplier and contributes to the shaping and controlling of the tempo on the battlefield. When properly employed in mass and without warning, chemical fires can be used in the AirLand Battle to--

- Cause high casualties among poorly trained or poorly equipped troops.
- Degrade the effectiveness of weapons, vehicles, and command posts by causing their operators to wear protective equipment.
- Restrict, by contamination, the use of weapons, supplies, and equipment.
- Disrupt rear area operations and troop movement.
- Enhance the effects of other fire support by movement
- Restrict or deny the use of key terrain.
- Force the enemy to undertake decontamination operations and divert his from his primary mission.

Command and Control

Release. Release is the authority to use chemical weapons and/or chemical agents. Requests for release can be--

- Reactive--initiated after an enemy attack or
- Proactive--initiated before an enemy chemical attack in the form of a request for conditional release.

As with nuclear weapons, release of chemical weapons may be initiated by the "bottom-up" or "top-down" method. In either case, enemy use must be verified and be reported before authorization. After the President reaches a decision to use chemical weapons, the release orders and restraints are sent through command channels to the tasked units and the supporting elements. Upon receipt of release, force commanders may use chemical weapons in support of their operations within specified constraints.

Control. The responsibility for planning, coordinating, and controlling chemical weapons remains at corps until after release has been approved and, most likely, through the first retaliation fires. The technical details of planning and coordination are done at division. Authority to execute chemical fires after the initial retaliatory strikes may be delegated to lower echelons (that is, division or separate brigade).

Delivery Systems Chemical weapons can be delivered by a variety of tactical delivery systems.

Cannons. Cannons permit a high degree of flexibility because of short response times. They are most useful in support of forces in contact and where it is important to ensure troop safety and minimize civilian casualties. Cannons are more survivable than aircraft systems because of their large numbers and wide dispersion.

Air-Delivered Munitions. Air-delivered chemical munitions are characterized by longer ranges, greater effects, longer coverage, and reduced effectiveness in bad weather.

NOTE

For a more detailed discussion of the uses, planning, employment, and Integration of chemical weapons, see FM 3-10-1 (S) and FM 6-20-30. For chemical delivery system effects data, see FM 3-10-2(S).

CHAPTER 2

COMPONENTS OF THE FIA SUPPORT SYSTEM



Figure 2-1

FIRE SUPPORT COORDINATION FACILITIES

FORCE ECHELON	FIRE SUPPORT ORGANIZATION	FSC.OORD	ASSISTED BY
ECHELONS ABOVE CORPS	Fire Support Section	FSO	Asstnt FSO
CORPS	FSE	Corps Arty Commander	Corps Deputy FSCoord and AFSCoord
DIVISION	FSE	Div Arty Commander	Div Arty AFSCoord
BRIGADE	FSE	FA Battallon Commander	Brigade FSO
BATTALION/ SQUADRON	FSE	FSO	Fire Support NCO
COMPANY/ TROOP	FIST	FSO	Fire Support NCO

Figure 2-2

INHERENT RESPONSIBILITIES OF FIELD ARTILLERY MISSIONS

AN FA UNIT WITH A MISSION OF--	DIRECT SUPPORT	REINFORCING	GENERAL SUPPORT REINFORCING	GENERAL SUPPORT
1. Answers calls for fire in priority from--	1. Supported unit 2. Own observers ¹ 3. Force FA HQ	1. Reinforced FA 2. Own observers ¹ 3. Force FA HQ	1. Force FA HQ 2. Reinforced unit 3. Own observers ¹	1. Force FA HQ 2. Own observers ¹
2. Has as its zone of fire--	Zone of action of supported unit	Zone of fire of reinforced FA	Zone of action of supported unit to include zone of fire of reinforced FA unit	Zone of action of supported unit
3. Furnishes fire support team (FIST/FSS) ²	Provides temporary replacements for casualty losses as required	No requirement	No requirement	No requirement
4. Furnishes liaison officer--	No requirement	To reinforced FA unit HQ	To reinforced FA unit HQ	No requirement
5. Establishes communications with--	Company FSOs, FSOs, and supported maneuver unit HQ	Reinforced FA unit HQ	Reinforced FA unit HQ	No requirement
6. Is positioned by--	DS FA unit commander or as ordered by force FA HQ	Reinforced FA unit or as ordered by force FA HQ	Force FA HQ or reinforced FA unit if approved by force FA HQ	Force FA HQ
7. Has its fires planned by--	Develops own fire plans	Reinforced FA unit HQ	Force FA HQ	Force FA HQ
¹ Includes all target acquisition means not deployed with supported unit (radar, aerial observers, survey parties, etc.). ² A fire support section (FSS) for each maneuver brigade/battalion/cavalry squadron and one FIST with each maneuver company/ground cavalry troop are trained and deployed by the FA unit authorized these assets by TOE. After deployment, FISTs and FSSs remain with the supported maneuver unit throughout the conflict.				

CHAPTER 3

FIRE SUPPORT PLANNING AND COORDINATION

[Figure 3-1.](#)

This chapter establishes the essential elements of the fire support planning and coordination effort. It examines the following key points:

- *Fire support planning and the four basic tasks of fire support.*
- *The principles of fire support planning and coordination.*
- *The fire support estimation process.*
- *The use of the fire support plan.*

[Figure 3-2.](#)

RESPONSIBILITIES

The integration of fire support into the maneuver operation is a decisive factor in the success of the battle. The maneuver commander is responsible for the whole of his operation, including the fire support plan. The FSCOORD is responsible for advising the commander on the best use of available fire support resources, for developing the fire support plan, for issuing necessary orders in the name of the commander, and for implementing the approved fire support plan.

BASIC FIRE SUPPORT TASKS

The measure of the effectiveness of the total fire support system depends on the successful performance of the four basic tasks of fire support:

- Support forces in contact
- Support the battle plan
- Synchronize the fire support system
- Sustain the fire support system

SUPPORT FORCES IN CONTACT

The commander must provide responsive fire support (from available air, ground, and sea resources) that protects and ensures freedom of maneuver to forces in contact with the enemy in deep, close, and rear operations. The process by which this support is provided includes the actions discussed below.

In All Phases of War

- Provide deep fires to disrupt, delay, and destroy enemy follow-on forces before they can engage friendly forces.
- Plan counterfire to destroy, neutralize, or suppress the enemy's indirect-fire weapons.
- Provide fires to suppress known enemy air defense weapons immediately before and during flight by friendly aircraft within the area of operations (SEAD).
- Provide offensive counterair fires to destroy, neutralize, or suppress aircraft and missiles on the ground.

In Defensive Operations

- Provide adequate fire support to the security area forces, forces engaged in the main battle area (MBA), and forces conducting deep and rear operations.
- Plan counterpreparation fire to disrupt enemy preparations for an attack. These fires strike the enemy in his assembly areas, break up his attack formations, disorganize his target acquisition efforts, and reduce his morale.
- Plan permissive fire support coordinating measures close enough to open up as much of the battlefield as possible, yet far enough away to avoid interference with friendly operations.
- Plan for target acquisition and control of fires on all avenues of approach.
- Plan targets on avenues of approach to disrupt enemy attacks by striking the enemy during his assault. Subsequently, the fire is shifted to continue attacking him until he is forced to break off the attack.
- Select planned targets on the most critical avenues of approach, and allocate fire units for final protective fires.

In Offensive Operations

- Allocate responsive fire support for leading elements.
- Allocate fire support for the neutralization of enemy bypassed combat forces.
- Provide preparation fire, when required, to weaken the enemy's resistance. These fires disrupt, disorganize, or neutralize his defense. Target acquisition must be timely and accurate, and adequate attack resources must be made available; or surprise may be jeopardized.
- Plan targets to protect assaulting troops by neutralizing or suppressing enemy direct-fire weapons.
- Plan fires beyond objectives to prevent enemy reinforcement during the attack and to support friendly consolidations once the objective has been seized.
- Use permissive fire support coordinating measures (fire support coordination line [FSCL], coordinated fire line [CFL]) well to preclude endangering friendly forces.

SUPPORT THE BATTLE PLAN

The force commander must retain direct control over enough firepower to influence the battle by attacking high-payoff targets, the loss of which prevents the enemy from interfering with our operations or effectively developing his own. Of particular concern to the force commander are the large-scale attack of counterfire targets, deep interdiction, and support of rear operations. The battle plan is supported as discussed below.

In Defensive Operations

- Disorganize, delay, and disrupt critical enemy elements before the attack.
- Plan counterfire against enemy indirect-fire systems attacking critical friendly elements.
- Use both lethal and nonlethal attack means to apply constant pressure to the enemy's command and control structure.
- Plan the acquisition and attack of high-payoff targets throughout the depth of the battlefield.
- Provide fire support, in synchronization with maneuver and command and control countermeasures (C_CM), in the conduct of deep operations.
- Use fire support alone as a means of deep attack.
- Retain centralized control of fire support resources in order to concentrate fire at the decisive place and time.
- Provide fires to support counterattack.
- Plan indirect fires in support of the barrier and/or obstacle plan, and coordinate common survey between indirect-fire assets and planned targets.

In Offensive Operations

- Attack deep targets with massed indirect-fire, air support, and EW assets to prevent enemy reinforcements, process disengagement, or resupply; and plan fire support during consolidation to protect friendly units.
- Weight the main attack with a preponderance of fire support.
- Provide counterfire.
- Disrupt enemy counterattacks.
- Plan fires to support breaching operations.
- Coordinate family of scatterable minefields (FASCAM) to support economy-of-force operations, to seal off objective areas, and to disrupt enemy counterattacks.

SYNCHRONIZE THE FIRE SUPPORT SYSTEM

Fire support is synchronized through normal fire support coordination, beginning with the force commander's estimate and concept of the battle plan. It is essential that fire support planning is performed concurrently with the development of the scheme of maneuver. A fire support synchronization methodology can be found in the decide-detect-deliver approach to targeting and battle management. The successful use of this methodology enables the commander to attack the right target with the best weapon at the right time. The requirement for the decide-detect-deliver sequence (distinctly different from

detect-decide-deliver) is based on the realities of modern combat. The vast array of targets anticipated on the battlefield will generate competing demands for fire support--demands that could exceed the capability of the system to respond to all requirements. Through the use of decide-detect-deliver, the force commander can avoid an overload of the system by establishing priorities on how and when he will use fire support to meet critical demands. The decide-detect-deliver approach enables the force commander to take the initiative in selecting, locating, and attacking high-payoff targets before they actually present themselves in the Threat array. The actions involved with each step are discussed below.

Decide

The decision step provides the focus and priorities for the collection management and fire planning process. It is oriented by--

- The intelligence estimate of the situation.
- The commander's mission analysis.
- Battlefield planning (which projects future friendly operations).
- An in-depth knowledge of the most probable enemy response to the projected friendly operation.
- A decision regarding options to deny the enemy means of interference.

This step enables the commander to conclude what high-payoff targets must be located, how they will be located and attacked, and when these actions will occur in relation to the battle plan.

Detect

Designated target areas of interest (TAIs) are continuously monitored either by observers or through electronic means. Observers notify the appropriate TOC or delivery system to initiate target attack when specified targets are detected.

Deliver

Timely, accurate delivery is the culmination of synchronization of the fire support system. The delivery is executed rapidly by having designated attack systems respond to the commander's guidance when designated high-priority targets (trigger events) are observed.

SUSTAIN THE FIRE SUPPORT SYSTEM

Combat sustainment includes all the combat service support (CSS) activities necessary to support battles, engagements, and related actions. Fire support commanders can realize the full combat potential of their forces and achieve synchronization in their operations only when the combat sustainment system is used effectively. Fire support planners must formulate tactical plans to reflect logistics limitations and to exploit logistics capabilities. Ammunition, fuel, food, water, maintenance, transportation, and medical support are all critical to sustaining fire support operations. CSS units will provide support as close to firing units as possible considering the battlefield environment. Fire support commanders must conserve their sustainment resources and assign them priorities that ensure their survival on the battlefield. Logistics sustainment is a central, potentially decisive aspect of operations, not an adjunct to them.

The FSCOORD, who is usually also the commander, is responsible for providing the leadership that ensures that the fire support system is sustained and can support the battle. He identifies sustainment

requirements associated with fire support elements and takes necessary actions to ensure that they are satisfied. He plans and monitors logistics readiness and training within the command and ensures that subordinate leaders understand and use external logistics resources to the best effect. The FSCOORD ensures that coordination is made with supporting sustainment elements outside the command. The external sustainment system is dedicated to enabling fire support elements to accomplish their missions. Sustainment of the fire support system during AirLand Battle operations includes three fundamental imperatives.

Protection

The FSCOORD must ensure the following:

- The various components of the fire support system are protected from enemy action.
- When possible, subsequent firing positions are prepared before the operation.
- All elements of the fire support system take action to counter the enemy's firepower and maneuver by ensuring that personnel, equipment, and systems are difficult to locate, strike, and destroy.

Logistic Support

The FSCOORD must ensure the following:

- Stocks and supplies within the command are protected and properly positioned to sustain fire support systems.
- Weapon systems and all other equipment are maintained in a high state of readiness within the command, and external support systems are properly understood and used by the fire support element.
- The logistics requirements of firing units are clearly and expeditiously made known to supporting elements.
- When necessary, strict controls and priorities on supplies are employed to ensure strength at the decisive time and place. While fire support plans may be based on a required supply rate, they must be adjusted to conform to the controlled supply rate.

Technical Support

The FSCOORD must ensure the following:

- Command and control facilities are redundant where possible.
- Fire support personnel are well-trained and, most important, training is continuous.
- Firing systems and support equipment are mobile and correctly emplaced.
- The technical aspects of fire support (meteorology, survey? and communications) are accurate and rapid.

FIRE SUPPORT PLANNING/COORDINATION PRINCIPLES

The purpose of fire support planning is to optimize the employment of the fire support system by integrating and synchronizing it with the battle plan. The planning process determines what type of targets will be attacked, when, and with what means. Successful fire support planning is the result of the FSCOORD's aggressive contribution to the force commander's planning and decision-making process.

Fire support coordination is the continuous process of implementing fire support planning and managing all available fire support assets. In making this contribution, the FSCOORD must employ several principles of fire support planning and coordination as a guide. These principles are extensions of the our basic tasks of fire support.

Plan Early and Continuously

To effectively integrate fire support with the scheme of maneuver, planning must begin when the commander states his mission and provides his command guidance. Whenever commander's guidance is needed during the planning of an operation, the FSCOORD should solicit that guidance from the commander. Planning is continuous and keeps pace with the dynamics of the battle.

Exploit All Available Targeting Assets

The FSCOORD must ensure that the acquisition requirements of the fire support system are identified. He also ensures that target information from all available resources is rapidly evaluated and routed to the appropriate attack means. This includes information from within his force, from adjacent and supporting elements, and from higher echelons.

Consider the Use of All Lethal/Nonlethal Attack Means

The FSCOORD considers the attack means available at his level and higher levels. He also considers the command guidance for the use of these attack means in the present battle and in future battles.

Use Lowest Echelon Capable of Furnishing Effective Support

Fire support is delivered by the lowest level having effective means available. The FSCOORD must decide what is needed and, if his own assets are inadequate, must request additional fire support from the appropriate echelon.

Use Most Effective Means

Requests for fire support are sent to the agency with the most effective means. In making his decision, the FSCOORD considers the nature and importance of the target, its dwell time, the availability of attack means, and the results desired. He may also consider assets to temporarily fix the target until a more effective means can attack it. An example of this is a situation in which air support is the most desired means but is about 20 minutes away. In this case, indirect-fire weapons can fix the target until aircraft arrive.

Furnish Type of Support Requested

Usually, the fire support requester is in the best position to know what is needed. However, the FSCOORD is in a position to weigh the request against the commander's guidance on priority targets and the current and future needs for fire support. If a request for fire support is disapproved, the FSCOORD stops the request and notifies all concerned. When possible and necessary, he substitutes a new fire support means and alerts the agencies that are to provide and to receive the support.

Avoid Unnecessary Duplication

A key task for the FSCOORD is to ensure that duplications of fire support are resolved and that only the minimum force needed to get the desired effects is used.

Consider Airspace Coordination

The FSCOORD provides input concerning fire support use of airspace to those agencies and personnel engaged in airspace management. At division and corps, air defense and aviation liaison representatives often collocate with fire support elements to enhance the exchange of information (see FM 44-1 and FM 100-103). At lower levels, such coordination may include forward air controllers, NGF spotters, aerial observers, and other airspace users.

Provide Adequate Support

The mission of the force and the commander's guidance determine the amounts and types of fire support needed for success. The FSCOORD must clearly inform the maneuver commander when there are not adequate resources to support his plan.

Provide Rapid and Effective Coordination

The FSCOORD must know the characteristics of the various fire support weapons and have immediate information on their availability. He must stay abreast of the battle as it develops in order to attack both planned targets and targets of opportunity and to ensure that coordination channels are functioning smoothly. For rapid coordination, the following must be considered:

- Exact locations of supported maneuver units.
- Scheme of maneuver of the supported force.
- Supported commander's guidance and standing operating procedures (SOP).
- Fire support coordinating measures in effect.
- Rules of the host nation, if appropriate.

While planning is done regardless of boundaries and friendly locations, the execution and coordination of fire support must always account for these realities. To ensure responsive and safe fire support, the FSCOORD must continuously use and update all types of fire support coordinating measures.

Fire Support Coordinating Measures

Fire support coordinating measures are designed to facilitate the rapid engagement of targets and, at the same time, provide safeguards for friendly forces. They ensure that fire support will not jeopardize troop safety, will interface with other fire support means, and/or will not disrupt adjacent unit operations.

Types of Measures. With the exception of boundaries, fire support coordinating measures are either permissive or restrictive.

Permissive measures. With the establishment of a permissive measure, no further coordination is required for the engagement of targets affected by the measure. In essence, the primary purpose of the permissive measure is to facilitate the attack of targets.

Restrictive measures. The establishment of a restrictive measure imposes certain requirements for specific coordination before the engagement of those targets affected by the measure. Therefore, the primary purpose of restrictive measures is to provide safeguards for friendly forces.

Boundaries. Boundaries are used by the maneuver commander in various operations to indicate the

geographical area for which a particular unit is responsible. They describe a zone of action or sector of responsibility for a maneuver unit and are normally designated along terrain features easily recognizable on the ground. Boundaries are the basic fire support coordinating measure. As such, they are both permissive and restrictive in nature.

They are restrictive in that no fire support means may deliver fires across a boundary unless the fires are coordinated with the force having responsibility within the boundary or unless a permissive fire support coordinating measure is in effect that would allow firing without further coordination.

They are permissive in that a maneuver commander, unless otherwise restricted, enjoys complete freedom of fire and maneuver within his own boundaries.

For effective fire support coordination in combined operations, there must be an exchange of liaison personnel down to the lowest possible echelon along the common boundary. Personnel must not only be tactically and technically competent but ideally should also be proficient in language to facilitate rapid coordination. The fire support coordinators at all levels are charged with the responsibility to ensure that both fire support coordination occurs and mutual assistance of fire support assets takes place.

Provide for Flexibility

The FSCOORD 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.

Provide for Safeguarding and Survivability of Friendly Forces/Installations

Several measures can be used to accomplish this principle. Examples are the use of fire support coordinating measures, the use of restricted firing positions to eliminate or reduce firing signatures, and the consideration of the locations of friendly forces during target analysis. Safety measures must not become so restrictive that they unduly degrade the effectiveness of fire support.

PLANNING PROCESS

The plan for the employment of fire support assets results from the completion of the following staff estimates:

- Intelligence estimate.
- Force commander's tactical estimate.
- Logistic estimate.
- Fire support estimate.
- Engineer estimate.
- Air defense artillery estimate.

In deciding how to best employ the available resources to support the commander's battle plan, the fire support estimate has the greatest influence. Many factors in the fire support estimate will be derived from the other estimates, which are discussed later. The estimates listed above may not be prepared formally at brigade level. However, the general format and thought process involved in their preparation will be used by brigade, battalion, and company commanders when planning operations.

INTELLIGENCE ESTIMATE

The intelligence estimate is prepared by the force intelligence officer from the point of view of an enemy commander. The terrain analysis team analyzes the terrain to determine choke points, engagement areas, and windows of opportunity for targeting by both direct and indirect fires. The intelligence estimate is the result of a detailed, continuous IPB process. The estimate is updated as new information becomes available and the tactical situation changes. It also complements the force commander's tactical estimate. The fire support system provides a direct input to the intelligence estimate through the FAIO's advice on the capability of enemy fire support. The intelligence estimate results in the following:

- Courses of action open to the enemy and, when possible, the relative probability of each course being adopted.
- The probable enemy plan.
- Named areas of interest (NAIs), target areas of interest, and decision points.
- Enemy vulnerabilities.
- Predictive intelligence, which assists in the selection of the relevant targets or target sets which must be detected and attacked.
- The information collection plan, which includes--

- Identification of information collection tasks,
- Synchronization of sensor tasks with maneuver requirements, and
- Tasks of subordinate units and sensors to acquire specific targets; and
- May include all reconnaissance and surveillance requirements.

COMMANDER'S ESTIMATE

The commander's estimate is the basis from which the commander war-games the various contingencies to accomplish his mission. The FSCOORD is a key player in this war-gaming process. He advises the commander on the fire support assets available and recommends the most effective use of these assets. As the war-gaming process progresses, the FSCOORD continuously evaluates the integration of fire support into the commander's emerging concept of operation. As a result of this two-way interaction, the force commander's options are influenced by the availability and allocation of fire support assets. At the conclusion of the war-gaming process, the commander has developed his concept of operation, which integrates available fire support with his scheme of maneuver. The war-gaming process allows the commander to convey his intent to the FSCOORD and other key staff members. It also allows the FSCOORD an opportunity to develop the foundation for an integrated fire support plan.

The relative strengths of field artillery may influence the general allocation of field artillery units and ammunition between counterfire and other field artillery roles.

The availability of fire units and air sorties may influence the following:

- In the attack, the suitability of approaches, the frontage of the assault, the number of objectives that can be assaulted simultaneously, the number of phases, and whether the attack should be conducted by day or by night.

- In the movement to contact, the number of axes to be used and the frontage of the advance.
- In the withdrawal, the relative merits of withdrawing by day or by night and the strength of forces needed at delaying positions.
- In the defense, the frontage and depth of the MBA and the strength of the reserve required for counterattack, deep operations, and possible rear operations.
- In deep operations, the ability to detect and deliver effective attack of follow-on echelons.
- In the rear operation, the time required to respond with fire support assets otherwise engaged in the deep or close operation.

Availability of and potential authorization to use nuclear and chemical munitions may influence the scheme of maneuver and the tempo of battle.

A priority must be allocated for the logistic support of the fire support system.

LOGISTIC ESTIMATE

The logistic estimate of resources required to support a tactical plan is essential. The aim of the estimate may be twofold: to develop a concept of support and/or to determine the logistic feasibility of various courses of action in order to identify associated risks to the commander. In both cases, the availability and distribution of conventional, nuclear, and chemical ammunition will be a major consideration. Other major classes of supply that should be included in the logistic estimate are class III petroleum, oil and lubricants (POL), class IV construction material: class VII major end items; and class IX repair parts.

Supply of ammunition is the largest and most time-sensitive logistic task. It is the FSCOORD's responsibility to advise the force G4/S4 on the estimated consumption, type, and distribution of ammunition.

Action to implement a logistic plan normally starts well before the operation it is designed to support. The estimate must be completed in time to--

- Enable the commander to modify his plan and priorities for logistic support, if necessary. or to decide to take a calculated risk.
- Allow coordination with related logistical agencies for the purpose of ordering enough of the correct supplies and transporting them to the required place by the time they are needed.

FIRE SUPPORT ESTIMATE

The fire support estimate is prepared by the FSCOORD. It helps him to integrate and synchronize the employment of fire support resources within the fire support system and with the force scheme of maneuver.

The fire support estimate is a realistic appraisal of the effort required to support the operation. It serves as a basis for identifying priority fire support requirements.

Any variable that could affect the mission is a factor. Before the estimate is started, all relevant information must be collected from all available sources. Once this information has been assembled and the factors that could affect the plan have been identified, they should be listed and arranged in priority.

Examples of the factors that may be considered are as follows:

- The task organization of subordinate forces and their missions.
- The availability of field artillery resources, including cannons, multiple launch rocket systems (MLRSs), missiles, ammunition (conventional, nuclear, and chemical), and target acquisition assets.
- The availability of other fire support resources, including mortars, NGF, tactical air support, and Army aviation support. Also included are EW and other intelligence-controlled surveillance assets.
- In the attack, the enemy dispositions (including frontage and depth), the degree of protection afforded the enemy, objectives for subordinate forces or units, the number of phases, and the likely frontage and depth of the assault. These will affect the allocation of fire support resources to subordinate units.
- In the defense, the mission of the security force, the frontage and depth of the MBA, the contingencies for counterattack, and considerations for deep and rear
- The mobility of the supporting artillery and its speed of movement to contact and withdrawal.
- In light forces, the force antiarmor plan.
- Courses open to the enemy artillery commander, especially his most probable course of action. These are derived from the intelligence estimate and knowledge of enemy artillery doctrine. Consideration of this factor results in--

- The probable enemy artillery plan.

- Enemy artillery vulnerabilities.

- Enemy nuclear and chemical capability and posture.

- Any information requirements on enemy that have significant influence on the tasking of weapons-locating sensors .

- The allocation of resources, weapons, and munitions for counterfire.

- Measures to reduce the vulnerability of our force.

- The recommended counterfire priorities for each phase of the battle (by the designation of critical friendly zones and enemy weapon systems).

- The enemy EW situation.
- The identification of high-payoff targets (derived from target value analysis [TVA] and IPB).
- The commander's information requirements (derived from the intelligence estimate).
- The availability and condition of roads, trails, and likely position areas. This leads to the coordination of movement and position areas with the operations staff.
- Ammunition consumption factors (type and quantity), pre-positioning requirements, and priority of combat service support.
- The effects of survey and met requirements on the ability to guarantee timely and accurate fire support (to include weapon and target acquisition assets).
- The reliability and range of communications.

- The time required for positioning and technical preparation to engage targets.
- The time to be ready to support the operation.

NOTE: The fire support estimate process is explained in detail in FM 6-20-30 and parallels the supporting commander's estimate explained in FM 101-5.

ENGINEER ESTIMATE

The engineer estimate focuses on requirements and resources needed to allow engineers to accomplish the missions of mobility, countermobility, and survivability. By listing tactical courses of action, the engineers can consider all needs and support requirements. The fire support plan must be tied very closely to the engineer's obstacle and/or barrier plan of the estimate to ensure the right quantity of shell-fuze combinations and that the range of the weapons will be adequate. The engineers can also provide detailed information regarding terrain and route trafficability.

AIR DEFENSE ARTILLERY ESTIMATE

This estimate results in the allocation of counterair units to support the force. It is based on the established priorities and force scheme of maneuver as determined in the supporting ADA commander's estimate of the situation. The estimate considers the nature of the operation to be supported, composition of supported forces, strengths to be supported, peculiar or unusual support requirements, and any other factors pertaining to the supported force that affect the scope and size of the support mission. It indicates enemy peculiarities and weaknesses that will favorably or unfavorably influence the combat effectiveness of the supported unit. The ADA estimate results in the following:

- Identified advantages and disadvantages of each proposed supported force course of action from the ADA supportability perspective.
- The proposed supported force counterair priorities, counterair courses-of-action sketches, recommendations, and plans. This includes recommendations to the fire support plan on counterair targets.
- The ADA commander's mission analysis, ADA priorities, a statement of the task(s) to be accomplished, and the purpose to be achieved.
- The ADA required to support the given priorities. This is determined by identifying factors of METT-T and reaching conclusions based on the ADA principles of employment.
- An IPB for the third dimension of the AirLand battlefield.

FIRE SUPPORT PLAN

The fire support plan contains the information necessary for understanding how fire support will be used to support the operation. It results from the fire support estimate, and it is an integral part of the commander's tactical plan (operation order [OPORD]). The implementation of the plan is the responsibility of the force FSCOORD, his staff, and subordinate FSCOORDs/FSOs. An example of a fire support plan is in FM 6-20-30, FM 6-20-40, and FM 6-20-50. The essential elements of a fire support

plan are as follows:

- The allocation of all fire support assets.
- Projected changes to the allocation of fire support assets based on tactical contingencies in the OPORD.
- Coordination and synchronization instructions for the timely detection and attack of high-payoff targets.
- Requirements for positioning of assets, the make-up of basic loads, the controlled supply rate, and required target damage.
- Restrictions on ammunition expenditures, types of fires, areas of employment, and creation of obstacles; limiting risk to friendly troops; and minimizing the loss of civilian life.
- Permissive and restrictive coordinating measures.
- Special instructions on rules of engagement, fire support communications, and logistic support.

DEEP ATTACK

The commander's battle plan for deep fires requires several special considerations. As stated above, fire support for deep operations may consist of maneuver and fire support or of fires alone. Maneuver forces may be required to exploit the result of large-scale, conventional deep fires.

Deep fires are the most responsive assets the operational-level commander has to disrupt Threat operations. Fire support for deep operations will be provided by US and allied field-artillery-delivered rocket and missile systems, tactical air (tac air), and possibly naval gunfire. Deep fires are based on the opportunities to seize and sustain the initiative in order to accomplish combat objectives. They require careful analysis of enemy capabilities to interfere with friendly operations and of enemy vulnerability to friendly capabilities. Only those enemy force elements which can be brought to bear against significant projected friendly operations or those which are essential to the accomplishment of critical Threat functions are potential targets for engagement. High-payoff target engagements are planned to attack specific Threat functions (maneuver; C2; fire support; air defense; reconnaissance, surveillance, and target acquisition [RSTA]; nuclear and chemical; and logistics). Normally, deep fires are executed by corps-level commands using joint and combined attack means. The focal point for deep fires at the joint or combined level may be in the battlefield coordination element. At this location, specific deep targets are deconflicted between air and ground attack means. If tac air is selected as a source of deep fires, targets are matched against the air allocations available to the land component commander.

NOTE: The use of tac air for deep operations may require land component fires in the form of SEAD. This operation will require continuous coordination between the air and land component commanders.

Target acquisition for deep fires will be provided from a variety of joint and national-level acquisition systems. Targeting for fires at operational depth will almost exclusively be focused on planned engagements. A planned engagement is one in which some degree of prearrangement (such as general target location, weapon system positioning, and munition selection) has been made. If enough targeting data are available, planned engagements may be scheduled for a particular time frame or may be keyed to

a friendly or enemy event. Other planned engagements may be specified by target type and be on call according to the characteristics of the target (for example, dwell time and high payoff). Unplanned engagements may be conducted; however, they must satisfy the same relevance criteria that characterize the planned engagement.

The objective of deep fires is to functionally kill specific enemy capabilities which could affect the successful accomplishment of the corps objectives. Deep fires may include attacks to destroy specific Threat systems; for example, attack of surface-to-air missile systems by knocking out their radars rather than destroying the missiles. The G2, G3, and FSCoord must have common priorities and be capable of timely response to changes in the situation. When attacking Threat functions, the requirement is to be able to react to situations and opportunities more rapidly than the Threat can respond. We must be able to operate inside the Threat decision cycle. Integrating the intelligence, maneuver, and fire support functional areas concerned with deep fires will require a significant degree of synchronization. This is achieved by a command, control, and communications process characterized by centralized control of attack parameters and varying degrees of decentralized execution.

FIRE SUPPORT FOR REAR OPERATIONS

AirLand Battle doctrine requires fire support for rear operations ranging from the maneuver brigade rear area to the theater Army communications zone (COMMZ). Fire support personnel from brigade level to EAC must be responsive to a rear area threat with adequate amounts of fire support. Usually, this support will be provided by field artillery, Army aviation, and close air support.

Usually, fire support will be provided to rear area units on a contingency basis. There may, however, be times when field artillery is positioned in rear areas in preparation against a pending threat. It should be noted that fire support assets located in rear areas do not constitute fire support in reserve. For example, field artillery units supporting rear area units are committed field artillery. There are a number of considerations of fire support for rear operations:

- Fire support organizations in rear area operations centers (RAOCs) may have to be formed on an ad hoc basis.
 - The use of field artillery in rear operations will require on-order tactical missions plus adequate rear and refuel times.
 - Army aviation or CAS may be the most responsive fire support asset for use in rear areas. Army aviation may be used to rapidly displace towed artillery to firing positions.
 - Fire support coordinating measures must be in use to protect friendly units. They will usually be coordinated with the host nation.
 - When a brigade-size task force is committed, for Level III rear area threats, fire support will usually consist of a DS battalion.
-

CHAPTER 3

FIRE SUPPORT PLANNING AND COORDINATION



Figure 3-1

FIRE SUPPORT PLANNING AND COORDINATION CONCEPT

PLANNING SEQUENCE

- Receipt of mission
- Planning guidance
- Information collection
- Commander's estimate
- Decision/concept of operation
- Preparation of plans
- Approval/orders
 - Maneuver
 - Fire support
- Execution

COZ-ZZAPD

ZO-HAZ-DBOO

GLOSSARY

A

A²C²	Army airspace command and control
AAGS	Army air-ground system
ACC	air component commander
ACR	armored cavalry regiment
ADA	air defense artillery
AFSCOORD	assistant fire support coordinator
AI	air interdiction
ALO	air liaison officer
ANGLICO	air/naval gunfire liaison company

ASOC air/naval gunfire liaison company

ASP ammunition supply point

ASPS all-source production section

ATF amphibious task force

ATP ammunition transfer point

B

BAI battlefield air interdiction

BCE battlefield coordination element

BICC battlefield information coordination
center

C

C2 command and control

C2CM command control
countermeasures

C3	command, control, and coordination
CAS	close air support
CFL	close air support
COMMZ	communications zone
CP	communications zone
CSS	combat service support
CTOC	corps tactical operations center

D

DCA	defensive counterair
DF	direction finding
DFSCoord	deputy fire support coordinator
div arty	division artillery

DS direct support

E

EAC echelons above corps

ECM electronic countermeasures

ESM electronic support measures

EW electronic warfare

EWS electronic warfare

F

FA field artillery

FAC forward air controller

FAIO field artillery intelligence officer

FASCAM field artillery scatterable minefield

FCT firepower control team

FIST	fire support team
FLOT	forward line of own troops
FSCL	fire support coordination line
FSCOORD	fire support coordinator
FSE	fire support element
FSO	fire support officer
FSS	fire support section

G

GS	general support
GSR	general support reinforcing

H

HE	high explosive
-----------	----------------

HHB headquarters and headquarters
battery

HQ headquarters

I

ICM improved conventional munition

IEW intelligence electronic warfare

IPB intelligence preparation of the
battlefield

IR infrared

J

JAAT joint air attack team

JSAK joint attack of the second echelon

J-SEAD joint suppression of enemy air
defenses

L

LCC land component commander

M

MBA main battle area

METT-T mission, enemy, troops available,
terrain and weather, and time
available

MI military intelligence

MLRS multiple launch rocket system

MOUT military operations on urban
terrain

N

NAI named area of interest

NBC nuclear, biological, chemical

NCA National Command Authority

NGF naval gunfire

O

OCA offensive counterair

OPORD operational control

OPORD operation order

P

PAL permissive action link

POL petroleum, oil and lubricants

R

R reinforcing

RAOC rear area operations center

RSTA reconnaissance, surveillance, and target acquisition

S

SALT	supporting arms liaison team
SEAD	suppression of enemy air
SEMA	special electronic mission aircraft
SOP	standing operating procedures

T

tac air	tactical air
TACC	tactical air control center
TACP	tactical air control party
TACS	tactical air control system
TAI	target area of interest
TDA	target damage assessment
TOC	tactical operations center
TRADOC	US Army Training and Doctrine

Command

TVA target value analysis

U

UAV unmanned aerial vehicle

REFERENCES

REQUIRED PUBLICATIONS

Required publications are sources that users must read in order to understand or to comply with this publication.

Field Manuals (FM)

[FM 100-5](#) Operations

[FM 100-20](#) Low Intensity Conflict

[FM 101-5-1](#) Operational Terms and Symbols

RELATED PUBLICATIONS

Related publications are sources of additional information. They are not required in order to understand this publication.

Department of the Army (DA) Forms

DA Form 2028 Recommended Changes to Publications and Blank Forms

DA Form 4655-R Target List Worksheet (LRA)

DA Form 4656-R Scheduling Worksheet (LRA)

Field Manuals (FM)

[FM 1-100](#) Combat Aviation Operations

[FM 1-111](#) Aviation Brigade

[FM 1-112](#) Attack Helicopter Battalion

[FM 1-113](#) Assault Helicopter Battalion

FM 1-115 Cargo Helicopter Battalion

FM 3-10 Employment of Chemical Agents

FM 3-10-1 (S) Employment of Chemical Agents (U)

FM 3-10-2 (S) Chemical Target Analysis (U)

[FM 3-50](#) Deliberate Smoke Operations

[FM 3-100](#) NBC Operations

[FM 5-100](#) Engineer Combat Operations

FM 6-1 TACFIRE Operations

[FM 6-2](#) Field Artillery Survey

FM 6-15 Field Artillery Meteorology

[FM 6-30](#) Observed Fire Procedures

[FM 6-40](#) Field Artillery Cannon Gunnery

- [FM 6-50](#) The Field Artillery Cannon Battery
- [FM 6-121](#) Field Artillery Target Acquisition
- FM 6-122 Field Artillery Sound Ranging
- FM 6-141-2 (C) Field Artillery Target Analysis and Weapons Employment:
Nonnuclear (U)
- FM 6-161 Field Artillery Radar Systems
- [FM 7-7](#) The Mechanized Infantry Platoon and Squad (APC)
- [FM 7-8](#) The Infantry Platoon and Squad (Infantry, Airborne, Air Assault,
Ranger) (How to Fight)
- [FM 7-10](#) The Infantry Rifle Company (Infantry, Airborne, Air Assault,
Ranger)
- [FM 7-20](#) The Infantry Battalion (Infantry, Airborne, Air Assault)
- [FM 9-6](#) Ammunition Service in the Theater Of Operations
- [FM 11-50](#) Combat Communications Within the Division (How to Fight)
- [FM 17-95](#) Cavalry Operations
- [FM 21-26](#) Map Reading and Land Navigation
- [FM 34-1](#) Intelligence and Electronic Warfare Operations

FM 44-1 US Army Air Defense Artillery Employment

[FM 71-1](#) Tank and Mechanized Infantry Company Team (How to Fight)

[FM 71-2](#) The Tank and Mechanized Infantry Battalion Task Force (How to Fight)

[FM 71-3](#) Armored and Mechanized Brigade Operations (How to Fight)

[FM 71-100](#) Armored and Mechanized Division Operations (How to Fight)

FM 90-2 Tactical Deception (How to Fight)

[FM 90-3](#) Desert Operations (How to Fight)

[FM 90-5](#) Jungle Operations (How to Fight)

FM 90-6 Mountain Operations

[FM 90-10](#) Military Operations on Urbanized Terrain (MOUT) (How to Fight)

[FM 90-13](#) River Crossing Operations (How to Fight)

[FM 100-15](#) Corps Operations

FM 100-26 The Air-Ground Operations System

FM 100-42 US Army/US Army Airspace Management in an Area of Operations

- [FM 100-103](#) Army Airspace Command and Control in a Combat Zone
- [FM 101-5](#) Staff Organization and Operations
- FM 101-10-1 Staff Officers' Field Manual: Organizational, Technical, and Logistical Data (Unclassified Data)
- FM 101-31-1 Nuclear Weapons Employment Doctrine and Procedure
- FM 101-31-2 (S) Nuclear Weapons Employment Effects Data (U)
- Joint Munitions Effectiveness Manuals (JMEM)**
- FM 101-50-1 (C) Joint Munitions Effectiveness Manual: Air-to-Surface: Weapon Effectiveness, Selection and Requirements (BASIC JMEM), Air-Delivered Non-Nuclear (U)
- FM 101-60-1 (C) Joint Munitions Effectiveness Manual/Surface-to-Surface: Effectiveness Data for Mortar, 81-mm: M29 (U)
- FM 101-60-2 (C) Joint Munitions Effectiveness Manual Surface-to-Surface: Effectiveness Data for Howitzer, 105-mm, M101A1 (U)
- FM 101-60-3 (C) Joint Munitions Effectiveness Manual: Surface-to-Surface: Effectiveness Data for Howitzer, 155-mm, M109 (U)
- FM 101-60-6 (C) Joint Munitions Effectiveness Manual: Surface-to-Surface Effectiveness Data for 5-Inch/38-Inch Naval Twin-Gun Mount, MK-28, -32 and With Gun, Fire Control System MK-37 (U)
- FM 101-60-7 (C) Joint Munitions Effectiveness Manual: Effectiveness Data for Mortar: 4.2-Inch, M30 (U)
- FM 101-60-9 (C) Joint Munitions Effectiveness Manual: Surface-to-Surface Effectiveness Data for Naval Single-Gun Mount, MK42 w/Gun Fire Control System MK68 (U)

FM 101-61-3 (C) Joint Munitions Effectiveness Manual/Surface-to-Surface
(JMEM/SS). Weapon/Munitions Application: Ammunition Reliability
(U)

FM 101-62-1 (C) Joint Munitions Effectiveness Manual Surface-to-Surface: Safe
Distances for Fragmentary Munitions (U)

FM 101-62-3 (C) Joint Munitions Effectiveness Manual/Surface-to-Surface:
Manual of Fragmentation Data (U)

Miscellaneous Literature

JCS Pub 1-02 DoD Dictionary of Military and Associated Terms

JCS Pub ATP-27 Offensive Air Support Operations

JCS Pub ATP-35(A) Land Force Tactical Doctrine

NATO Standardization Agreements/Quadripartite Standardization Agreements (STANAG/QSTAG)

STANAG 2014/QSTAG 506 Operation Orders, Annexes to Operation Orders, and
Administrative and Logistics Orders

STANAG 2031/QSTAG 515 Proforma for Artillery Fire Plan

STANAG 2082 Relief of Combat Troops

STANAG 2099/QSTAG 531 Fire Coordination in Support of Land Forces

STANAG 2103/QSTAG 187 Reporting Nuclear Detonations, Biological and Chemical
Attacks,
and Predicting and Warning of Associated Hazards and
Hazard

Areas

STANAG 2104/QSTAG 189 Friendly Nuclear Strike Warning to Armed Forces Operating on Land

STANAG 2147/QSTAG 221 Target Numbering System

STANAG 2887/QSTAG 217 Tactical Tasks and Responsibilities for Control of Artillery

STANAG 3736 Offensive Air Support Operations (ATP-27B)

NOTE: STANAGs and QSTAGs can be obtained from Naval Publications Center, 5801 Tabor Avenue, Philadelphia, PA 19120. DD Form 1425 may be used to requisition documents.

Training Circulars (TC)

TC 6-20-5 Field Artillery Delivered Scatterable Mines

PROJECTED PUBLICATIONS

Projected publications are sources of additional information that are scheduled for printing but are not yet available. Upon print, they will be distributed automatically via pinpoint distribution. They may not be obtained from the USA AG Publications Center until indexed in DA Pamphlet 25-30.

[FM 6-20-30](#) Fire Support at Corps and Division

[FM 6-20-40](#) Fire Support in Brigade Operations (Heavy)

[FM 6-20-50](#) Fire Support in Brigade Operations (Light)

FM 34-40 Electronic Warfare Operations

[FM 100-6](#) Large Unit Operations

[FM 100-30](#) Nuclear Operations in Support of AirLand Battle

FM 6-20
17 MAY 1988

By Order of the Secretary of the Army:

CARL E. VUONO
General United States Army Chief of Staff

Official:

R. L. DILWORTH
Brigadier General United States Army
The Adjutant General

DISTRIBUTION:

Active Army USAR, and ARNG: To be distributed in accordance with DA Form 12-11A, Requirements for Fire Support in Combined Arms Operations (Qty rqr block no. 772).

* U. S. GOVERNMENT PRINTING OFFICE: 1993 O - 342-421 (62585)

PIN: 021510-000