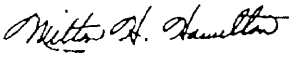
By Order of the Secretary of the Army:

GORDON R. SULLIVAN
General, United States Army
Chief of Staff

Official:



MILTON H. HAMILTON
Administrative Assistant to the
Secretary of the Army
00835

DISTRIBUTION:

Active Army, USAR, and ARNG: To be distributed in accordance with DA Form 12-11E. Requirements for FM 44-63, FAAD/SHORAD Battalion Operations, Heavy Divisions (Qty rqr block number 4885).

*U.S. Government Printing Office: 1992 — 311-831/61370

Contents

			Page
Chapter	**1**	ADA Battalion in the Heavy Division	1-1
	2	The Threat	2-1
	3	Planning and C^3	3-1
	4	Lodgement Operations	4-1
	5	Offense	5-1
	6	Defense/Retrograde	6-1
	7	Combat Service Support	7-1
Appendix	**A**	Battalion Combat Checklists	A-1
	B	Safety Checklist	B-1
	C	Combined Arms for Air Defense.	C-1
	D	ADA Allocation Employment Guidelines	D-1
	E	Air IPB	E-1
	F	ADA Liaison Officer Checklist	F-1
Glossary			Glossary-1
References			References-1
Index			Index-1

Preface

FM 44-63 is the field manual for ADA in support of the heavy divisions. The purpose of this FM is to describe how current and interim FAAD and SHORAD ADA battalions are organized and how they fight in support of maneuver operations. This FM is oriented primarily towards FAAD and SHORAD battalion commanders, staff officers, and combined arms commanders who will be supported by ADA.

ADA is entering a transitional period in which it will be converting from SHORAD to FAAD weapon systems. These systems will be the hub around which our defensive counterair ADA operations revolve. Operations will capitalize on ADA's increased cross-country speed and agility to keep up with the maneuver force; their improved range, accuracy, and shoot-on-the-move capability their ability to see, move, and shoot through darkness, fog, smoke, and adverse weather; and ADA's increased flexibility to protect the force.

Success on the modern battlefield requires the coordinated employment of the entire combined arms team. This FM provides current and interim tactics, techniques, procedures, and doctrine for integrating FAAD systems into the combined arms team and for exploiting ADA's improved capabilities. The various elements of transition under the current and interim organizations are detailed herein. As FAAD systems data is refined, it will be included in whole chapter changes to this manual. This method of updating will provide field users with one overlapping manual for immediate use.

This publication implements the following international agreements:

STANAG	EDITION	TITLE
2034	4	Land Forces Procedures for Allied Supply Transactions.
2041	4	Operation Orders, Tables and Graphs for Road Movement.
2047	6	Emergency Alarms of Hazard or Attack (NBC and Air Attack Only).
2103	5	Reporting Nuclear Detonations, Biological and Chemical Attacks, and Predicting and Warning of Associated Hazards and Hazard Areas-ATP-45.
2112	3	Radiological Survey.
2868	4	Land Force Tactical Doctrine-A-35A.
3700	3	NATO Tactical Air Doctrine-ATP-33B.
3736	5	Offensive Air Support Operation--A-27B.
3805	2	Doctrine and Procedures for Airspace Control in the Combat Zone.
3880	1	Counter Air 0perations--ATP-42.
4162		NATO Identification System.

The proponent for this publication is USAADASCH. Submit changes for improving this publication on DA Form 2028 to Commandant, US Army Air Defense Artillery School, ATTN: ATSA-TAC-D, Fort Bliss, TX 79916-0002.

Unless this publication states otherwise, masculine nouns and pronouns do not refer exclusively to men.

CHAPTER 1

ADA Battalion in the Heavy Division

This chapter discusses the role of the ADA battalion in the AirLand Battle as well as the organization of the ADA battalion in support of the heavy division. The Army has the mission of projecting combat power into mature or nonmature theaters. Heavy divisional ADA battalions must be able to fight in both environments. Nonmature theaters may involve reinforcement of forward-based forces as in Operation Just Cause in Panama, or the establishment of a lodgement in a host nation such as Operation Desert Shield/Desert Storm in Southwest Asia. Mature theaters may involve limited or general war with another superpower, or a prolonged regional conflict.

AirLand Battle doctrine describes how the Army organizes and applies combat power at the operational and tactical levels. Its underlying theme is achieving synchronization to maintain the initiative. Under AirLand Battle doctrine, the object is to impose our will upon the enemy to accomplish the mission. We achieve success by striking the enemy quickly and violently in his most vital assets and areas–by destroying his centers of gravity. This is aided by the ability to fight according to the four basic tenets of ***initiative, depth, agility,*** and ***synchronization.***

THE ADA BATTALION IN THE AIRLAND BATTLE

AirLand Battle doctrine stipulates the integration of combined-arms operations and the use of all available resources. The ADA battalion must understand the role it plays on the divisional AirLand battlefield. This doctrine explains the battlefield in scope, depth, and time; and integrates both ground and air operations.

The divisional air defense battalion supports division, brigade, and battalion task force operations by killing enemy aircraft. Successful operations are greatly enhanced if maneuver and subordinate commanders plan and fight using the AirLand Battle tenets. The ADA battalion commander must wrest the ***initiative*** from the enemy. This requires thorough planning and an aggressive/offensive spirit, from deployment through establishment/expansion of the lodgement, to decisive combat operations. Through development of a good intelligence preparation of the battlefield (IPB), the ADA battalion commander can identify a number of courses of action the enemy may choose. The IPB, combined with a sensor plan that observes critical named areas of interest (NAIs) that confirm the IPB, allows the commander to mass his air defense fires at the right place and time. Early warning and timely sensor feedback confirm or deny the anticipated enemy course(s) of action. The essence of this concept is to not passively wait for enemy aircraft to show up, but to use IPB to predict where enemy aircraft will make their main effort-and then to move from a nonlinear deployment and massed ADA assets to that point to meet and destroy the enemy.

The ADA battalion commander retains the initiative through the use of decentralized mission-type orders. It is essential that he decentralize decision authority to the lowest practical level because overcentralization slows action and leads to inertia. Mission orders necessitate subordinate leaders with a

CONTENTS

Page

The ADA Battalion in the AirLand Battle 1-1
ADA Battalion Organization Charts 1-2

willingness and ability to act independently within the commander's intent.

Depth is achieved by using air defense fire units and EW assets throughout the entire battlefield. ADA adds depth to the battlefield through its contribution to the joint deep fires by providing protection for deep fire assets, C^2, maneuver forces, and through integration into the overall reconnaissance, intelligence, surveillance, and target acquisition (RESTA) picture. The limitation and destruction of the air threat's capability (RPVs and UAVs) to observe friendly forces is an extremely critical counterreco nnaissance mission for air defense. Through the air portion of the IPB, the ADA battalion S2 templates enemy air-associated assets (FAAs, RARPs/FARPs, CP, and FACs) coordinates with the division G2/FSE to have them targeted by fire support, aviation or Air Force assets overtime and space. Targeting and destroying templated air-associated assets will aid the division in its deep battle by helping to separate enemy forces and disrupting the enemy's synchronization. The ADA battalion commander must integrate both corps ADA fires to protect critical division rear assets and combined arms for air defense (CAAD) throughout the battlefield.

The ADA battalion commander must maintain the ***agility*** necessary to shift fires and sensor coverage, and potentially shift forces, to meet the threat and defeat it. ADA systems must be capable of supporting a weighted area air defense coverage plan, thus the location of dedicated air defense fire units will not be tantamount to identifying a lucrative target. This is not to imply that point asset coverage will not be used but that it will not be the preferred method of employment. me nonlinear battlefield coupled with limited ADA assets makes broad area coverage ineffective. The tool by which the ADA commander does this is the ADA decision support matrix (DSM).The DSM allows the battalion commander to key his planning to specific enemy capabilities. The ADA battle staff in conjunction with the commander plans an integrated response (using all battlefield operating systems (BOSS)) for each enemy capability in time and space.

Synchronization is the key to AirLand Battle doctrine, and thus to air defense operations. It becomes critical to the ADA battalion commander to be able to synchronize all of his resources due to the rapid and fluid nature of the threat in the third dimension. The enemy has the capability to mass his aircraft to add depth to his battlefield. Synchronization for the divisional ADA battalion is achieved by planning and providing a decisive force ratio at the critical place and time on the battlefield to defeat the attack helicopter units, while at the same time defeating the fixed-wing threat to the brigade and employing corps ADA to protect the division rear through critical-asset defense and defense in depth. A decisive force ratio is defined as enough air defense to meet the employment guidelines of balance and mutual support (usually a minimum of two Vulcan/Stinger batteries with the division's main effort). Air defense in this instance is not limited to ADA assets. Both dedicated and nondedicated air defense assets will contribute to the synergy of operations. This relies on maintaining initiative through planning and IPB, building agility into the plan, and ensuring depth is maintained while still massing at the critical place and time.

The battalion commander must correlate his ADA fires, command and control, CAAD, and logistics to support his main effort. The ADA battalion commander's synchronization template (see illustration) depicts, by BOS, the ADA battalion commander's sychronization efforts as they relate to the division.

ADA BATTALION ORGANIZATION CHARTS

Friendly air superiority in the AirLand Battle is projected to be limited, applying to specific areas for short periods. The keys to effective division air defense are force allocation, sound planning, and proper employment of ADA resources on the AirLand battlefield.

Air defense of the division requires integration of ADA units with other division combined-arms elements. The division commander in allocating scarce ADA assets also considers the organic air defense capabilities of the maneuver elements (combined-arms initiative, aviation, and all arms for air defense), fire support, and intelligence and electronic warfare, when assigning missions and task organizing his forces.

ADA BATTALION MISSIONS AND ROLES

The ADA battalion of the heavy division must apply its air defense missions, roles, and guidelines with necessary force allocation and synchronization to kill enemy aircraft and protect the division from air attack. To accomplish this, air defense systems must be able to fire and maneuver as one of the combat arms warriors. ADA systems must defeat the attack helicopter units and any fixed-wing threat from the front, and integrate their operations with those of the division. The ADA battalion commander in the heavy division plans his support by fighting batteries, and thinking platoons. In other words, he will adjust coverage and shift the fires of batteries. However,

when planning and allocating forces, he must allocate in terms of the number and type of platoons he has available, and then task organize accordingly.

FAAD/SHORAD HEAVY BATTALION ORGANIZATIONS

This section briefly describes the organizational structure of the ADA battalion of the heavy division. The primary focus of this section is to provide a current organizational overview.

There are three ADA battalion organizations dedicated for support to the heavy division: CONUS heavy ADA battalion (TOE 44-165L000); OCONUS heavy ADA battalion (TOE 44-325H000); and National Guard heavy ADA battalion (TOES 44-125L200 and 44-445L200). Each battalion consists of a standard combat headquarters and headquarters battery and three to four ADA system-specific firing batteries.

ADA BATTALION COMMANDER'S SYNCHRONIZATION TEMPLATE

BOS	XX DETERMINES–	DEVELOPS–
INTEL:	-GROUND IPB -ENEMY ARMY MAIN ATTACK/OBJECTIVE OF DAY	-AERIAL DIMENSION TO DIVISION IPB -ENEMY ATTACK HEL RGT EMPLOYMENT -ENEMY ADA EMPLOYMENT (FOR FRIENDLY AVN BDE) -ENEMY AIR ASSAULT BN THREAT
MANEUVER:	-INTENT -SCHEME OF MANEUVER -FRIENDLY AVIATION PLAN	-IDENTIFICATION OF KEY FRIENDLY ASSETS OVER TIME -A^2C^2 PLAN
MOBILITY/ COUNTERMOBILITY	-LOCs/MSRs -OBSTACLE PLAN -SURVIVABILITY PRIORITIES -MOVEMENT ROUTES (RESERVES)	-IDENTIFICATION OF FRIENDLY PRIORITIES OVER TIME
FIRE SUPPORT:	-FIRE SUPPORT PLAN -CAS PLAN	-ATTACK ON ENEMY C^2 (FAAs, RARPs, DIV HQ) -ATTACK ON ENEMY JAMMERS -AIRSPACE DECONFLICTION -FA CALL FOR FIRE
CSS:	-MSRs/LOCs -MOVEMENT PRIORITIES -BASE CLUSTER PLAN/REAR OPNS -CSR/SUPPLY AVAILABILITY	-PROTECTION OF SUSTAINMENT -RECONSTITUTION PLAN -SUPPORT RELATIONSHIPS -RSR
C^2:	-LOCATION AND CAPABILITY OF SIGNAL NODES -LOCATION OF LEADERS -LOCATION OF DIV MAIN/DIV TAC/DIV REAR -CHANGE OF CONCEPT	-INTEGRATION WITH ADJACENT ADA, CORPS ADA, DIVISION ADA BATTERIES, AND MANEUVER ELEMENTS -REDUNDANT EW PLAN -COMM PLAN -COMMAND/SUPPORT RELATIONSHIPS
ADA:	-PASSIVE AIR DEFENSE -EW PLAN/PROCEDURES	-ADA SCHEME OF MANEUVER/FORCE ALLOCATION (SYNCH ADA) -ADA PROTECTION OF KEY FRIENDLY ASSETS

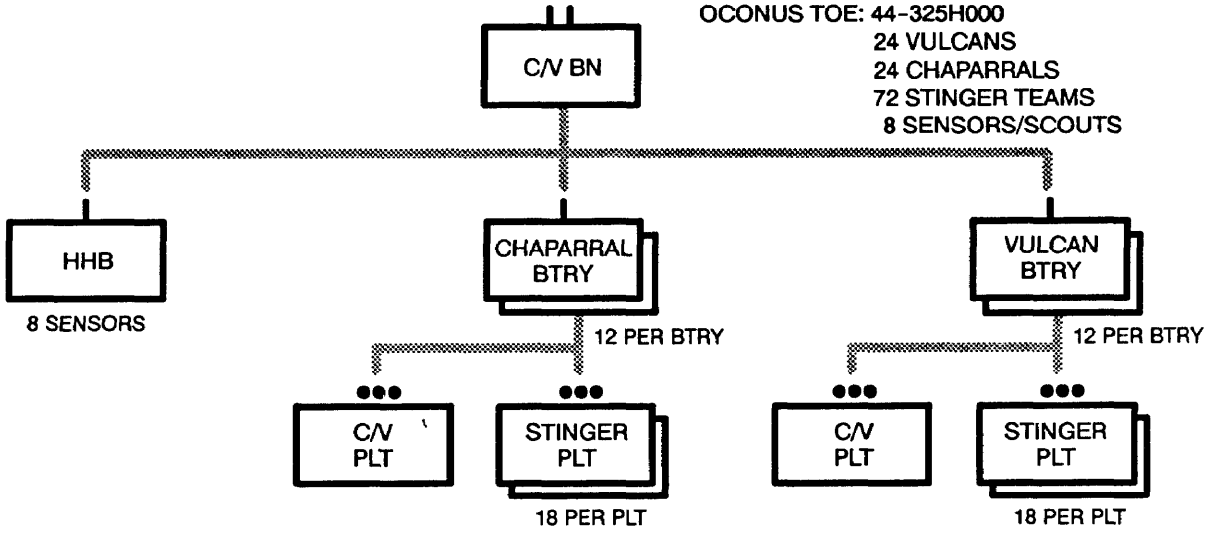
Current C/V Battalion

The C/V battalion is currently in OCONUS divisions in the active force structure and is organized and equipped under TOE 44-325HOO0. The OCONUS C/V Battalion Overview illustration shows how it is organized.

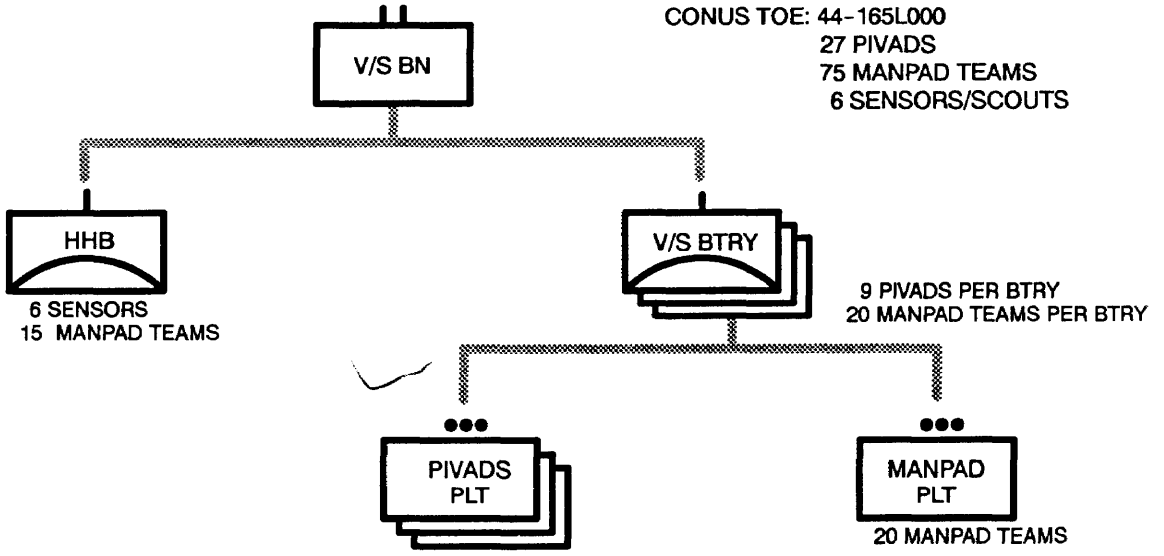
Current V/S Battalion

The Vulcan/Stinger battalion is currently in the active force structure of the CONUS divisions and is organized and equipped under TOE 44-165L000. The basic organization is depicted in the V/S battalion CONUS illustration.

OCONUS C/V BATTALION OVERVIEW



V/S BATTALION CONUS



Current ARNG Stinger Battalion

The Stinger battalion is currently in the Army National Guard, existing to support heavy divisions. It is new to the Army National Guard, equipped under TOE 44-125L200, and is organized as depicted in the ARNG Stinger Battalion illustration.

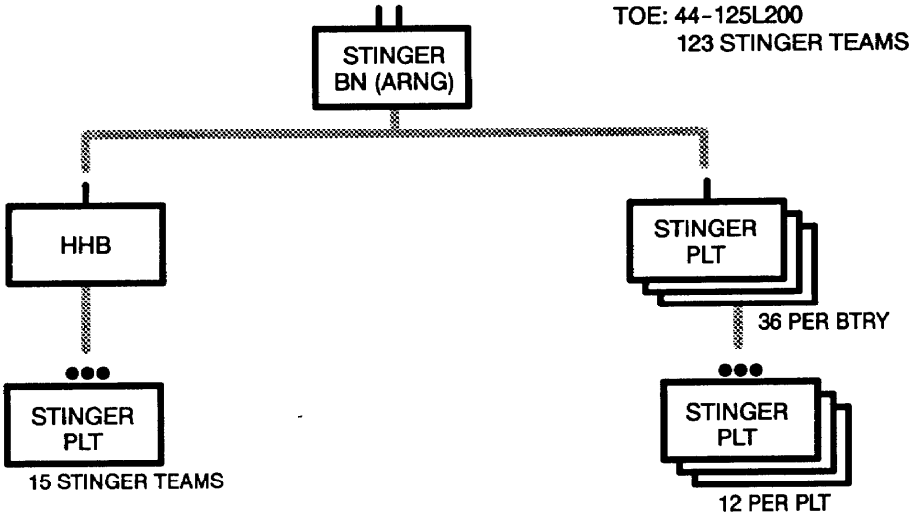
Interim V/S/A Battalion

The Vulcan/Stinger/Avenger battalion is identified for the interim F/S battalions of the active force structure to provide support to the heavy divisions. The addition of Avenger to the ADA battalion increases the battalion's ability to defeat the threat in the division rear area. This battalion is organized and equipped under TOE 44-175L200. The basic organization is depitted in the Vulcan/Stinger/Avenger Battalion illustration.

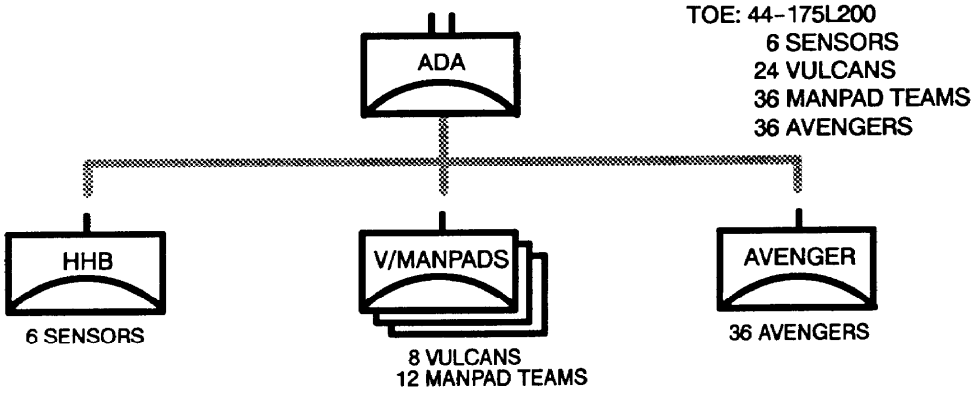
Interim ARNG Stinger Battalion

The interim ARNG Stinger battalion of the heavy ADA battalion reserve force structure remains the same as the current Stinger battalion organization. It is equipped under the same TOE (44-125L20O).

ARNG STINGER BATTALION



VULCAN/STINGER/AVENGER BATTALION



CHAPTER 2

The Threat

The primary focus of this chapter is the air threat facing a heavy division m a nonmature or contingency theater. The mature theater threat is also addressed. Although the Soviet Union and Europe have historically been viewed as the most likely areas of conflict for US forces, recent Soviet plans to reduce conventional forces, combined with the collapse of communism in Eastern Europe and the unification of Germany, have caused the threat to fade in Europe. The threat is more diverse now than ever before, and includes almost all regions of the world. These regional powers continue to increase the sophistication and size of their military forces, and pose a significant threat to US interests. A detailed description of the Soviet threat is discussed in FM 100-2-1. There are no current unclassified publications which discuss regional threats.

CONTINGENCY THEATER THREAT

Threat in a contingency theater will kick the capability to conduct a massive Soviet-style air operation. However, many regional power adversaries have large numbers of fixed- and rotary-wing aircraft. It is important for the heavy division ADA commander to take these numbers into account; for even a small air force can make it difficult for a joint task force to enter a country and conduct sustained operations.

While regional threat aircraft may be older or of lesser quality than those of a global power, increased arms sales to third world countries increases the likelihood of deploying ADA to fight first-class aircraft anywhere in the world. Additionally, the dedication and fanaticism of some ethnic groups may compensate for any lack of technology in their aircraft. Many regional powers now have or will soon have tactical ballistic missiles (TBMs). These missiles have been used effectively in the Iran-Iraq War and in the Persian Gulf War. They have a high explosive and possibly chemical capability with the potential to deny entry to a contingency force. Long-range firepower is no longer an exclusively global power capability.

To effectively counter the regional threat, a thorough evaluation of the threat's mission and its strengths and weaknesses should be conducted. It is important for the commander to ensure intelligence information is continuously gathered and stored on various countries which may become areas of conflict for the division. The intelligence officer should have addressed and be able to answer the following questions immediately following alert notification.

CONTENTS

Page

Contingency Theater Threat.....2-1
Threat During Lodgement Entry.....2-3
Threat as the Lodgement Expands.....2-3
Mature Theater Threat Air Support of Offensive Operations.....2-3
Mature Theater Threat Air Support of Defensive Operations.....2-4

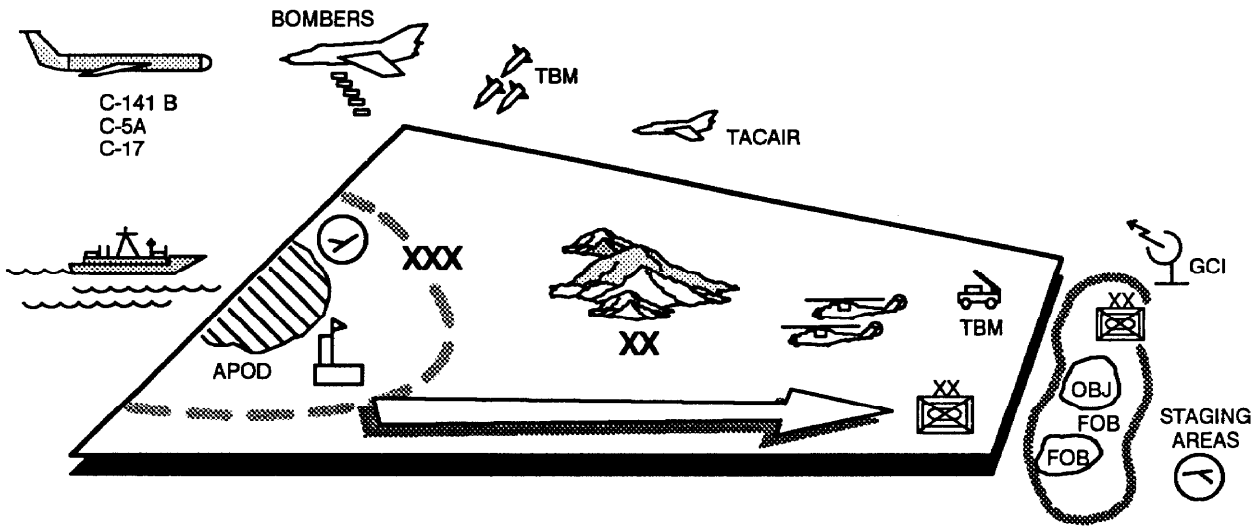
INTELLIGENCE OFFICER'S THREAT EVALUATION

GENERAL	AIR FORCE	ECM	TBM	NBC	ARTILLERY
• What country (or countries) has most influenced the tactics of the enemy force? • What size military force will the division face? • Is its equipment modernized or standard? • Do terrorist or special forces pose a viable threat to AD units? • What is the local populace's attitude about US forces?	• Do the enemy pilots have any combat experience? • What type of air-to-air and air-to-ground tactics do the enemy pilots most often use? • What type of aircraft and how many does the enemy have? • How many aircraft are fully operational? • Do they possess air refueling capability? • Do they possess and effectively employ ASMs? • Where are the operating bases and secondary airfields located? • What type of ordnance delivery techniques and attack profiles do they use? • Do the aircraft have night flight capability? • How proficient are the pilots at navigation? • Are the aircraft equipped with sophisticated avionics? • What types and how many helicopters do they have? • How are rotary-wing aircraft used in the offense and defense?	• Does the enemy possess ECM or ESM capabilities? What are they? • How is ECM most commonly employed? • Do they use ECM against radars and communications? • Do they use chaff, flares, smoke, or jamming vehicles? • Do they complement ECM with artillery or TASM strikes?	• What types of TBMs do they have? Modifications? • What are the ranges and are they chemical-capable? • How many TBMs can be rapidly placed on one target? • What are the flight parameters of the TBMs, to include reentry velocity and shape of the trajectory? • Do they have penetration aids or maneuverable reentry?	• What types of NBC capabilities does the enemy possess? • What delivery means can they employ?	• What type and how is it employed?

THREAT DURING LODGEMENT ENTRY

Heavy forces normally enter a lodgement that has been secured from ground attack by light and special forces. However, long-range air attack remains a major concern. As the heavy forces disembark into the lodgement, the threat is most likely to employ TBMs and fixed-wing aircraft against units and facilities as shown in the Aerial Threat During Lodgement Operations illustration. The defense of the lodgement is critical because it is the base of operations for US forces projected from CONUS. Targets within the lodgement area include seaports, airports, lines of communications, command and control headquarters, and ammunition and fuel supply points. Commanders must also protect their forces from sabotage and terrorist actions.

AERIAL THREAT DURING LODGEMENT OPERATIONS



THREAT AS THE LODGEMENT EXPANDS

As the heavy forces begin combat operations or movement beyond the lodgement, the enemy is more likely to employ rotary- and fixed-wing aircraft against maneuver units. The lodgement is still vulnerable and must be protected. The enemy against the lodgement remains viable throughout the operation. TBM or aerial delivery of persistent chemicals or tactical nuclear weapons in the lodgement after expansion could cut off the forward forces from support and disrupt the entire operation. Should this happen, the situation could escalate into a mature theater of operations.

MATURE THEATER THREAT AIR SUPPORT OF OFFENSIVE OPERATIONS

The most lethal air threat to the heavy division is the enemy attack helicopter unit. In both offensive and defensive operations, the threat attack helicopter unit will be used in mass to add depth to the ground attack.

A threat force using Soviet-style doctrine commences offensive operations by jamming radio and radar transmissions with rotary-wing aircraft. These helicopters will fly near the FLOT. Next, the threat commander will begin his reconnaissance of the FLOT Once friendly unit locations have been identified, the threat commander will begin his artillery preparation, with his fires concentrated in the vicinity of his anticipated main attack. About the time of the artillery barrage, fixed-wing aviation will begin attacking targets in the US rear area. This attack will be concentrated, attempting to eliminate logistics facilities, command and control nodes, reserves, and artillery which might impede the advance of threat ground forces which have

penetrated the FLOT. The threat commander will commit the bulk of his attack helicopter units just forward of the direct fire zone. The attack helicopter unit will attack withdrawing maneuver units, command and control nodes, artillery, logistics facilities, and especially reserve formations moving forward to close the penetration. The employment of the helicopter units will be in mass, at least four squadrons within a 20-kilometer wide zone. Some attack helicopters will be used with supporting attacks, to perform reconnaissance and to deceive armored reserves as to the location of the main attack. A successful penetration by a supporting attack (given success in the main effort) might be allocated up to a squadron.

The scenario just described features a threat force using Soviet-style doctrine. We may face forces who employ a more western-style doctrine, although western doctrine would probably be orchestrated similar to Soviet trained forces (that is, reconnaissance, jamming, artillery barrage, commitment of maneuver forces, et cetera). A western-trained force could be expected to use more deception, have more flexibility, use a joint and combined arms force, and have better technology. A joint and combined synchronized response to exploit or create a decisive force ratio at the critical time and place is key to western doctrine. Additionally, western-trained forces are more apt to use their attack helicopters to secure and screen the flanks of maneuver units, or in standoff ambush attacks against designated targets of opportunity. Rarely will they be committed in mass (more than four) or as an extension of the field artillery.

MATURE THEATER THREAT AIR SUPPORT OF DEFENSIVE OPERATIONS

Threat fixed- and rotary-wing aviation have two missions in the defense. First, to attrit attacking enemy armored forces, and secondly, to act as a reserve to prevent the penetration of their defensive network.

The threat establishes a security zone forward of their main battle defensive positions. Forward air controllers are employed in the security zone, and they will direct fixed-wing and a few rotary-wing aircraft at the flanks of the attacking enemy force.

Inside the defensive fortifications, attack helicopters may be used if the terrain allows for undetected flank access to the attacking force and if the chances of fratricide are low. Normally, this means that attack helicopters are employed in the area separating divisional defensive positions, when divisions are employed in depth.

If the threat commander perceives that his final defense is about to be penetrated, he may simultaneously commit his attack helicopters and any tank reserves to the battle. The attack helicopter units will engage the attacking armored force from the flanks and possibly from the rear. Like the penetration in the offensive situation described above, the attack helicopter units will be employed in mass.

CHAPTER 3

Planning and C^3

The ADA battalion must be prepared to deploy to and fight in both mature and nonmature theaters. This chapter describes predeployment planning, the ADA planning process, and the fundamentals and procedures of command, control, and communications (C^3) required to provide ADA fires at the critical time and place on the battlefield. The chapter also explains the components of the ADA planning process to include METT-T, IPB, and the decision support template (DST) to synchronize operations. It covers the role of the ADA battalion for force allocation, staff planning, ADA fundamentals, and the planning techniques for facilitating sustainment in support of heavy division operations. It describes how the battalion directs early warning and uses C^2 procedures to kill enemy air. It explains the communications systems' interfaces between organic, multiservice, supported, and adjacent units.

Section I. Predeployment Planning

In most situations, US heavy divisions are aligned to fight in mature theaters, but must also be prepared to fight in a nonmature or contingency theater. Regardless of the type of theater, the divisional air defense battalion must conduct careful predeployment planning to ensure the success of the unit's deployment to any theater.

DEPLOYMENT OVERVIEW

The heavy divisional ADA battalion must be able to deploy into both mature and nonmature theaters. Regardless of the theater, the heavy division takes time to deploy and enters a hostile or secure lodgement as a follow-on force, reinforcing or replacing US forces already present. During Operation Just Cause and Desert Shield/Desert Storm, for example, mechanized and armored forces reinforced light and special division forces deployed earlier in Panama and Southwest Asia through the lodgement and beyond to obtain operational objectives.

CONTINGENCY DEPLOYMENTS

Contingency deployments into nonmature theaters are normally short-term, and short of conventional war, but may transition to long-term, mature theater operations. Contingency operations are unique, since they focus on certain problems that require rapid and decisive solutions. They are political, time sensitive, and are managed at the highest levels of government.

CONTENTS

Page

Section I. Predeployment Planning
Deployment Overview.....3-1
Predeployment Overview.....3-2

Section II. The ADA Planning Process
The Heavy FAAD/SHORAD Battalion's Role in ALB.....3-5
ADA FAAD/SHORAD Battalion Planning.....3-5

Section III. Air Defense Command, Control, and Communications
ADA Battalion C^2 Facilities and Functions.....3-12
ADA Communications.....3-15
ADA Early Warning.....3-17

Contingencies that may involve the heavy divisional ADA battalion include—

- Presence/security assistance (peacekeeping).
- Show of force/demonstration.
- Escalation/de-escalation.
- Forced entry.
- Support to civil authority.
- Rescue and recovery operations.

DIRECT DEPLOYMENT

Deployment directly into a mature theater (limited or general war) such as central Europe, for example, is similar to contingency deployment except more is known about the threat. Reforger exercises focus on this type of deployment. Another example is Operation Overlord in 1944.

PREDEPLOYMENT OVERVIEW

Following alert notification, planning and time are essential. The following elements are important for battalion level planning:

- Theater of operations (nonmature or mature) and threat.
- Timeliness.
- Tasks.
- Force composition and size.
- Means of entry and withdrawal.
- Coordination of objective and execution.
- Purpose.
- Duration.

Because of the sensitivity and complexity of contingencies, the commander and staff must conduct detailed estimates of the situation. Both prior to deployment and during the operation, decision making, planning, and analysis of the conduct of the operation must be continuous. For the air defender, the area of operations and threat are analyzed in terms of the air threat, the ground threat, enemy TBM capability, and the local populace. The battalion S2 conducts a predeployment IPB based on the supported maneuver unit's IPB. He must consider air avenues of approach, LZs and DZS, and likely TBM launch sites and targets. The battalion will devise a lodgement scheme of maneuver based on METT-T that adheres to the AirLand Battle tenets. Based on the plan and the threat, he must develop a time-phased deployment plan that integrates into the existing ADA coverage of the lodgement. As the operation begins, the battalion commander and his subordinate leaders must be prepared and flexible for implementing and executing added tasks. These tasks could be a result of changes in the political environment of the US or host nation.

Available transports will dictate the forces available initially. The ADA commander must use METT-T, the tenets of AirLand Battle, and be sensitive to deploying enough air defense into the lodgement or beachhead to integrate adequate protection of the heavy force as soon as possible. The US joint task force (JTF) already holding the lodgement may have FAAD/SHORAD and HIMAD assets providing protection for the lodgement.

Factors which will influence the size of the initial ADA force include—

- Mode of delivery (air, land, and sea transport).
- Size of the lodgement.
- Threat capabilities.
- Effects of offensive counterair.
- Defensive counterair available.
- Sealift or airlift available.

The ADA commander should consider Navy or USAF DCA defending the lodgement and assist their capabilities. Based on this assessment, a downsizing of the optimal ADA package may be feasible. The ADA commander should carefully examine nighttime DCA capabilities and AWACS survivability based on the enemy air force's capabilities. The amount of time required for the USAF and or USN to establish air superiority over the lodgement will directly affect the amount of ADA required.

All the considerations above are directly predicated by the type of transport available. The ADA commander must be prepared to argue for sufficient air defense when the division may be placed in a situation where it must initially trade armor and infantry seats for air defense coverage based on a delay or shortage of transport.

To achieve synchronization during a deployment, enough of the right weapon systems must be deployed and integrated at the right time and sequence to defeat specific threats. For instance, if the

initial threat is a rotary-wing air assault, a combination of Vulcan and Stinger should be deployed and integrated at the earliest possible time. If the threat is capable of conducting air operations at night, the FLIR-equipped Avenger must be deployed early. If the supported maneuver unit plans to commence combat operations immediately, a Vulcan/Stinger combination is necessary to maneuver with the combat forces, and clear handoff coordination must be made for the protection of the lodgement. If the predeploymcnt IPB templates early use of TBMs, a Patriot package must be deployed early in the sequence to counter that threat. Hawk can also be part of the package to combine TBM and air-breathing threat coverage.

The battalion commander must ensure an ADA representative is included in the division advance party. This ADA advance party must continually coordinate with the ADA units already deployed to integrate coverage arid early warning between the arriving heavy ADA and the initial JTF ADA until portions of the heavy ADA battalion command and control structure deploy into the area.

In planning for airlift of the ADA battalion to a lodgement area, the load plans must be detailed. The ADA System Air Transport Loads illustration shows the number of systems per aircraft type.

The Staff Actions for preparing to Deploy illustration on page 3--4 provides an overview of staff actions required during predeployment planning. For additional information regading air movements, refer to FMs 55-12 and 55-65, and AR 55-359.

ADA SYSTEM AIR TRANSPORT LOADS

ADA SYSTEM	# PER A/C	LENGTH (IN FEET)	C-130 HERCULES	C-141B STARLIFTER	C-5A GALAXY
CHAPARRAL		20	*2	*3	6
**SP VULCAN		14	2	4	6
AVENGER		15	3	6	8
AVENGER PALLETIZED		5	5	12	8

LEGEND:

*Canopy must be removed.
**Radar must be stowed.

NOTE: Loads will vary based on operating ACL of aircraft based on runway, fuel load, operating range, and in-flight refueling. The loadmaster has the final say.

STAFF ACTIONS FOR PREPARING TO DEPLOY

ACTIONS	BN CDR	BN MED OFF	CHAP	S1	S2	S3	S4	AD COORD SEC	NBC OFF	CE OFF
INTELLIGENCE (FRIENDLY AND ENEMY FORCES) (AIR AND GROUND SITUATION)					X	X		X		
TERRAIN MAP/LD/LZ/AO				X	X	X		X		
FRONTLINE TRACE						X				
LIKELY AIR AVENUES OF APPROACH					X	X				
NBC SITUATION					X				X	
LOCATION OF DECON POINTS									X	
SOI REQUIREMENTS AND CHANGES										X
ELECTRONIC WARFARE ACTIVITY										X
HOSTILE CRITERIA, ADWs, WCSs	X					X				
MOPP LEVEL	X								X	
REFUEL/REARM POINTS							X			
TOC/CP LOCATIONS	X					X				
CDR'S PRIORITIES	X									
COMMUNICATIONS REQUIREMENTS										X
PERSONNEL REPLACEMENTS/ CASUALTY REPORTING				X						
LOAD PLANS (A/C) SHIP, SURFACE						X	X			
MEDICAL MATERIAL AND PROCEDURES FOR CARE		X								
HEALTH RECORDS AND IMMUNIZATIONS		X		X						
PAY AND ALLOWANCES				X						
CARGO MOVEMENT AIR, SEA, LAND						X	X			
UNIT MAIL SERVICE				X						
RELIGIOUS FACILITIES AND SERVICES			X							
CMD INFORMATION PROGRAM	X			X	X					
COMSEC MATERIEL AND SHIPMENT					X					X
ARMED FORCES CENSORSHIP					X					
PERSONNEL REQUISITIONS				X						
UCMJ ON BOARD SHIPS				X						
ACCOMPANY CLASSES I-IX						X	X			
POM REQUISITION				X		X	X			
ESTABLISH LIAISON	X	X	X	X	X	X	X	X	X	
DEPLOY LIAISON	X									

Section II. The ADA Planning Process

In most situations, US heavy divisions are aligned to fight in mature theaters, but must also be prepared to fight in a nonmature or contingency theater. The divisional air defense battalion must focus on the defeat of the attack helicopter units–the enemy commander's aviation center of gravity. Planning at the battalion level must key on developing an ADA scheme of maneuver which will defeat the attack helicopter unit before it can be brought to bear.

THE HEAVY FAAD/SHORAD BATTALION'S ROLE IN ALB

The FAAD/SHORAD battalion provides the heavy division with the freedom to maneuver by establishing a decisive force ratio against the enemy attack helicopter unit at the critical time and place on the battlefield. Enemy aviation initially supports ground maneuver by performing reconnaissance and some fire support for forces in contact, while simultaneously conducting attacks from brigade to corps rear areas to facilitate the attainment of maneuver unit objectives, deep to the rear areas. Fixed-wing aircraft attack logistical facilities, reserves, and command and control centers in the brigade, division, and corps rear areas. Threat attack helicopters provide reconnaissance along the FLOT and once a penetration has been achieved, mass to attack targets forward of the artillery supporting the main attack (between the indirect fire zone and the threat fixed-wing attack zone). ADA battalion planning must focus on defeating the attack helicopter units.

The battalion analyzes potential enemy maneuver courses of action and when and where RW aviation will best be used to support the ground scheme of maneuver. The ADA plan must have agility—the ability to shift sensor coverage, fires, sustainment, and potential movement of ADA fire units laterally on the battlefield to decisively defeat the attack helicopter unit. Due to aviation's inherent flexibility, ADA battalion planning and execution must have initiative-the ability to visualize the battlefield in time and space and react properly. Lastly, to achieve depth, the ADA battalion must plan to defeat enemy attacks from the FLOT to the division rear area and to take the fight to the enemy by attacking the aviation command and control and logistics infrastructure with the other participants of the offensive counterair operation, principally field artillery and the USAF. All this must result in synchronization or allocation of sufficient ADA to defeat the attack helicopter unit, when and where it is employed. Any inflexible, habitual slice-force allocation will not allow the establishment of a sufficient combat ratio—enough ADA to meet the employment guidelines of balance and mutual support-at the critical time and place to defeat a massed and concentrated RW attack.

ADA FAAD/SHORAD BATTALION PLANNING

ADA planning begins with the receipt of a new mission. The battalion commander should begin his planning armed with a partially completed IPB and a playbook, or a task organization and concept for a typical maneuver situation.

The Modified Staff Planning Process illustration on page 3-6 shows the internal planning process used within the ADA battalion staff. Once a mission is received by the division, the ADA battalion commander refers to his playbook as a start point for basic force allocation and how to fight. The S2 conducts a thorough IPB based on the G2's IPB. Integrating the playbook and the IPB, the commander issues guidance to his staff and may suggest a course of action (COA) for the staff to consider. Staff estimates are conducted, COAs are developed and wargamed and an initial plan is then approved by the commander. Along with publishing the operation order (OPORD), an initial DST is constructed. The battery commanders and staff will backbrief the battalion commander to ensure they understand his intent and guidance. The DST is refined, and rehearsals are conducted with the battery commanders. This process must be integrated sequentially into the division staff planning process. This is detailed in the Modified Staff Planning Process illustration on page 3-6.

INTELLIGENCE PREPARATION OF THE BATTLEFIELD

IPB is the analytical methodology used to predict enemy COAs. It consists of five phases: analysis of area operations, terrain analysis, weather analysis, threat evaluation, and threat analysis. Prior to the execution of any operation, the battalion S2 will identify the area of interest and conduct the terrain analysis. The G2 will

conduct the ground portion of the IPB. The ADA S2 and or ADCOORD will prepare the air portion of the IPB. He will recommend priority intelligence requirements (PIR) to the commander to provide him with the enemy air picture. He will request an update on PIRs previously submitted to the division G2. Corps PIRs concerning the air threat will be included in the ADA annex to the corps order. Air threat information will be included in the decision support template and the decision support matrix (DSM) provided by the corps ADA brigade. The S2 must strive for redundancy in answering his PIRs—he must request information on the enemy air and ground order of battle through the ADA brigade and through division to the corps all source intelligence center.

PLAYBOOK

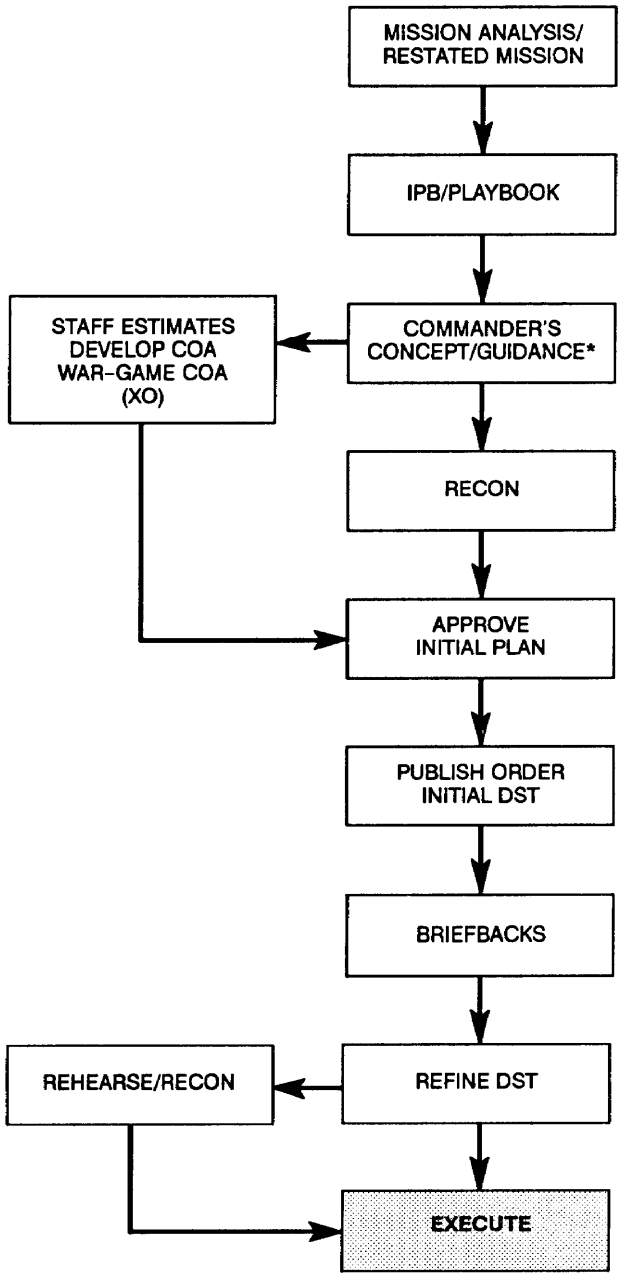
Battalions should have a playbook for missions. Commanders must strive to make as many planning and execution tasks in the SOP. The playbook represents COAs available to the ADA battalion commander which convey his intent for allocating forces, developing sensor plans, and fighting and sustaining the battle (see the "Roundhouse" play example). The playbook is a start point-a concept understandable to battalion leaders upon which planning can begin. Playbooks do not eliminate the requirement to analyze METT-T before each mission. Playbooks need not be long—one drawing per mission is sufficient.

COMMANDER'S GUIDANCE

Upon notification of a division change of mission, the ADCOORD at the division A^2C^2 cell must contact G3 plans to determine when he will develop a COA. The ADCOORD will notify the battalion commander once this has occurred and will conduct an abbreviated ADA estimate for each COA using the G3 plans. The battalion commander, using the playbook, will then give the ADCOORD his intent for each COA. The ADCOORD will convert the commander's intent into the division's ADA annex once a COA is approved per the Integrated Staff Planning Process illustration on page 3-8.

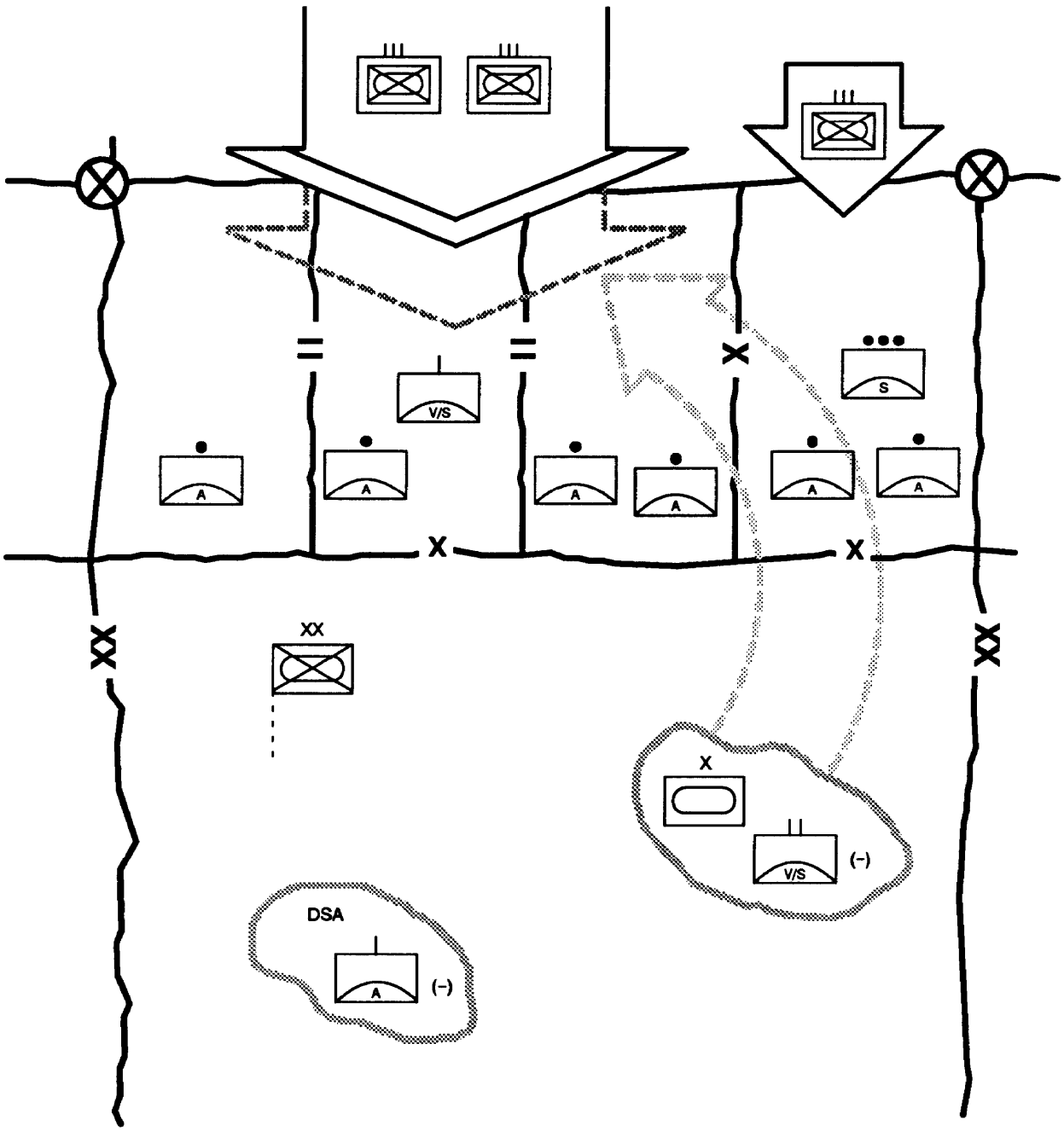
The ADCOORD will then coordinate with the ADA brigade for reinforcement based on the corps order. The battalion commander will then issue his guidance to the ADA battalion staff, giving his understanding of the threat, the division concept of the operation, and his intent for the task organization of the battalion, using the playbook for a start point.

MODIFIED STAFF PLANNING PROCESS



*Staff may participate.

PLAY : ROUNDHOUSE



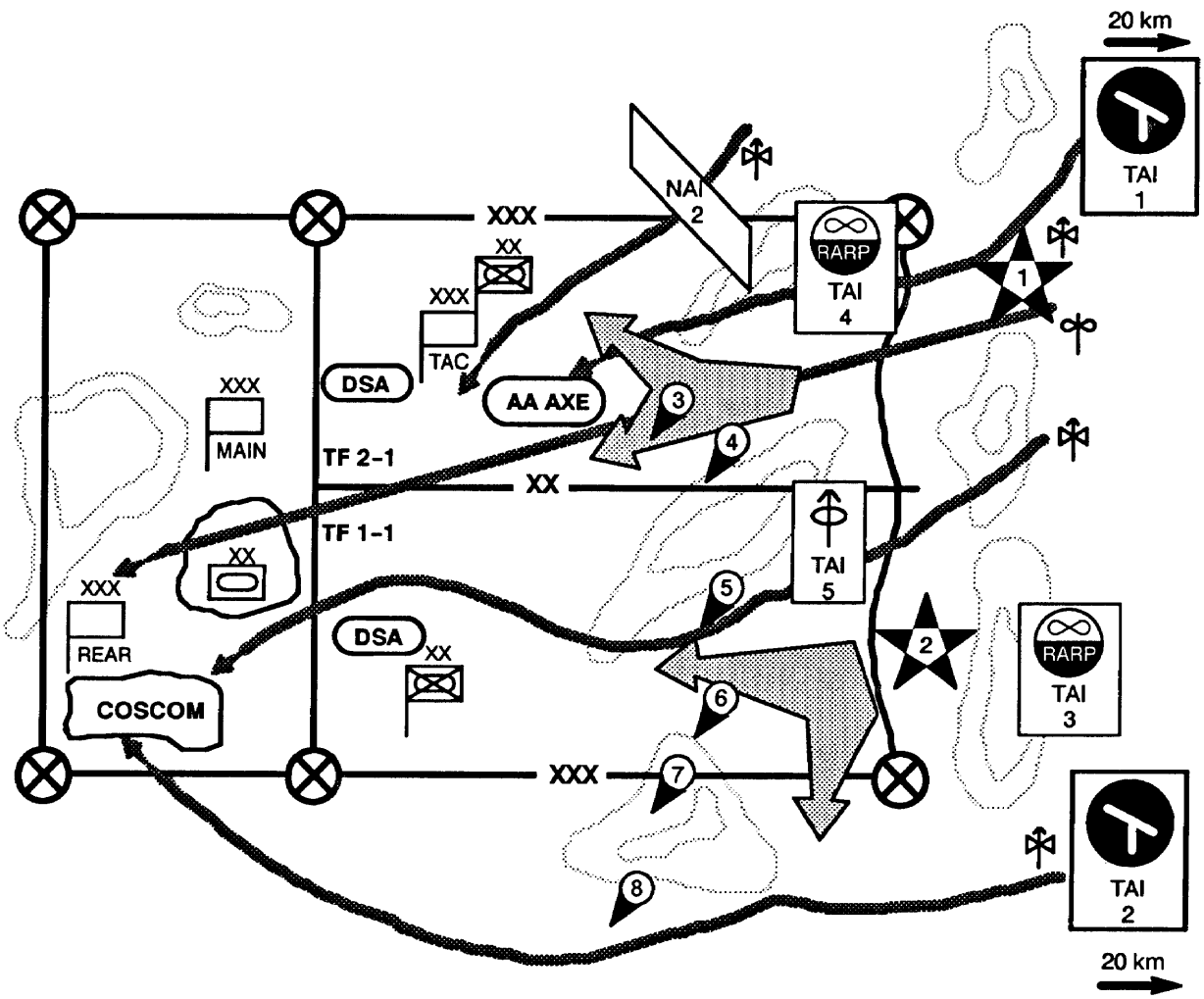
INTEGRATED STAFF PLANNING PROCESS

DIVISION	ADA BN	BRIGADE	BATTERY
NEW MISSION	ADCOORD NOTIFIES BN CDR		
WARNING ORDER	WARNING ORDER	WARNING ORDER	WARNING ORDER
MISSION ANALYSIS/ DIVISION CDR'S GUIDE	UNDERSTAND DIV CDR'S INTENT		BATTERIES PROVIDE AD TO BDES IF MOVEMENT TO NEW LOCATIONS OCCURS (AAs, CONVOYS, ET CETERA)
STAFF ESTIMATE: DEVELOP COAs	1. GATHER INFO 2. ADCOORD DEVELOPS ABBREVIATED ADA EST 3. BN CDR ISSUES INTENT 4. DEVELOP DST	POSTURE FOR NEW MISSION	
WAR-GAME COAs	INITIATE DSM (LESS ADA) CDR/BN STAFF/ADCOORD WAR-GAME REFINE DST		
DECIDE ON COA	ALLOCATE ADA (BN CDR)----------		BATTERY LINKS UP WITH SUPPORTED BDES
	ADCOORD WRITES ADA ANNEX FINALIZE DSM	LEADER RECON -INTENT -TASKO	
	ISSUE/BRIEF DSM TO---------- BTRY CDRs/SENSOR PLT/STAFF ADCOORD RECOMMENDS/ COORDINATES PIRs WITH DIV STAFF		PROVIDES TO BCs AND STAFF: -AIR IPB -AAAD TGTS -A^2C^2 PLAN -LOG SPT PLAN -ADA CONCEPT
PUBLISH ORDER		STAFF ESTIMATES	
DIV REHEARSAL	REHEARSE WITH DIV	BDE COA DECISION	STAFF COORD RECOM COA DST DEVEL LINK UP COMPLETE
		OPORD REHEARSAL	
		BDE REHEARSAL	REHEARSE WITH BDE UPDATE DST
		ADA BN REHEARSAL	
		REFINE DST	BATTERY REHEARSAL
EXECUTE	EXECUTE	EXECUTE	EXECUTE

WAR-GAMING

Based on a review of the division order, the current battalion status, and anticipated actions prior to execution, the battalion staff will war-game the battalion commander's initial COA using the staff estimate process in FM 44-100. The battalion XO is the battalion's second in charge for the planning process, and his principal functions are to integrate staff planning and ensure the staff has visualized the battlefield and integrated battalion actions.

The war-gaming process should begin with all staff members having a through understanding of the S2's updated IPB. The S2 must use selected named areas of interest (NAIs) from the division G2's IPB that will allow him to follow major enemy maneuver actions. The ADA S2 will then layer his aerial terrain analysis over this condensed ground IPB, identifying key points where the enemy will attempt to penetrate and or exploit and where the threat will use his attack helicopter unit to best support his ground activities. The S2 will then display his analysis using a DST which is a drawing showing the G2's condensed situation template with the aerial terrain analysis and the appropriate ground and air NAIs (see the illustration below).



The ADA battalion XO then analyzes the battalion's response to the S2's anticipated enemy COAs, focusing on developing a synchronized ADA response to the attack helicopter unit's main attack, and ensuring the battalion has an integrated response (fires, C^2 sustainment, and early warning) to each contingency. The corps' ADA brigade plan must be factored into the war-gaming. The battalion staff needs subordinate maneuver brigade graphics to pinpoint maneuver units which have the best potential to be on the battlefield in the vicinity of the attack helicopter unit's main effort. The brigade LNOs and the ADCOORD need to participate in this war-gaming.

The staff next discusses each contingency, simultaneously developing the sensor plan, making adjustments based on the A^2C^2 plan, and planning for the attack of enemy aviation logistics and C^2 nodes (CAAD). The staff then conducts a session to visualize the upcoming battle based on potential enemy actions (NAIs) and develops decision points (DPs) and identifies them on the DST. Anything can happen in war and the potential DPs are thus limitless. However, the staff must assess friendly capabilities versus enemy intentions to determine what COAs the enemy most likely will adopt and identify these as DPs.

The staff will then draw and date a DSM (see the DSM illustration). The DPs will be listed across the top with a brief synopsis of the decision point. The plan to cover the NAIs associated with the DP, the maneuver response, missions for the subordinate ADA units, CAAD, early warning, C^2, and CSS will be listed down the side of the DSM. The staff begins completing any part of the matrix immediately upon the completion of the DST. The non-ADA parts of the matrix normally can be completed first and the ADA integrated response then developed as part of the wargaming process. The DST should produce a coordinated sensor plan, ADA scheme of maneuver, C^2, early warning, sustainment, and CAAD in response to each probable enemy COA. It is a tool for the commander and he can arrange the subjects of the horizontal and vertical axes as he sees fit. The DSM is a living document and it should be continually modified and dated throughout the planning process.

Throughout this process, the staff must continually coordinate with the brigade LNOs and the division ADCOORD to gain an understanding of the brigade plans and to learn of any changes.

DSM/OPORD INTERRELATIONSHIP

The DSM is the principal planning tool which allows the staff to visualize the battlefield, war-game COAs, and allows for the development of a synchronized response to varied enemy actions. The DSM may include a "play" which enunciates the commander's intent. However, it is important to realize that to fully understand the commander's intent, subordinate leaders must also read paragraph three of the five-paragraph intent for the force as a whole (see the example of the commander's intent illustrated on page 3-12). A true understanding of the concept to the operation has to come from the publication of the DSM and the commander's intent.

DECISION

The battalion commander and S3 next meet with the battery commanders (BCs) to brief them on the commander's intent and the DSM. After this briefing, the BCs backbrief the battalion commander to ensure they understand their missions. The battery commanders will have formulated an initial plan by this point. The BC is the brigade ADA officer and thus must respond to the supported commander's scheme of maneuver. The battalion commander, however, is privy to the corps ADA plan and division scheme of maneuver and thus has the perspective to allocate ADA forward and even specify on the DSM a certain asset that will be defended based on his IPB and analysis of the division commander's intent. The BC's role is to integrate his battery into the brigade scheme of maneuver while positioning his forces to defeat the attack helicopter unit. ADA planning must be top-down, and the battery commander must adjust his tentative plan to provide air defense for his supported unit and meet his battalion commander's guidance.

REHEARSALS

Armed with the battalion DSM, BCs then formulate the brigade ADA plan and allocate their forces. The intent of battery planning is to produce a DSM that simplifies platoon planning to the greatest extent possible. The objective is to provide the platoon with sufficient information so the platoon leader can focus on execution versus planning.

After the battery commanders have participated in brigade rehearsals, the ADA battalion must conduct its own rehearsal. The battalion commander, battery commanders, S1, S2, S3, S4, ADCOORD, and brigade LNOs should participate. If time prevents the assembly of these personnel at one location, then the battalion commander should conduct the rehearsal on the battalion command net (METT-T dependant). The purpose of the battalion rehearsal is to ensure thorough

understanding of the battalion plan, determine and solve problems that arise, and to update the battalion DSM based on changes made at brigade rehearsals.

The planning process above is an ideal solution to the planning process. Commanders must realize that unit operations are not standardized, and the ADA battalion may be forced to obtain the information they require and still issue a timely concept while adhering to the 1/3 to 2/3 planning rule.

DECISION SUPPORT MATRIX

DP	1	2	....
EVENT	1ST ECHELON (MAIN EFFORT) PENETRATING 1ST BDE SECTOR (TF 1-1) LD ECM TK RGT MOVING WEST	2D ECHELON TK ATK WEST TK RGT ATK IN NORTHEAST SECTOR	
INTEL	GUARDRAIL OR QUICKLOOK IDENTIFY TK RGT MOVEMENT WEST	LRPs IDENTIFY TK RGT NORTHEAST	
MANEUVER	TF 1-1 DELAY IN SECTOR DRAW TK RGT INTO SECTOR 3D BDE PREPARE TO EXECUTE "KILLER" TO EA BLUE	TF 2-1 DEFEND IN SECTOR 3D BDE COA IN EA RED	
HHB	ATTACH 3D PLT TO A BTRY	ATTACH 3/HHB TO C BTRY	
A	DS TO TF 2-1 ACCEPT 3/HHB /ORIENT NAI 4	DETACH 3/HHB	
B	GS TO TF 1-1 (AA TK 1) /ORIENT NAI 5, 6, 7	DS TO TF 1-1 /ORIENT NAI 2, 3, 4	
C	GS TO 3D BDE /ORIENT NAI 8	MOVE WITH 3D BDE ESTABLISH AD COVER ALONG ROUTE ACCEPT 3/HHB /ORIENT NAI 4	
C (AD)	GS TO DIV (DSA) /ORIENT NAI 3, 4	NO CHANGE	
HAWK	GS CORPS EXECUTE "TRAP" VIC LV5572 /ORIENT TAI 5, NAI 3, 4, 6	EXECUTE "LINEBACKER" VIC MV1420 /ORIENT NAI 2, 3, 4	
PATRIOT	GS CORPS TBM MODE /ORIENT TAI 2, NAI 5, 6, 7	ORIENT TAI 1, NAI 2, 3, 7	
C^2	TOC MV1523 TAC MV2925	TOC MV1523 TAC MV3347	
EW	ORIENT NAI 5, 6, 7, 8	/ORIENT NAI 3, 4, 5	
AAAD	REQ BAI TAI 2, 3 /FIRE TAI 5	REQ BAI TAI 1, 4 /FIRE TAI 4, 5	
A^2C^2	CAB ATK EA RIM ALONG RT COBRA AT D+1 HR	JAAT ATK 2D ECH DIV TK RGT	
CSS	FLD TRAINS LV4532 CBT TRAINS MV0055	NO CHANGE	

EXAMPLE OF OPORD COMMANDER'S INTENT

3. EXECUTION

INTENT My intent is to defeat the 32d AHR in the 3d Brigade sector. In the 1st Brigade area (secondary effort), I want to prevent attack helicopters from using approaches along the northern porTion of 1st Brigade sector as 3rd Brigade attacks from the south. In the rear, we must protect critical assets from a fixed-wing attack.

Section III. Air Defense Command, Control, and Communications

Command, control, and communications are the means by which the ADA commander's intent and scheme of maneuver are effectively executed on the battlefield. Though the ADA plan is developed and war-gamed in detail, many things change during the course of the battle. The development and use of the ADA DST helps the commander make quick, intelligent decisions should something unexpected happen. To execute the DSM, positive command and control must be maintained throughout the battle.

ADA BATTALION C^2 FACILITIES AND FUNCTIONS

The ADA battalion C^2 facilities consist of the battalion TOC and the battalion A/L section. Their functions are described in the following paragraphs.

BATTALION TOC

The air defense battalion TOC is the primary source of information for the commander. The TOC contains the S3/operations section and the ADTOC (S2 and early warning).

The S3/Operations Section

The S3/operations section is responsible for developing ADA COAs, and war-gaming the COAs with the commander, the ADCOORD, and the primary staff members. The S3 section then develops the DST based on the S2's IPB and the chosen COA. The ADCOORD must keep the S3 updated on any changes to the division maneuver plan. The S3 section monitors the battle and keeps the commander informed of changes. During execution, the S3 passes local air defense warnings (LADWs) (see the illustration below) and directed early warning over division command or battery command nets, depending on whether the threat is to the division or to one brigade, respectively.

LOCAL AIR DEFENSE WARNINGS

DYNAMITE	**Aircraft are inbound or are attacking now. Response Is Immediate.**
LOOKOUT	Aircraft are in the area of interest but are not threatening, or are inbound but there is time to react.
SNOWMAN	**No aircraft pose a threat at this time.**

S2

The S2 section is in the ADTOC along with the S3. The S2 is responsible for constructing the IPB, recommending to the commander the most likely enemy COAs, and developing an ADA scout plan that will support his IPB. He monitors the early warning net and the division intelligence net. As he monitors early warning, he confirms or denies, and then, if necessary, updates his IPB. He integrates the intelligence information received from division and his ADA scouts to paint a three-dimensional picture, overtime and space, for the commander.

The ABMOC

The ABMOC is located in the TOC extension directly outside of the S2 vehicle. The ABMOC officer monitors the early warning net (remoted from the S2's vehicle). He is positioned in front of a 1:100,000 map overlayed with MSCS grids and all pertinent airspace control measures in effect. Next to his station is the S2/S3 operations map (1:50,000) with the division graphics. He talks to the A^2C^2 cell at the division main to deconflict airspace and assist the S3 in determining if there is a threat to the division.

BATTALION A/L SECTION

The battalion A/L section consists of the S 1 and S4 sections. Their primary responsibility is to plan, coordinate, and execute replacements and resupply of the units. Their primary focus is maintaining personnel strength and resupplying batteries and any other ADA units organic to the battalion protecting assets in the division rear area. They are located in the battalion support area, normally collocated with the forward support battalion supporting the division's main effort brigade. The A/L section maintains contact with the commander during the battle, monitors the battalion command net, and responds to Class III and V requests during the battle.

Battalion S1

The battalion S1 coordinates with the division G1 for priority of replacements. He sends requests to the G1 and monitors incoming personnel. He keeps track of needs by battery and primitives replacements based on the commander's intent.

Battalion S4

The battalion S4 coordinates with the DISCOM commander and main support battalion commander to ensure ADA peculiar Class V and IX parts are ordered. He coordinates with division to ensure the logistical resupply from division to brigades includes the necessary ADA-peculiar supplies. He must also keep division logistics personnel aware of changes to the ADA allocation of forces so that supplies are sent to the correct brigade support area(s).

COMMAND AND CONTROL PROCEDURES

The ADA battalion commander controls the integrated air defense effort through the use of the C^2 structure and procedures. The battalion commander controls the fires of his air defense weapons in two ways: positive and procedural. Positive control includes electronic means (IFF, early warning radars, et cetera). Procedural control includes previously established rules and criteria.

Air Defense Warnings

To alert units to enemy air attack, air defense warnings (ADWs) are broadcast by various levels of the ADA battalion C^2 structure. Standard ADWs are established by corps or the regional air defense commander, They are known as RED, YELLO W, and WHITE (see the illustration below).

AIR DEFENSE WARNINGS

ADW RED	Attack by hostile aircraft or missiles is imminent or in progress. This means that hostile aircraft or missiles are within a respective area of operations or in the immediate vicinity of a respective area of operations with a high probability of entry thereto.
ADW YELLOW	Attack by hostile aircraft or missiles is probable. This means that hostile aircraft or missiles are en route toward a respective area of operations, or unknown aircraft or missiles suspected to be hostile are en route towards or are within a respective area of operations.
ADW WHITE	Attack by hostile aircraft or missiles is improbable. ADW WHITE can be declared either before or after ADW YELLOW or ADW RED.

When received, they apply to the force as a whole and must be disseminated to every soldier within the division. At the division level and below, early warning is disseminated over redundant nets along with an LADW. LADWs are designated as Dynamite, Lookout, and Snowman (see the Local Air Defense Warnings illustration on page 3-12). They have cm-responding actions the commanders should take. For example, when Dynamite precedes an early warning message, the maneuver forces may stop to increase passive air defense, and predesignated vehicles prepare to engage with a combined arms response. Theresponse desired by the division is unique to the mission, and dependent on METT-T. It is not intended to be an automatic response. Under certain circumstances, units may not wish to engage incoming aircraft, for example, while in a hide position.

Rules of Engagement

Rules of engagement (ROE) are directives which specify the circumstances under which aircraft will be engaged. Rules of engagement are used—

- To establish varying degrees of control over ADA fires.
- To provide protection of friendly aircraft.
- To maintain the level of defense required by the tactical situation.

ROE permit the area air defense commander (AADC) to retain control of the air battle by prescribing the exact conditions under which engagements may take place. ROE which pertain to divisional air defense apply to all warfare participants in the theater and are disseminated to all echelons. There are three ROE which are applicable to all air defense contributors.

Right of self-defense. Commanders at all levels have the right to protect their own forces. When applied to air defense, the right of self-defense ineludes the defense of the supported assets.

Hostile criteria. Hostile criteria are basic rules that assist in the identification of friendly or hostile aircraft. Hostile criteria may consider the factors of speed, altitude, heading of aircraft, and hostile acts. (Note: dropping of flares does not constitute a hostile act.)

Weapon contol status. Weapon control statuses (WEAPONS FREE, WEAPONS TIGHT, and WEAPONS HOLD) describe the degree of control over air defense fires. Weapon control statuses apply to weapon systems, volumes of airspace, or types of **air**craft. The degree or extent of control varies depending on the tactical situation. The Weapon Control Statuses illustration shows standard WCSs.

Supplemental Fire Control Measures

Supplemental fire control measures (SFCMs) are procedural measures which delineate or modify hostile criteria, delegate identification authority, or serve strictly as aids in fire distribution or airspace control. The FAAD/SHORAD battalion commander must understand these measures to maximize vertical integration with HIMAD and aviation or Air Force units. The most commonly used SFCMs in the division area are weapons free zones and high-density airspace control zones.

Wapons free zone. The ADA battalion commander may request a weapons free zone (WFZ) in the area of templated enemy air assault landing zones. This allows the ADA battalion to engage any rotary-wing aircraft flying into the WFZ during the specified time. The WFZ must be coordinated closely with the A^2C^2 element at division and the A^2C^2 elements of brigades which are affected. A WFZ is approved by corps for rotary-wing aircraft, and by the regional air defense commander for fixed-wing aircraft.

WEAPON CONTROL STATUSES

WEAPONS FREE	Fire at any aircraft not positively identified as friendly. This is the least restrictive status.
WEAPONS TIGHT	Fire only at aircraft positively identified as hostile according to the prevailing hostile criteria.
WEAPONS HOLD	Do not fire except in self-defense or in response to a formal order. This is the most restrictive status. Self-defense is never denied in any weapons control status.

HIDACZ. The division commander may establish a HIDACZ upon approval of the airspace control authority (ACA) at higher echelons. A HIDACZ allows the establishing authority to control the use of a particular volume of airspace. An example would be if the division commander wanted to execute a JAAT (joint air attack) mission. The establishment of the HIDACZ may impact on the corps commander's deep battle plan and must be approved by the corps commander.

Other supplemental fire control measures. There are other SFCMs. For further information, refer to FM 100-103.

ADA COMMUNICATIONS

To effectively respond to the air threat, ADA units must maintain—

- Control of the air battle.
- Command, administrative, and logistical lines with higher and subordinate headquarters.
- Contact with supported units.

The ADA battalion commander is responsible for establishing an effective communications system to be used by elements of his command in carrying out their assigned missions.

REQUIREMENTS

Close coordination between the corps ADA brigade and the divisional ADA battalions and batteries is essential to the success of tactical level ADA operations. That coordination should be effected during the battle by the higher commander dropping down to the subordinate commander's net. Platoon leaders and battery commanders do not have the time nor the radio resources to continually jump up to the higher ADA commander's net.

RESPONSIBILITIES

The battalion commander has overall responsibility for establishing the communications structure within the battalion. The battalion signal officer aids the commander in accomplishing this mission.

Battalion Commander

The battalion commander has responsibility for establishing an effective communications system for use by his batteries and platoons. This is essential in carrying out their assigned air defense mission. He does this through his signal officer.

Signal Officer

The signal officer has the responsibility of advising the commander on all CE matters. He plans, manages, and directs all aspects of the unit's communications systems. The signal officer is responsible for preparing such documents as signal estimates, operations plans, and orders for the guidance and direction of subordinate batteries. He also exercises technical supervision over signal activities within the command.

USE OF ADA COMMUNICATIONS NETS

ADA plans must be developed to achieve synchronization on the battlefield. There are some basic rules for use of ADA communications nets which apply to the AirLand battlefield. Nets required by element are shown in the Required Nets illustration on page 3-16.

ADA Command Nets

ADA command nets are used to command and control ADA units, direct early warning and local ADWs, and pass other general information. When the battalion or battery commander needs to talk to his next subordinate unit commander, he needs to switch to that subordinate unit's frequency. In addition, the battalion commander should monitor the battery net of the battery supporting the main effort. If he has the radios to support it, he should also monitor the command net of the brigade conducting the main effort. This gives him a real-time picture of the battle that affects the majority of his air defense forces.

Air Defense Coordination Net

The air defense coordination net (ADCN) is an AM net used for coordination between the ADA battalion air defense coordination section (ADCS) and the battalion ABMOC. The ADCS keeps the ABMOC informed of changes in HIMAD coverage, positions, and general status of HIMAD units. The ABMOC can also keep the ADCS informed of the maneuver situation. They both can exchange information on airspace control measurcs.

Battalion A/L Net

The battalion A/L net is the primary operating net for the S1 and S4. The S3 and XO will use the A/L net to talk to the A/L section. This helps to keep the battalion command net open and provides a dedicated net to the A/L section.

REQUIRED NETS (AM/FM)

ELEMENT	DIV CMD	DIV INTEL	ADA BN CMD	ADA BN A/L NET	DEW	BDE CMD	ADA BTRY CMD	BN TF CMD	ADA PLT	CO TM
BN CDR			RT		RT	R*				
BN TOC	RT	R(T)			RT					
BN XO			RT	RT						
S2		R(T)			RT					
S3	RT		RT	R						
S1/S4			RT	RT	R					
ABMOC					RT					
BTRY CDR					R		RT	RT*		
FIRING PLT LDR					R				RT	RT
SENSOR PLT					RT		RT			
DIV A^2C^2 (MAIN)			RT		R					
DIV A^2C^2 (TAC)			RT		R					
ADCS (HIMAD LIAISON)					RT					
BDE LNO					R	RT	RT			
TF LNO					R			RT	RT	

LEGEND:

* Main Effort
R - Receives
RT - Receives and transmits.
R(T) - Receives but may switch to transmit.

External Nets

There are certain nets external to the battalion which should be monitored to maintain a coordinated effort between the battalion and division. The battalion S2 will monitor the division intelligence net to maintain an updated intelligence picture and to pass intelligence data to the division G2. The battalion S3 will operate mainly on the battalion command and division command nets. If the division is conducting a passage of lines with another division, the battalion TOC should monitor the adjacent air defense battalion command net.

ADA EARLY WARNING

Early warning at the divisional ADA battalion level must be directive in nature, but may include MSCS down to the brigade LNOs. The battalion S2 integrates long-range early warning with his ADA sensor and scout plan. The ABMOC acts as a funnel or filter at the division level to redirect early warning that is pertinent to the division.

ADA EARLY WARNING SYSTEM OPERATOR SCOUTS AND SENSORS

The **ADA** scouts and sensors are the ADA battalion's primary resource for identifying locations of enemy aircraft. The S2 employs the sensors and scouts to observe NAIs and DPs identified on the DST. Their reports will confirn or deny the S2's IPB and provide him the information necessary to update his DST. At times, not all NAIs can be covered by ADA scouts and sensors, and thus help may be needed from division. In addition, the S2 may incorporate some of the division G2's NAIs to help ascertain probable enemy actions as information is gathered and analyzed. The ADA scout and sensor platoon leader is positioned at the TOC once the scouts are employed. The sensors and scouts report aircraft information on the early warning net and appropriate battery command nets. As the ABMOC receives early warning from higher sources, the S2 may direct sensors and scouts to watch and report on specific NAIs, if only to alert them that aircraft are in the area.

LONG-RANGE EARLY WARNING

The ABMOC receives long-range early warning from the ADCS at local **HIMAD** sources over the division early warning net. Long-range early warning received at the ABMOC is in MSCS form. The ABMOC plots the targets, checks the targets against current airspace control measures, and, if necessary, deconflicts the tracks with the A^2C^2 cell at the division main CP. If the aircraft is not identified as friendly and poses a threat to the division, the ABMOC will retransmit early warning to the division. He will transmit MSCS to the brigade LNOs, and directed early warning to everyone on the division early warning net.

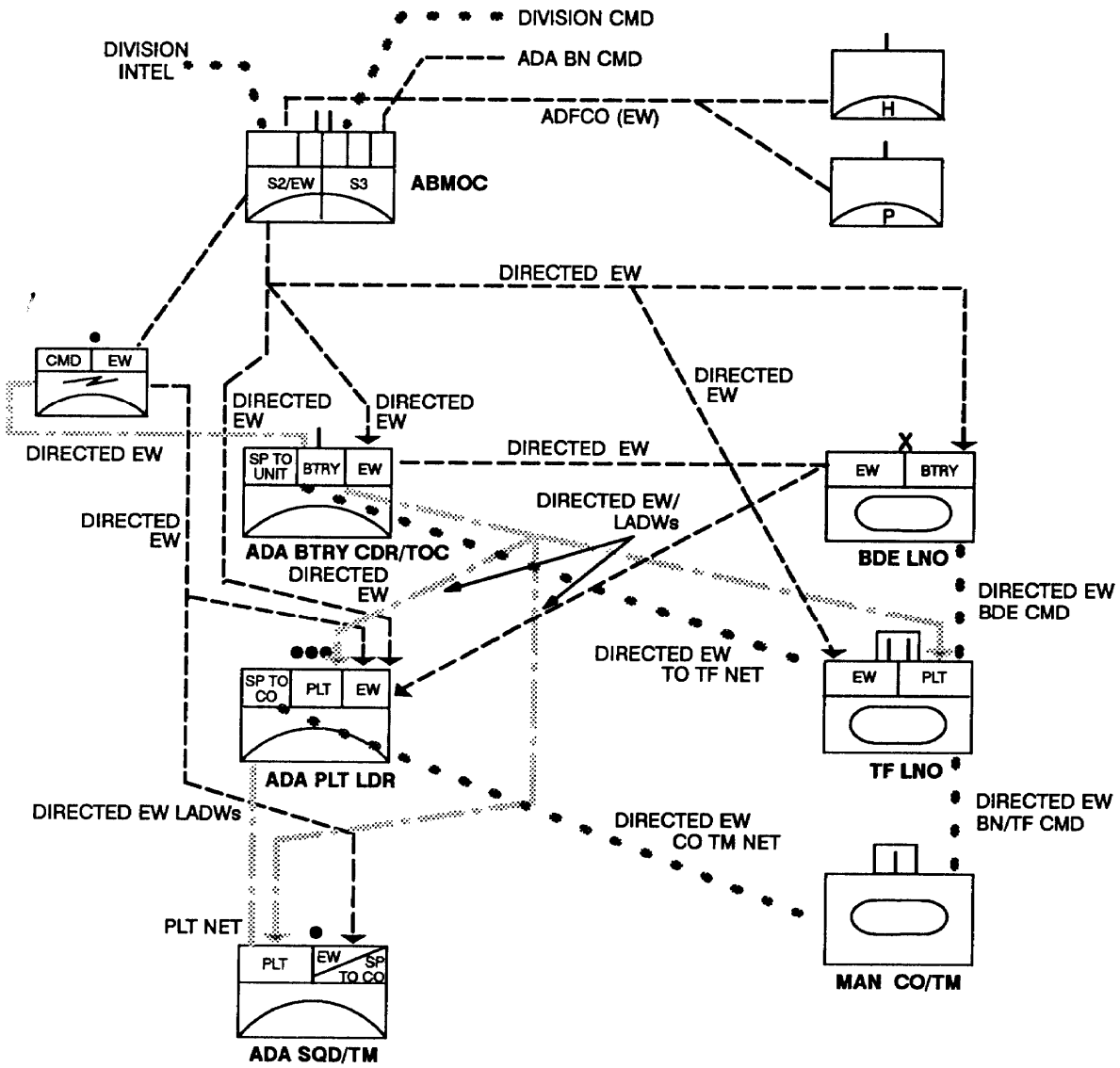
DIRECTED EARLY WARNING

Directed early warning is early warning that is directed to alert a particular unit or units or area of the battlefield. Directed early warning defines the level of warning by stating whether the aircraft are friendly or unknown, a cardinal direction, and if known, the most likely affected asset(s) within the division. For example, if an early warning source reports four enemy rotary-wing aircraft inbound from the east, and 1st Brigade is attacking along the eastern axis during a division attack, the ABMOC should report a LADW and directed early warning message: "Dynamite! Dynamite! Hinds from the east against Axis Blue!" Dynamite is the LADW that alerts the division to attack, and the response per the local SOP must be immediate.

When a threat to the division is identified, the battalion S3 will transmit a LADW and early warning on the division command net. The ADA battalion commander, forward with the division main effort, can broadcast early warning over the early warning and battery command nets to support the batteries. In addition, since he is probably in the vicinity of the brigade fighting the main effort, he will broadcast on the brigade command net. When brigade LNOs receive early warning from the ABMOC or from the ADA scouts, they will direct early warning down on the battery command nets. Battery commanders will rebroadcast early warning on appropriate platoon nets and on the maneuver battalion command net. The TF LNOs will transmit directed early warning on the platoon nets and TF command nets (see the Division Early Warning illustration on page 3-18).

Directed early warning must be quick, simple, and redundant in nature. It is imperative that all units, to include maneuver units, receive early warning, especially those units that have only minimal air defense coverage. Use of grids and MSCS at the battery and platoon level is impractical and time-consuming during a battle.

DIVISION EARLY WARNING



LEGEND:

- Early Warning
- ADA Cmd
- Maneuver Cmd

CHAPTER 4

Lodgement Operations

This chapter discusses the role of the FAAD/SHORAD ADA battalion as part of the family of air defense weapon systems in lodgement operations. It also discusses techniques and special planning considerations to conduct an expanding torrent into a nonmature theater of operations. The focus is on how to kill enemy air in support of maneuver forces during lodgement operations.

OVERVIEW

The general lodgement concepts may be applied to both contingent and mature theater operations in which a force must operate without US base support, and in which the threat is capable of attacking any point in the AO. Lodgement operations include predeployment (see Chapter 3), deployment, establishment and expansion of the lodgement, and termination (transition) phases.

THREAT CONSIDERATIONS

Either air parity or US numerical inferiority against enemy forces may exist during the initial phase of the lodgement. Threat airborne and airmobile forces represent a continuing threat to the lodgement area in the form of assaults to seize, damage, or destroy transportation systems, support activities, nuclear and chemical systems, and C^3 activities. The battalion S2 must conduct a predeployment IPB (see Chapter 3) as thoroughly as is possible so the commander can deploy the proper force package based on the threat picture.

COMMAND AND CONTROL

Air defense operations will be planned and controlled by an area air defense commander (AADC) designated by the JTF commander. The AADC establishes theater-wide rules of engagement.

Usually, the AADC will delegate operational command, less authority to establish rules of engagement, to the division commander for organic, attached, or assigned air defense units.

All forces will receive air defense warnings and weapon control status from the JFACC. Additionally, air defense communications must be dedicated, secure, and reliable with antijamming features, even though significant distances and adverse terrain may make communications difficult.

Battalion and battery commanders must be aware of the unique and complex traits of the coordination effort in lodgement operations. The constrained and structured environment adds pressure to all leaders The chance that all forces employed in the JTF have trained and worked together is remote. This demands that each person be oriented and motivated to US mission accomplishment. The battalion commander must also balance the physical security of forces between the mission and restrictive rules of engagement (ROE). This may be hard to do because the political concerns used to develop the ROE may conflict with the physical security needs of the force. Additionally, the ROE are sometimes established late, requiring flexibility on the part of ADA leaders at all levels.

Finally, the command relationships (Army, joint, and multinational) are more complex in contingency operations due to their unique nature, form, requirements, and uncommon traits of political-military concerns. There is constant tension due to the need for sustained and coordinated C^2, and a need to avoid overcommand and overcontrol. In highly sensitive situations, it is hard to have constant monitoring and remain flexible.

TACTICAL OVERVIEW

Lodgements provide a foothold from which an expanding torrent of US forces enter a theater of operations. Initial employment of air defense assets will be

CONTENTS

Page

Overview.....4-1

Deployment Phase.....4-2

Establishment/Expansion of the Lodgement. 4-2

Termination (Transition) of the Lodgement...4-4

directed to the defense of arrival airfields, seaports, facilities, transportation centers, nuclear storage and delivery facilities, C^3 activities, or supported centers and other critical assets.

ADA units must take advantage of their mobility to ensure their suwivability while giving maximum air defense protection to the defended asset. Whether heavy ADA units land by air or by sea, coordination with existing ADA forces must occur first, followed by quick movement to selected positions and becoming operational. Minute internal details must be taken care of after fire units are emplaced and communications established.

ADA may rely on liaison/coordination teams with the US Air Force for long-range early warning information until a HIMAD force is deployed. If HIMAD forces are deployed early to counter a TBM threat, then a liaison team must be established for early warning information. F/S units will be coupled with sensors, whenever feasldie. Detection and warning must be conducted continuously. Speed of attack aircraft requires that all ADA units be integrated to provide adequate warning to elements of the deployed force.

As the ADA battalion command and control structure becomes operational, they must effect liaison with other sources such as Air Force, or possibly Marine, elements for long-range early warning data, and ensure integration of F/S systems into the family of air defense weapon systems as follow-on forces arrive. Though current TOE designs do not support LNOs for contingent operations, LNOs are critical to synchronization and must be used.

DEPLOYMENT PHASE

Regardless of the adequacy of the installation deployment SOP in support of contingency operations, battalion planners must assess the threat, force protection requirements, and phased ADA deployment of assets. To do this, the ADA battalion staff must use reverse planning. The initial force package must be designed to support an expanding torrent. The requirements of the tactical operation determine the sequence, arrival time, and disposition of forces in the lodgement area. These, in turn, determine the embarkation time and order. If a forced entry is required in the area of operation, the division will organize into two echelons, an assault force and a follow-on force. ADA planning must include support to both forces.

Sequenced employment also mandates a higher level of discipline at the squad and platoon level to ensure successful air defense coverage with minimum initial leadership guidance. Deployment of a heavy division is not as rapid as the assault force. This normally places the heavy division deployment into the follow-on force role. During a sealift deployment, dispersion among the ships must be considered to prevent an entire unit from being lost or delayed if a ship is damaged or sunk.

ESTABLISHMENT/EXPANSION OF THE LODGEMENT

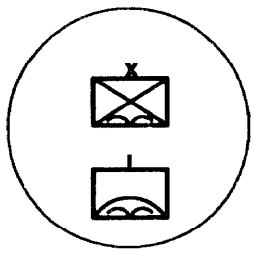
The lodgement will be established by the introduction of combat forces into the area of operations. Often these will be light or special purpose forces and they will enter the theater with their organic air defense unit (see stage one of the following illustration).

These light FAAD/SHORAD forces will perform an IPB and METT-T analysis and defend the most VW assets within the lodgement against enemy air attack. If the enemy possesses a significant TBM capability to attack the lodgement, the force commander should tailor an echelons above corps (EAC) Patriot package and ‘introduce it into the lodgement at the earliest possible moment (see stage two of the following illustration). A Hawk package may also be considered if METT-T and the IPB indicate a significant air-breathing threat. These EAC assets will be deployed with the minimum engagement capability needed to counter the threat. Since the lodgment ultimately becomes the theater logistics base (an EAC asset), the EAC ADA brigade would assume the mission of providing continuous TBM/ABT protection throughout the duration of the operation.

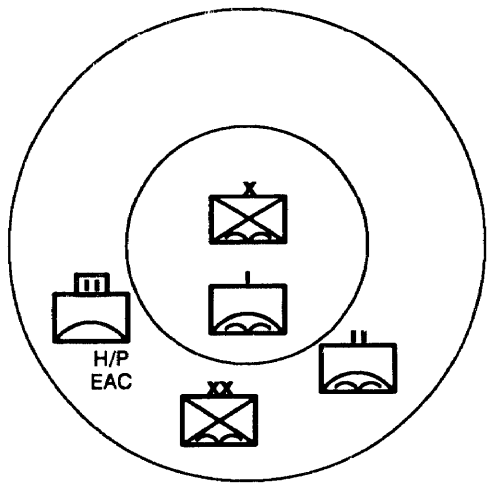
It is imperative that a JTF area air defense commander be appointed to coordinate all the air defense assets in the theater, and to coordinate with any host nation, USN, or USAF command and control facilities in theater (the command and reporting center (CRC)). If a Hawk package has not been deployed to this point, its introduction must be given serious consideration to defeat the air-breathing threat to the expanding lodgement.

As heavy forces are introduced into the lodgement, they will deploy with their organic FAAD/SHORAD battalions, and corps ADA brigade elements (see stage three of the following illustration).

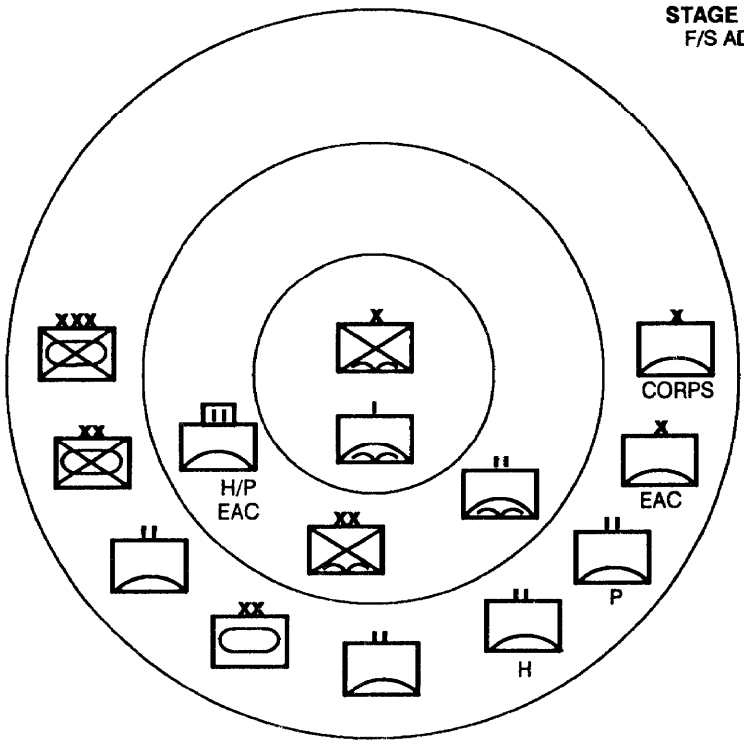
ESTABLISHMENT OF THE LODGEMENT



STAGE ONE—ESTABLISHMENT OF THE LODGEMENT BY AN AIRBORNE BRIGADE



STAGE TWO—AIRBORNE DIVISION WITH F/S ADA BATTALION AND EAC HIMAD



STAGE THREE—HEAVY FORCES ARRIVE WITH CORPS AND EAC ADA ASSETS

The corps ADA brigade becomes part of the expansion of the combat forces and must initially integrate into the EAC air defense coverage. However, as the lodgment expands, the corps' primary mission becomes protection of the division TAAs/combat forms with HIMAD assets and FAAD/SHORAD protection for corps sustainment facilities. Corps FAAD/ SHORAD forces relieve divisional ADA at critical points within the lodgement. Divisional FM/ SHORAD units will then have the responsibility for providing a balanced, mutually supporting defense of divisional assembly areas, but their defense must be overmatched by corps ADA brigade HIMAD forces.

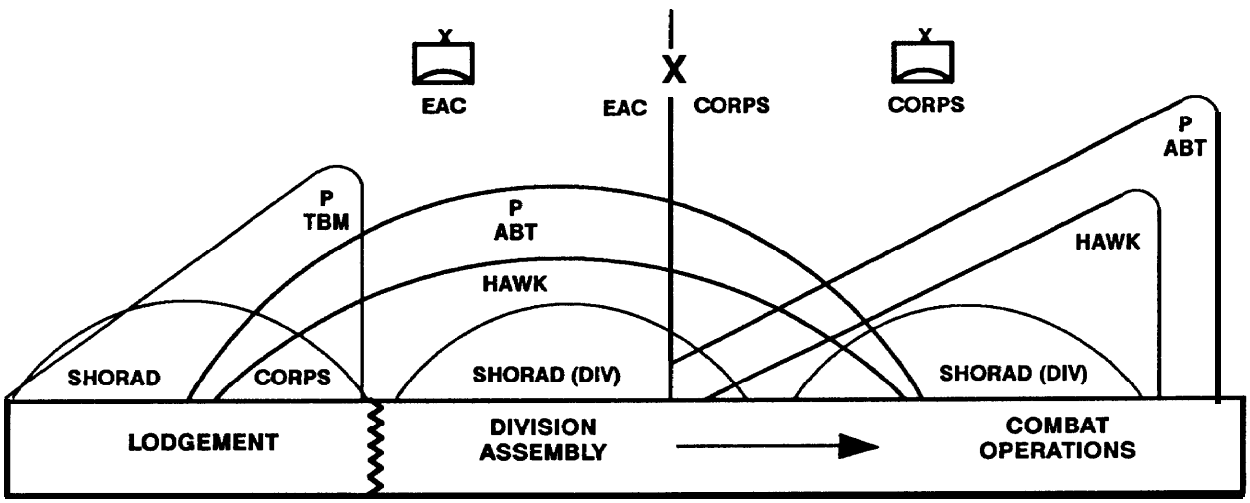
As the corps expands the lodgement and begins combat operations against the enemy, the corps ADA brigade must orchestrate the continued aircraft and TBMdefense of the lodgement while pushing HIMAD forward to overwatch maneuver forces in the combat zone (as shown by the Stage Four—Expanding Torrent of ADA illustration). This may require the deployment of additional HIMAD forces into the theater to meet all the requirements.

The air defense of a lodgement is an expanding torrent of ADA coverage employing all the members of the family of ADA weapons. The ADA planner must be sensitive to airlift restrictions, CSS imperatives, and host nation support/agreements needed (for example, forklifts, warehouses, and contracting), but the general template just described will provide the agility necessary to meet all potential enemy courses of action.

TERMINATION (TRANSITION) OF THE LODGEMENT

The nonmature, or contingency theater normally entails only short-duration combat operations (for example, Operation Just Cause). If the objectives of forces deployed in a nonmature theater are not accomplished in a limited time frame, the theater may transition into a mature theater of operations. The lodgement will consequently transition to support sustained, mature theater tactical operations. ADA forces must prepare to protect an expanding AO during the transition phase. As the mature theater develops, added forces and C3 elements will need ADA protection. During the termination of an operation, the withdrawal of air defense assets must be phased to ensure that adequate coverage is provided for ail elements of the joint task force. ADA units may be among the last to withdraw based on METT-T.

STAGE FOUR – EXPANDING TORRENT OF ADA



CHAPTER 5

Offense

This chapter describes how the heavy division ADA battalion commander will allocate his forces to protect the division during offensive operations. It also explains the specific threat and considerations for ADA employment to defeat the attack helicopter regiment in all types of offensive operations.

ADA IN THE OFFENSE

Offensive missions, by nature, are characterized by maneuver. When maneuver units are moving they are more vulnerable to both enemy fixed- and rotary-wing aircraft. They are easily located and identified by enemy aircraft and are able to maintain much less cover and concealment. ADA is very critical in t he offense. ADA systems supporting offensive operations must be able to maneuver and react with the division elements likely to be attacked by enemy aviation.

MOVEMENT TO CONTACT

A movement to contact is conducted to gain or reestablish contact with the enemy. The key characteristic of movement to contact is the lack of movement to contact intelligence each side has. The purpose is to develop the situation early and provide an advantage prior to engagement. The movement to contact is characterized by decentralized control and rapid commitment of forces from the march. A movement to contact often results in a meeting engagement. Each side attempts to seize the initiative or overwhelm the other and force it into the defensive.

The movement to contact ends when contact is made or the objective is occupied without enemy contact. When the force encounters an enemy force, quick decisions must be made resulting in rapid movement to retain the initiative,

DIVISION AND BRIGADE

The division and brigade, in a movement to contact, designate subordinate units as a covering force; the advance, flank, and rear guards; and the main body. Normally, movement is conducted in multiple columns. Subordinate combat units use the formations that best enable them to accomplish their mission.

Covering Force

The covering force develops the enemy situation and prevents unnecessary delay of the main body. It operates well forward of the main body and is usually comprised of the division cavalry squadron or a battalion task force.

Advance Guard

The advance guard is normally furnished and controlled by the leading element of the main body. Its purpose is to secure the uninterrupted movement of the main body.

Flank and Rear Guards

Hank and rear guards protect the main body from ground observation and surprise attacks. They must be strong enough to defeat minor enemy forces or to delay a strong enemy attack long enough to allow the main body to deploy.

Main Body

The main body contains the bulk of the division's combat power. It is organized and deployed to be capable of hasty attack or defense on short notice.

C O N T E N T S

Page

ADA in the Offense.....5-1
Movement to Contact.....5-1
Meeting Engagement.....5-2
Hasty and Deliberate Attacks.....5-4
Exploitation.....5-7
Pursuit.....5-8

THE THREAT

In a movement to contact, the threat uses their helicopters as a mobile antitank reserve or counterattack force. They may use some attack helicopters forward for additional reconnaissance. The threat eomrnander, however, will commit his attack helicopter unit when US forces achieve a successful penetration. The attack helicopter unit will attack reserve units moving laterally on the battlefield. They will look for armored units maneuvering to conduct an envelopment or flanking attack. At the same time, the threat commander will commit his own armored reserve to destroy the penetrating force. Fixed-wing aircraft may be launched early to conduct armed reconnaissance. Once the movement to contact has developed into a meeting engagement, fixed-wing aircraft will be commited against our division rear area to extend the depth of fires, and help open the corridor for the enemy's second echelon.

AIR DEFENSE

The ADA battalion comrnmder must weight the main effort of the division. The division main effort in a movement to contact will be the brigade or task force which is most likely to be committed in an enveloping or flanking maneuver to strike the enemy in the flank. This will generally not be one of the forward brigades, but the follow-on brigade. Since the lateral movement may be to the left or the right, the ADA battalion commander must read the battlefield. He must analyze the terrain throughout the entire route of march, and look for key indicators as to what the enemy is doing. The battalion S2, brigade LNO, and division ADA A^2C^2 element will keep him informed continuously of changes in intelligence.

The ADA battalion commander will weight the main effort with Vulcans and Stingers. He will use Chaparrals or Avengers to protect critical division rear area assets (see C/V Battalion With Division Movement to Contact illustration).

The Chaparral/Vulcan Battalion

The Chaparral/Vulcan battalion commander will weight the division's main effort with Vulcans and HHB Stingers. Stinger heavy teams can weight the main effort and be used by the battalion commander to adjust coverage, if necessary. Chaparrals will defend critical division rear assets (for example, C^2, logistics, and field artillery assets). Assets from corps should be requested to support critical assets deep in the division rear area such as the DISCOM.

The Vulcan/Stinger Battalion

The Vulcan/Stinger battalion will weight the main effort with at least two batteries of Vulcan/Stinger. The battalion should use Stinger heavy teams to adjust coverage, if the main effort shifts. The advance guard, flank and rear guards, and revering force will receive minimal threat aircraft; probably a squadron at the most.

Stingers in organic vehicles should be allocated to defend critical division rear assets such as C^2, logistics facilities, and field artillery. The DSA needs at least a platoon of Stinger teams, unless corps provides reinforcing units.

The Vulcan/Stinger/Avenger Battalion

The Vulcan/Stinger/Avenger battalion must weight the division main effort with Vulcans and Stingers. Avenger squads and Stinger teams will be allocated to protect C^2, logistics facilities, and field artillery units. The DSA should be allocated a platoon of Stingers or Avengers. If corps provides enough reinforcing fires to protect the DS the Stingers and Avengers can be pushed forward to protect MSRs and long-range field artillery.

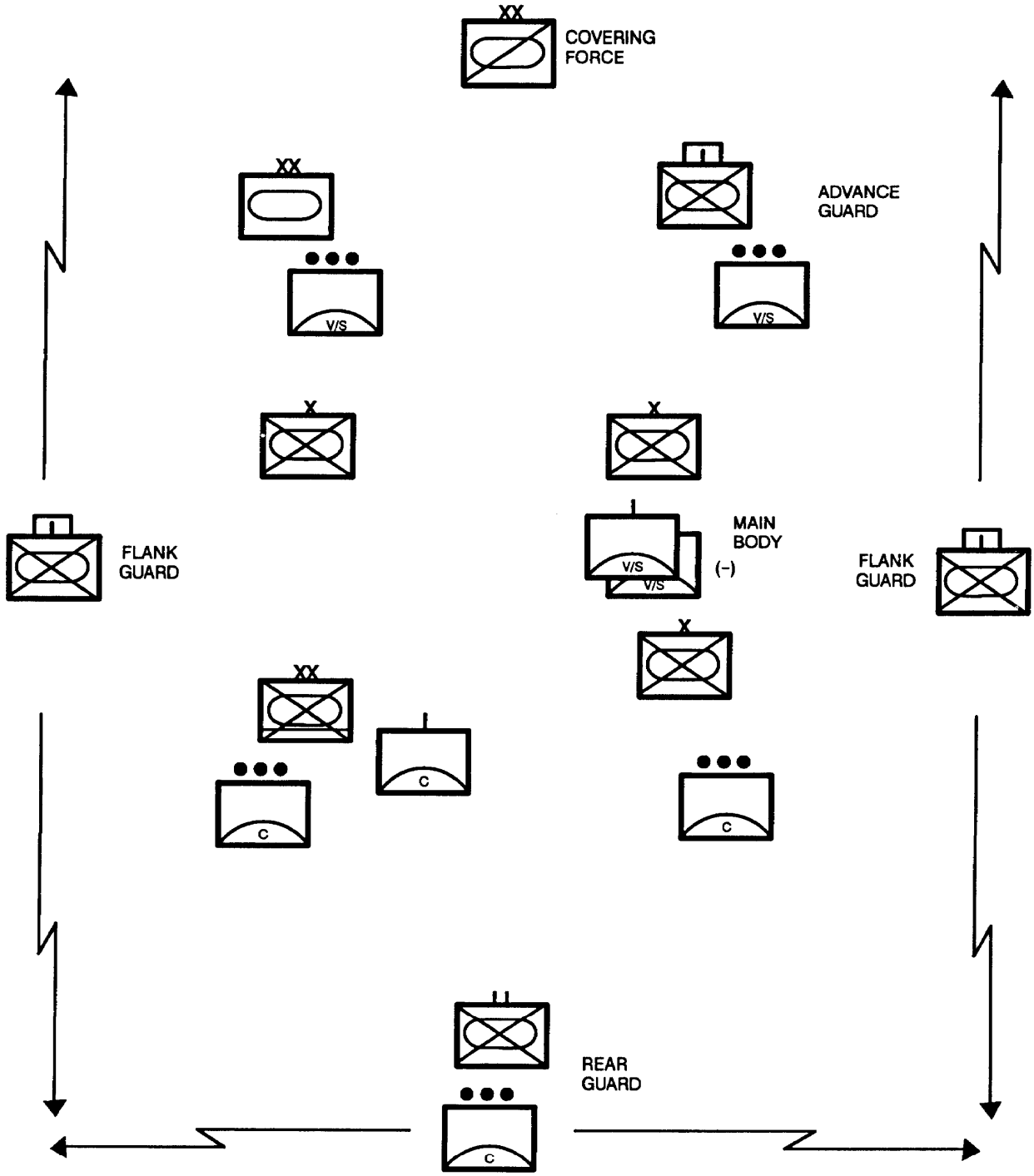
The Stinger Battalion

The Stinger battalion needs to weight the division's main effort. The main effort needs to be weighted with at last four platoons. One of the determining factors is the number of armored vehicles available. If there are not enough armored vehicles to provide massed fires with the main effort, organic vehicles can be used in a leapfrogging, overwatch technique behind the maneuver forces. Stinger teams must be allocated to defend C^2, logistics facilities, and field artillery. If corps units are not reinforcing, a Stinger platoon must be allocated to the DSA.

MEETING ENGAGEMENT

A meeting engagement will often result from a movement to contact. Our doctrine tells us meeting engagements happen by chance; threat doctrine states they are inevitable. Meeting engagements may occur due to ineffective reconnaissance; when both forces are aware of each other's presence and decide to attack each other without delay or when one force attempts hasty defense and the other attempts to prevent it.

C/V BATTALION WITH DIVISION MOVEMENT TO CONTACT



SUCCESS IN A MEETING ENGAGEMENT

Success in a meeting engagement depends on effective execution once contact has been made. Success is enhanced by the force which seizes the initiative, moves rapidly, attacks violently, and maintains momentum by correlating all available combat power and combat multipliers. The maneuver commander must decide quickly whether to defend, bypass or attack.

AIR DEFENSE IN A MEETING ENGAGEMENT

The planning for the meeting engagement must be conducted during the movement to contact planning phase. Through the IPB process, the division G2 must determine possible COAs the enemy may take throughout the movement to contact route of march. His IPB will identify likely areas where an enemy force may want to fight, whether in attack or defense. The ADA battalion S2 will then template likely air avenues of approach and aerial ambush sites that counter each of the enemy's COAs.

The ADA battalion commander and S3 must then develop a plan that allows for agility and flexibility to effectively counter each enemy COA. Once contact is made and a meeting engagement ensues, the ADA commander must decide quickly, using his decision support template, how best to defeat the air threat.

Chaparral/Vulcan Battalion

A Chaparral/Vulcan commander will position his Vulcans and Stingers with the main effort maneuver force in expectation of enemy rotary-wing attack. Chaparrals will be positioned to protect key logistics facilities, command and control nodes, and lines of communications. Field artillery units are vulnerable due to the need to constantly move forward to new sites to support the maneuver units. Stingers and or Chaparrals are effective for protecting these field artillery units. A Chaparral battery or platoon(s) can be used effectively to overwatch a fixing force if one is employed once contact has been made. Vulcans and Stingers maneuvering with ground forces must be cautious not to become involved in the direct fire fight while moving forward.

Vulcan/Stinger Battalion

Once contact has been made, the Vulcan/Stinger commander must determine the division commander's main effort. This will be the force designated to make some lateral maneuver on the battlefield. At least two batteries of Vulcan/Stinger will maneuver to support the main effort. Stinger teams can provide overmatching fires for fixing forces and critical rear area assets. If the divisional battalion has received reinforcing air defense from corps, the ADA battalion commander can use more of his organic firepower to defend maneuver units forward. This allows the commander increased agility forward while maintaining depth throughout the battlefield.

Vulcan/Stinger/Avenger Battalion

The Vulcan/Stinger/Avenger battalion commander will also employ two Gun/Stinger batteries with the main effort maneuver units. Stinger teams can be employed to overwatch fixing forces and critical rear area assets. Avengers should be employed to protect critical rear assets such as command and control facilities, logistics facilities, field artillery assets, and maintain lines of communications. Avengers can also be used to overwatch fixing forces.

Stinger Battalion

Upon contact with the enemy, the Stinger battalion commander must quickly determine the threat and the division commander's main effort. He must then determine when and where the preponderance of enemy aircraft will attack. If the battalion has dedicated SHORAD fighting vehicles, he can then shift his coverage to defeat the air threat. If he does not have Stinger heavy, he can reorient fires for most of his units and concentrate fires in the direction of the attack. Stinger must be careful not to get caught up in the direct fire fight. Once the close-in battle has begun, teams need to assume overwatch positions. If Stinger heavy teams are available, they need to maneuver with the force conducting the main attack.

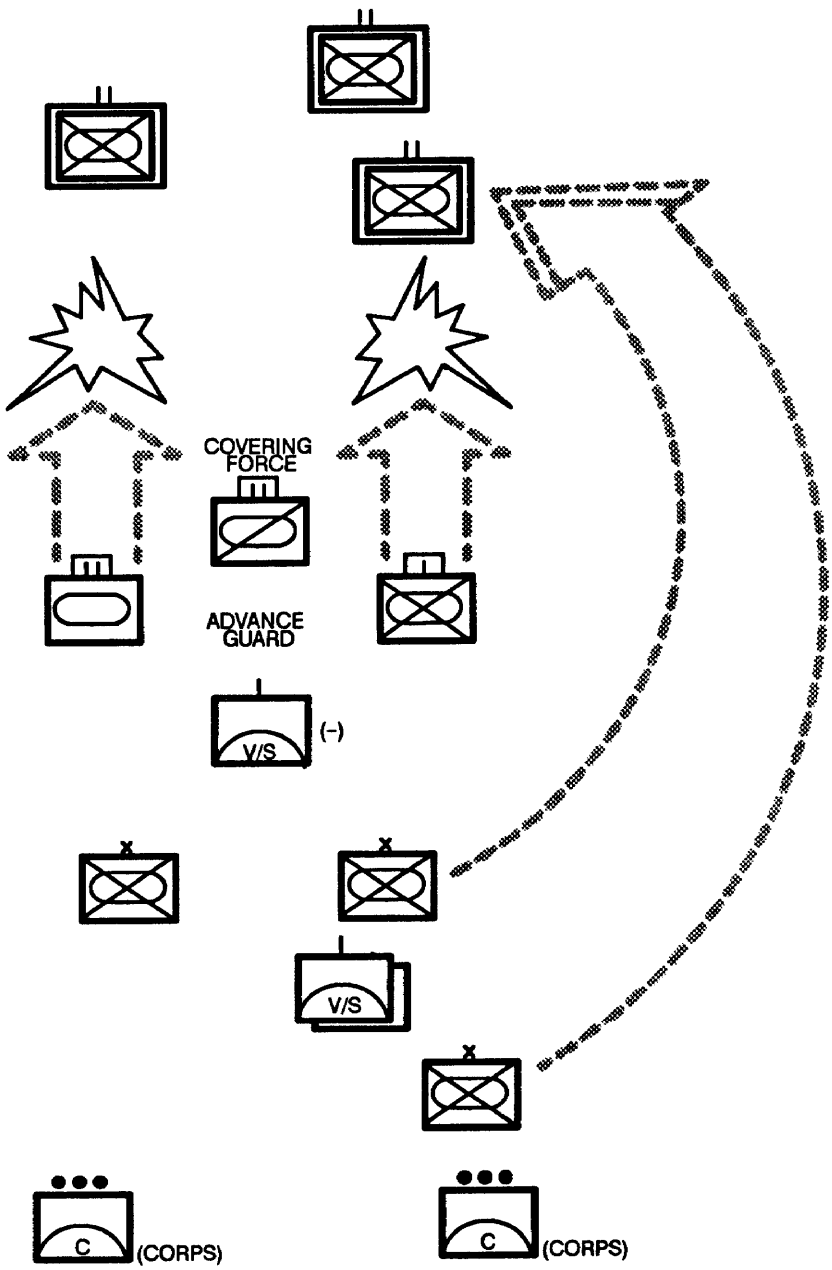
HASTY AND DELIBERATE ATTACKS

The opportunity to attack will arise. It may be created by effective planning and execution or simply result from successful defense or a movement to contact. Regardless, the attack must be quick and synchronized. There are basically two types of attack; hasty and deliberate. In a hasty attack, the commander must move quickly to gain the advantage. Speed and violence can overcome lack of preparation. A deliberate attack is much more thoroughly planned and prepared. It is generally required to conduct a deliberate attack against a defender that is well organized.

HASTY ATTACK

Hasty attacks are not based on detailed planning, but the commander must anticipate and plan for them as much as possible. They are conducted to catch the enemy off-guard. The maneuver commander an use assets available and synchronize all available support and combat multipliers provided they can be committed without significant delay. Hasty attack plans are disseminated through fragmentary orders (FRAGOS). The use of SOPS and battle drills are critical for effective execution of hasty attacks (see V/S Battalion Hasty Attack illustration).

V/S BATTALION HASTY ATTACK

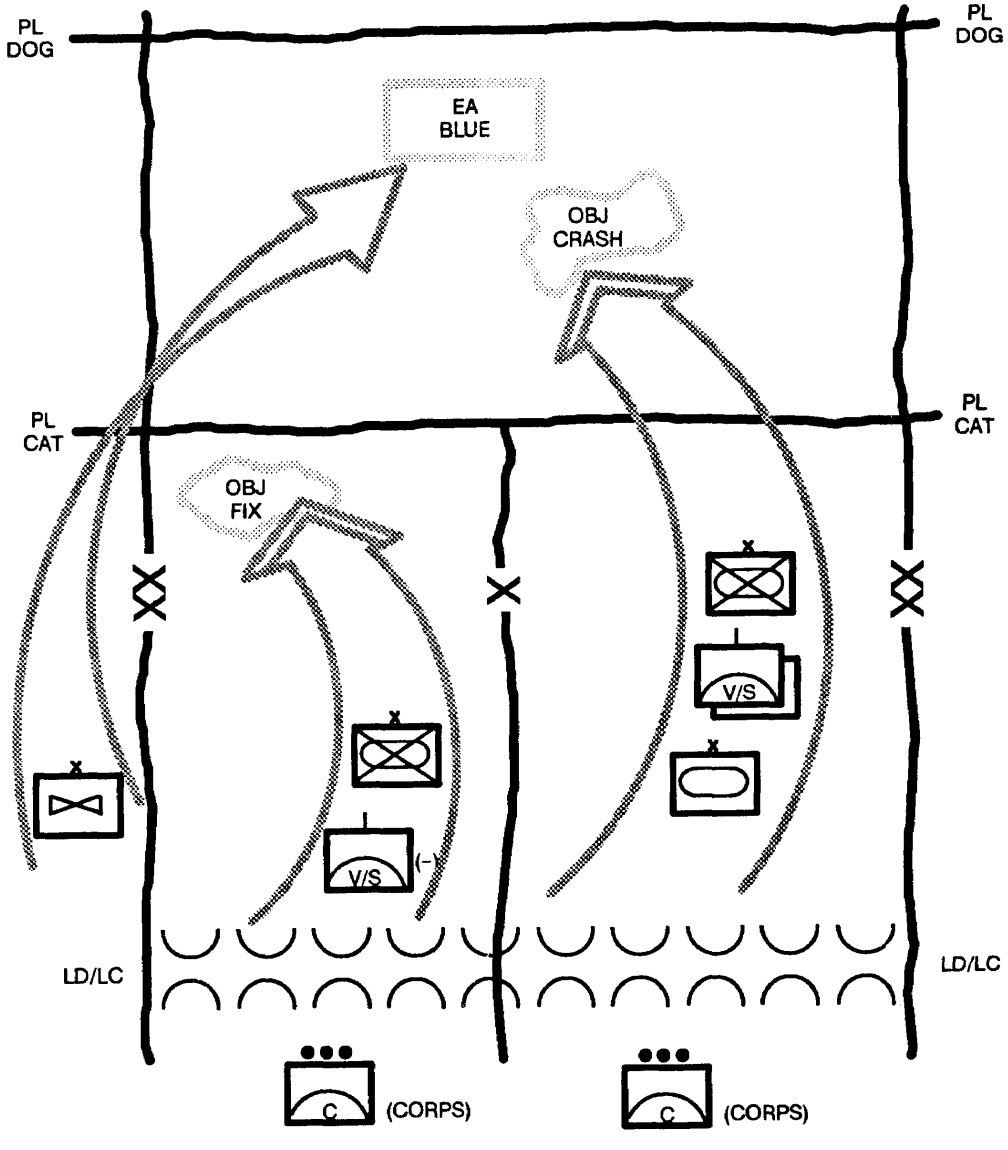


DELIBERATE ATTACK

Deliberate attacks are based on thorough IPB and well-developed and rehearsed plans. The attacking force must be organized in depth to allow flexibility during the attack (see V/S Battalion Deliberate Attack illustration). Reserves are maintained to support lead units or exploit success. Rehearsals are critical to the effective accomplishment of the mission.

The major differences between hasty and deliberate attacks are the amount of time available for planning and preparation, and knowledge of the enemy. The form of maneuver used to conduct the attack is based on the same factors in both the hasty and deliberate attacks. The IPB is conducted in the same manner, though less time is available in preparation for the hasty attack. Since more time is taken to plan and prepare for a deliberate attack, the enemy has more time to prepare his defense and identify targets that are critical to the division's attack. The enemy also has more time to identify targets for his aviation assets.

V/S BATTALION DELIBERATE ATTACK



THE THREAT

The threat division commander, if supported with aviation assets, may commit small rotary-wing forces (pairs or flights of four) in his security zone to disrupt friendly forward maneuver elements. They will probably be employed in an aerial ambush role. The enemy commander may commit fixed-wing assets to interdict lines of communications, command and control facilities, and reserve forces following the main attack. As the division begins penetration of the final defensive belt, the attack helicopter unit may be committed as a mobile antitank reserve. Their targets may include follow-on forces, command and control, and artillery. Fixed-wing assets may be used to strike command and control facilities, logistics facilities, and interdict lines of communications.

AIR DEFENSE OF HASTY AND DELIBERATE ATTACKS

The ADA battalion staff must always be prepared for hasty attacks. They must plan ahead and anticipate. The ADA battalion commander must weight the main attack, with the bulk of his air defense firepower focused at the point when and where the enemy will commit the majority of his aircraft (the attack helicopter unit). The ADA scheme of maneuver must also correlate enough command and control, logistics, and early warning assets to support the division main effort. The ADA commander must see the battlefield through the eyes and ears of his staff, LNOs, battery commanders, and through maneuver communications nets. Thus, he can remain flexible enough to react to changes in the situation quickly and intelligently.

The ADA scheme of maneuver must include contingencies for continuing the attack, possible enemy counterattacks, and air defense of the divisional forces once the maneuver objective(s) is achieved. One unique contingency the battalion commander must plan for is denial of enemy air assault landing zones in the division rear area once the attack has begun. He must plan his defense in depth to do this. He then protects sustainment of the battle for the division and himself. If available, he should request assistance from the corps ADA brigade commander to supply forces to protect the division rear against the threat. This allows him to mass his forces forward at the critical place and time.

Chaparral/Vulcan Battalion

In a Chaparral/Vulcan battalion, Vulcans with Stinger gunners aboard are the most effective weapon systems to employ with the maneuver forces. Chaparrals and HMMWV-mounted Stinger teams are effective defending rear assets. In certain instances, Chaparrals may be employed forward to overwatch the reserve forces until they are committed. Chaparrals may also be pre-positioned at critical choke points.

Vulcan/Stinger Battalion

The Vulcan/Stinger battalion is employed the same way as the Chaparral/Vulcan battalion. Stinger teams must defend rear assets, while Vulcan/Stinger systems defend the maneuver forces forward. The battalion commander can enhance the firepower and mobility of his rear area air defense by requesting Chaparral support from corps.

Vulcan/Stinger/Avenger Battalion

A Vulcan/Stinger/Avenger battalion will employ Vulcans with Stingers forward with the main effort. Avengers will protect rear critical assets. They can be effective protecting field artillery batteries due to the increased need for mobility as the batteries move forward to support the attack. Avengers may also be employed forward somewhat to overwatch reserve forces until they are committed. Stinger teams should be assigned protection of rear area static assets.

EXPLOITATION

An exploitation takes advantage of gains to followup success in battle. The purpose is to destroy the enemy's ability to develop an effective defense or to conduct a controlled withdrawal in the path of attacking forces. It may follow either a hasty or deliberate attack. The division can exploit its own success, attack as the exploiting force for a larger unit, or follow and support another exploiting force.

The division can have the mission of securing objectives deep in the enemy rear area, severing lines of communications, destroying enemy forces, and denying escape routes to an encircled force. The exploiting force must have mobility and balanced firepower.

An order to exploit will probably come as a warning order and immediately follow the initial offensive mission. Decentralized execution is characteristic of the exploitation. However, the commander must not allow overextension of the command.

THE THREAT

Since an exploitation is basically the follow-up of successful offensive operations, the enemy may perceive it is a thrcat to its rear area. To defeat the penetration and thus the possible exploitation of success the enemy comrnander will commit significant air assets to attack the exploiting forces. Attack helicopter assets may mass in conjunction with ground reserves to defeat the attack. The helicopters may be massed to the flanks and in front of the exploiting armored forces. Fixed-wing assets may attack the follow-on maneuver for- command and control nodes and attempt to sever the attacker's lines of communications and supply lines.

AIR DEFENSE OF AN EXPLOITING FORCE

ADA forces protecting an exploiting division or brigade must be as mobile as the maneuver forces. Less mobile forces are used to keep open the division's lines of communications and protect key logistics facilities and command and control centers.

Chaparral/Vulcan Battalion

The Chaparral/Vulcan battalion commander must empty Vulcans with Stinger with the exploiting force due to the mobility of the Vulcan. Chaparrals and Stinger teams should be employed to defend the key command and control and logistics facilities as well as the supply lines as they become extended. Chaparrals are effective defending field artillery units as they bound forward to support the exploiting forces.

Vulcan/Stinger Battalion

The Vulcan/Stinger battalion will employ Vulcans with Stingers with the maneuvering exploitation forces. Stingers are used in a static role to defend key rear area assets. Effective command and control of all assets is required due to the constant moving of assets such as TOCs, support areas, and field artillery units (See the V/S Battalion With Division During an Exploitation illustration.

Vulcan/Stinger/Avenger Battalion

A Wean/Stinger/Avenger battalion can fight the same as a Chaparral/Vulcan battalion. Vulcans with Stingers maneuver with the exploiting forces. Avengers and Stingers will protect rear area static critical assets. With its capabilities the Avenger maybe pushed forward enough to provide some overwatch against the enemy's attack helicopter unit, allowing the Vulcans to continue into the exploitation phase. Caution is required on the part of the Avenger commander to preclude risking the weapon systems in the direct fire fight.

Stinger Battalion

The Stinger battalion commander must protect the exploiting force with Stingers able to maneuver with them. Stinger heavy is best suited to maneuver with them. The exploiting force will probably be the division reserve. Stinger teams should be massed with the reserve before they are committed as the exploiting force.

PURSUIT

The purpose of pursuit is to complete the destruction of the enemy while it is in the process of withdrawal. The enemy force itself is the main objective. The pursuit usually consists of direct pressure and enveloping forces. The direct pressure force is designed to prevent enemy disengagement and to inflict maximum casualties. The form must not allow the enemy to break contact. The mission of the enveloping force is to penetrate to the rear of the enemy and prevent his escape and destroy him between the direct pressure and enveloping forces. If the enveloping forces cannot get into the rear of the enemy force, it maybe given the mission to attack the flank of the retreating main body. The division can conduct a pursuit to support the corps or have one of its brigades conduct a pursuit internal to division operations.

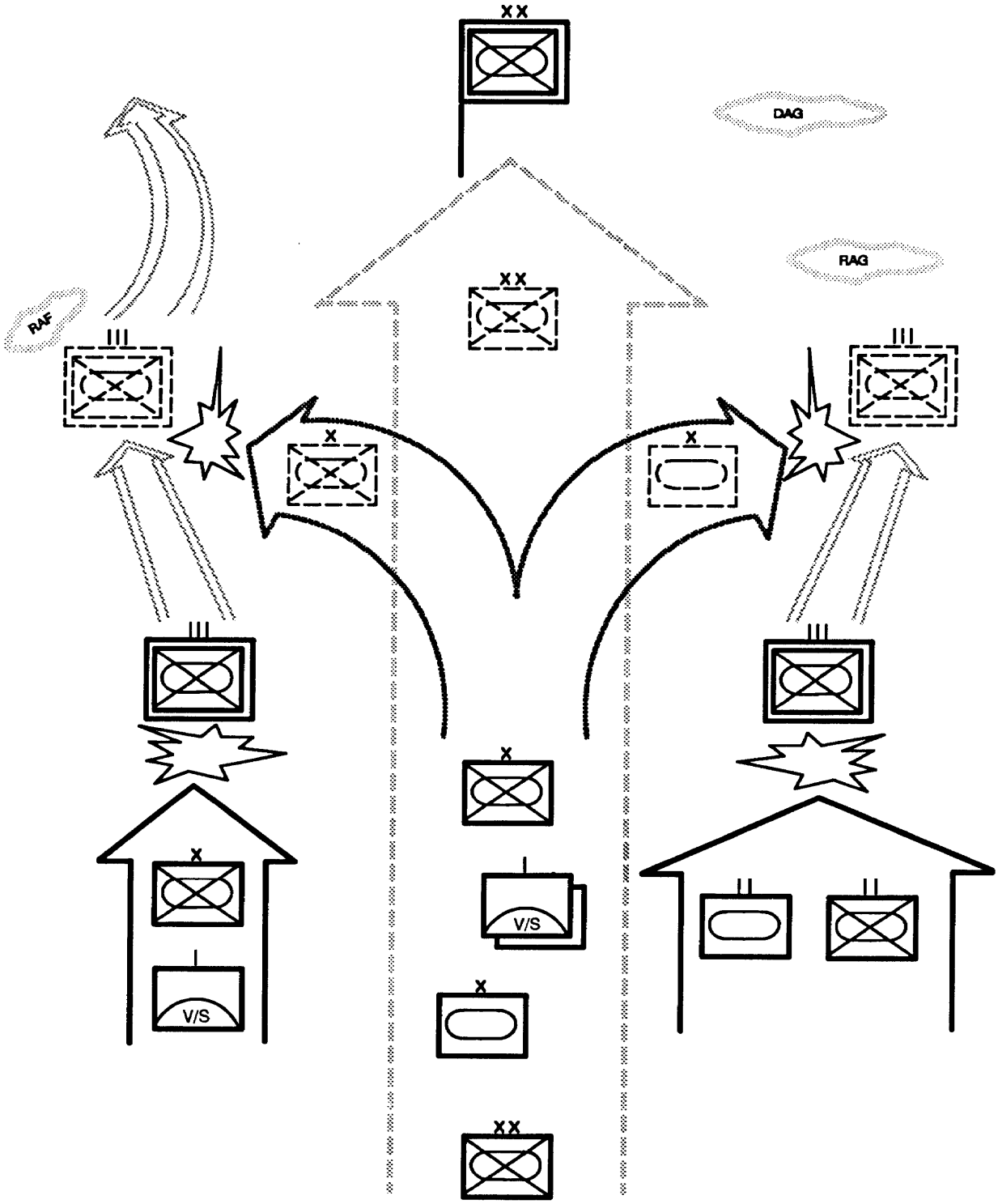
THE THREAT

In withdrawl, the enemy will designate a covering force which attempts to portray a normal defensive posture. The enemy commander designates a rear guard, normally a reinforced second echelon unit. Aft er the main body has passed through the rear guard, and the covering force has disengaged, the rear guard fights a delaying action using all assets available to slow the attacker and allow the main body to reestablish the defense elsewhere. One of those assets will be attack helicopters. Acting as mobile antitank reserves, they will use standoff munitions in ambush type roles to protect the flanks and rear of the withdrawing forces.

AIR DEFENSE DURING A PURSUIT

As in the exploitation, air defense systems deployed with the enveloping forces must be as mobile as the defended asset. Since penetration occurs deep into enemy territory, the same cation as in a movement to contact must be adhered to.

V/S BATTALION WITH DIVISION DURING AN EXPLOITATION



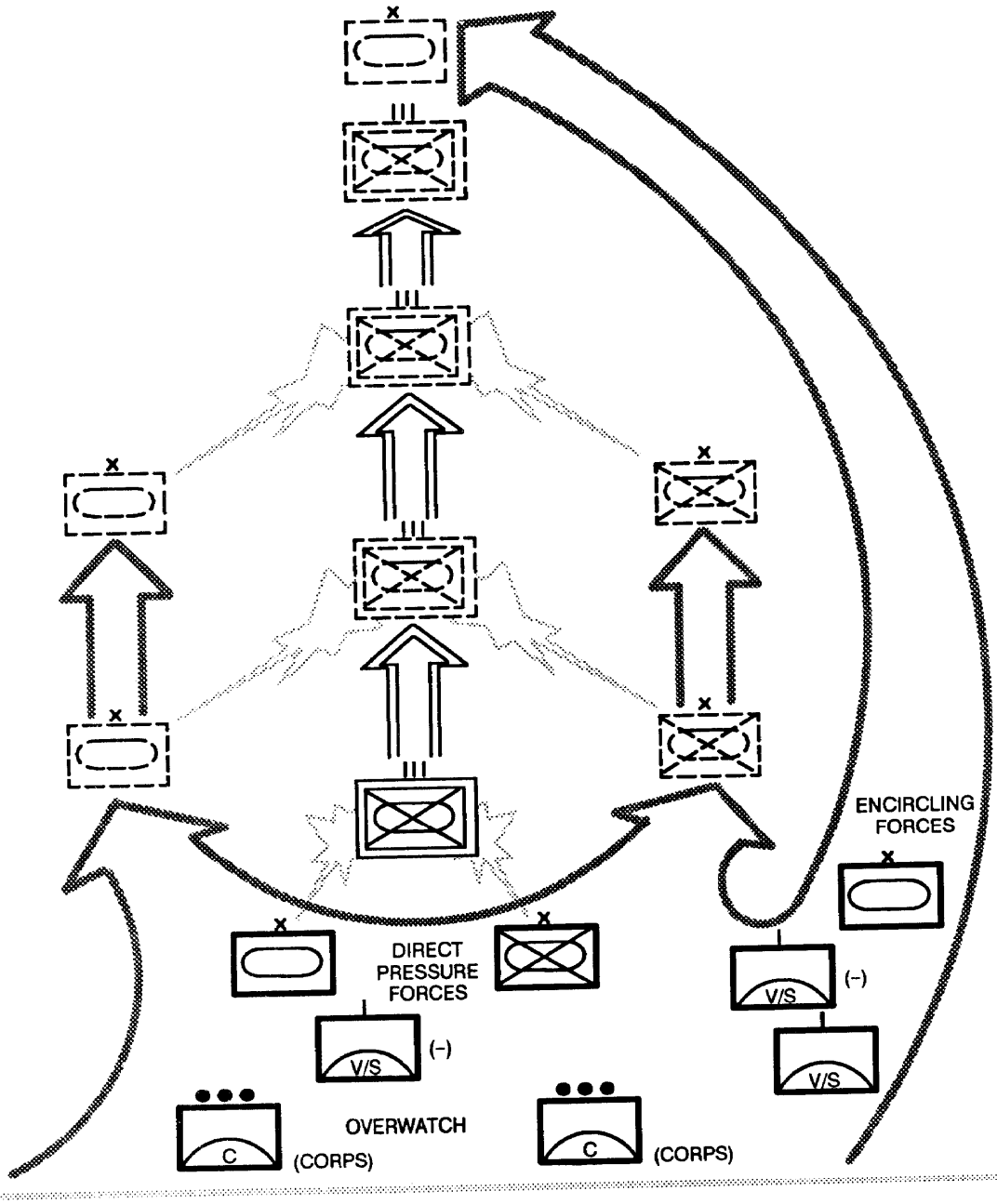
Vulcan/Chaparral Commanders

Vulcan/Chaparral commanders will use Vulcans with Stinger with the enveloping forces. They should travel to the flanks, but not outside of, the maneuvering forces. Chaparrals and Stingers can effectively protect the direct pressure forces with overwatching fires, as well as critical rear area assets.

Vulcan/Stinger Battalion

The Vulcan/Stinger battalion will employ Vulcans with Stingers with the enveloping forces Stinger sections will protect the direct pressure forces, critical command and control nodes, logistics facilities, and supply lines (See the V/S Battalion Division Pursuit illustration).

V/S BATTALION DIVISION PURSUIT



CHAPTER 6

Defense/Retrograde

This chapter describes how the heavy division ADA battalion commander will allocate his forces to defend the division during defensive operations. It also explains the specific threat and considerations for ADA employment to defeat the attack helicopter units in all types of defensive operations.

DEFENSE OVERVIEW

Defensive operations are designed to retain ground, gain time, or deny the enemy access to an area. History has taught us the advantage is usually to the defender in terms of knowing the ground he is fighting on, but should be tempered with the thought that defense cannot defeat the enemy and ensure victory.

CHARACTERISTICS OF DEFENSIVE OPERATIONS

The fundamentals of any defensive operation include—

• Preparation. The defender should take advantage of knowing the terrain and using time to prepare as thoroughly as possible.

• Disruption. The defender gains time by disrupting the operational tempo of the attacking force.

• Concentration. The defender develops a decisive force ratio at the critical time and place to defeat the enemy (synchronization).

• Flexibility. Though the attacker has the advantage of deciding when and where the attack will take place, the defender must be flexible enough to counter the attack and regain the initiative.

FUNDAMENTALS OF THE DEFENSE

The division commander must understand the enemy he is fighting, his capabilities, and limitations. He must see the battlefield, by knowing where the enemy is, how he is organized, where he is going, and what his strength is. The commander concentrates his forces at the vital time and place to defeat the enemy's main attack. He must use all assets available and fight as a combined arms team. Lastly, he must seize the initiative by exploiting the advantages of a defender.

DEFENSIVE PATTERNS

The general methods of defending are mobile and area defense. Mobile defenses are designed to destroy the attacker by allowing the enemy to maneuver into a position in which he is vulnerable to counterattack or envelopment by the defender's reserve(s). Area defense is designed to defend and retain terrain and destroy the attacker by concentrated fires. Most defending commanders, however, will use a combination of both types.

DEFENSIVE FRAMEWORK

At all levels, the defense is comprised of five complementary elements.

Security Force Operations

Security force operations take place to the front and flanks of the defending force. The security force may be designed to only provide early warning to the commander, as in a screening force. It may also be designed to act as a covering force, with the mission to destroy the enemy's lead reconnaissance forces or leading maneuver forces, and gain time for the commander to react.

Main Battle Area Operations

In the main battle area (MBA), the major defensive fight takes place. The commander's scheme of maneuver is designed to delay, disrupt, separate, and destroy the bulk of the enemy's attacking force. The maneuver commander designates a main effort and concentrates his assets in support of the main effort.

CONTENTS

Page

Defense Overview.....6-1

Planning Considerations.....6-2

Air Defense of a Division in the Defense...6-2

Retrograde Operations.....6-4

Reserve Operations

Reserve operations are designed to regain the initiative by forcing the enemy to fight at the time and place the defender wants to fight.

Deep Operations

Deep operations forward of the FLOT are designed to disrupt the enemy's movement before the main fight, destroy high-value targets important to the enemy, and disrupt his command and control.

Rear Area Operations

Rear area operations protect command and control, maintain sustainment, and protect fire support and reserves.

PLANNING CONSIDERATIONS

Planning for the defense is based on METT-T The division commander's decision support template will result in a scheme of maneuver that synchronizes all five elements of the defensive framework and encompasses the tenets of AirLand Battle doctrine. Planning must occur as early as possible to allow maximum preparation time by subordinate units. The commander must develop a strong counterreconnaissance plan to deny the enemy commander vital information. The overall scheme of maneuver must include input from each of the seven battlefield operating systems (BOSS) during the planning process. Once the basic plan is established, reconnaissance and rehearsals are key to an effective defense. The commander's staff must also war-game and plan for any contingent.

AIR DEFENSE OF A DIVISION IN THE DEFENSE

The ADA battalion S2 must develop a thorough air IPB based on the division's G2 IPB. He must also be involved in development of the division intelligence collection plan. Some of the priority intelligence requirements (PIRs) he should consider include the enemy's air-associated assets such as FAAs, FARPs/ RARPs, FOBs, and command and control facilities such as FACs, CP, GCI, and concentration of aerial activity.

The ADA scheme of maneuver must support the division scheme of maneuver. The ADA commander's plan must address air defense coverage during the preparation phase as well as during the battle itself. His early warning effort should complement the early warning coverage provided by HIMAD units behind, or in, the division rear area. As in the offense, the ADA battalion commander needs to mass enough forces at the vital place and time to defeat the enemy's attack helicopter units. To do so, he must request support from the corps ADA brigade to provide defense to the division rear area.

The plan needs to address air defense of the covering force, the main battle area, reserves, and division rear area. Division air defense cannot directly fight the division's deep operations, but contributes to it by templating and designating high-payoff targets that are vital to the enemy's use of aviation.

Depending on the size and the mission of the covering force, the ADA plan may allocate some air defense to the covering force. If the covering force's mission is to destroy first-echelon battalions of the lead regiments, an active air defense force should be allocated, probably Stinger or Vulcan/ Stinger. If the covering force is merely a screening force providing information, overmatching fires from air defense systems farther back may suffice.

The bulk of air defense will be allocated to reserve forces, command and control and logistics facilities, and fire support units. If the division is defending against the enemy main attack, air defense risks will be taken in the division rear area to achieve the decisive force ratio needed to defeat the impending attack helicopter units. If the division is defending against a supporting attack more air defense can be allocated to static assets in the division rear. The ADA plan must be flexible enough, however, to quickly mass against the attack helicopter unit, should the enemy's main effort shift and occur in the division sector.

The ADA scheme of maneuver must include the agility to quickly transition to the attack, and the ADA battalion staff must plan for these contingencies beforehand.

CHAPARRAL/VULCAN BATTALION

The Chaparral/Vulcan battalion commander will mass his Vulcan assets with the reserve force to protect it and arrive at the critical place and time to defeat the attack helicopter unit. Chaparrals will be deployed to protect division rear assets. Chaparral can also be effective overmatching the reserve brigade while in the assembly area. **A** Vulcan battery maybe allocated to the brigade defending against the main attack, while a

Stinger section may be all that is allocated to the brigade defending against the supporting attack.

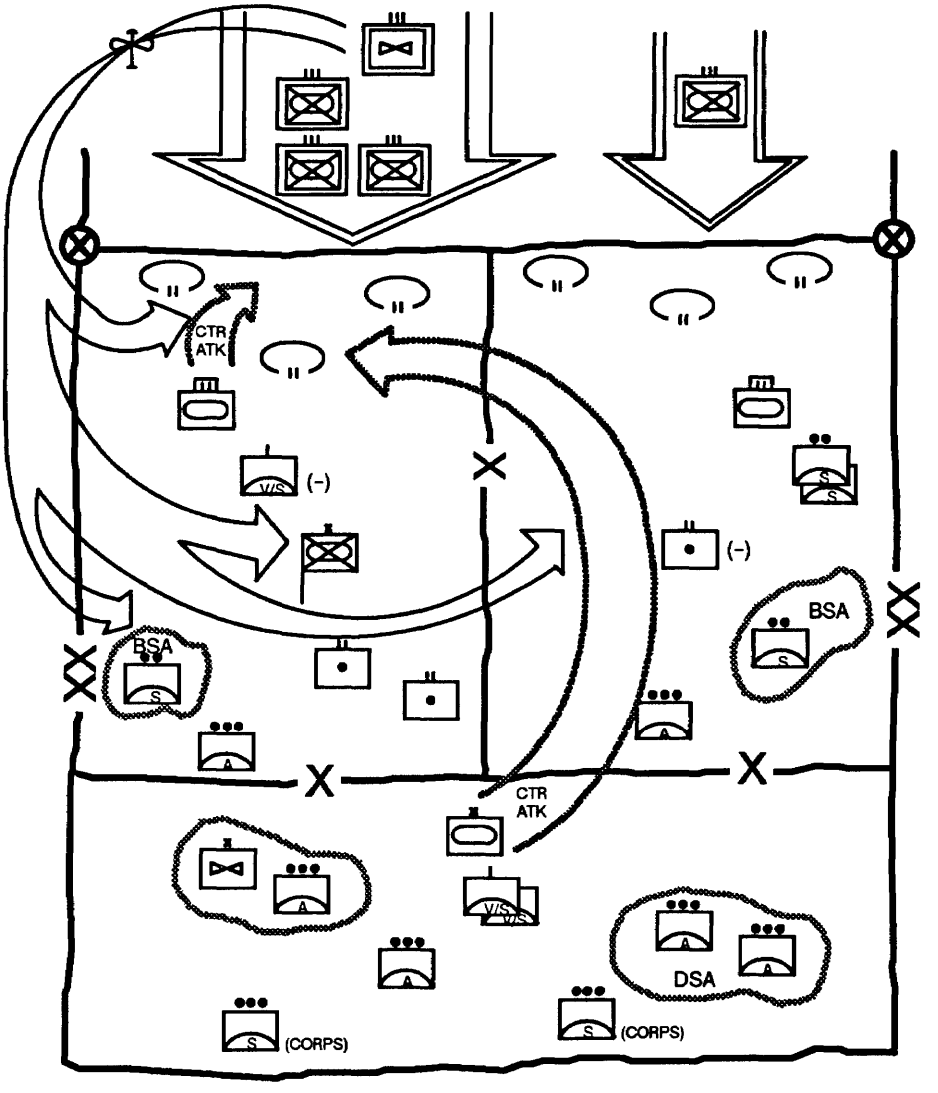
VULCAN/STINGER BATTALION

The Vulan/Stinger battalion is deployed the same way as the Chaparral/Vulcan battalion. Vulcans with Stingers will mass with the reserve or the division main effort. A battery of Vulcan/Stinger can be allocated to the brigade receiving the main attack and a Stinger section to the brigade defending against the supporting attack.

VULCAN/STINGER/AVENGER BATTALION

The Vulcan/Stinger/Avenger battalion commander will mass his Vulcans and Stingers with the division reserve force(s) (see V/S/A Battalion-Defense in Sector illustration). The reserve, when committed, will receive the brunt of the attack helicopter unit's attack. Stinger and Avenger can protect against the threat to rear area critical assets. Avengers can be deployed to overwatch the reserve force in its assembly area and during its initial movement. They must be careful not to get caught up in the close-in battle (direct fire fight).

V/S/A BATTALION—DEFENSE IN SECTOR



STINGER BATTALION

The Stinger battalion is effective in the defense due to its ability to provide its own cover and concealment. Stinger teams will construct team fighting positions. Heavy Stinger or Stinger under armor is most effective with reserve forces as they maneuver to counterattack. Stinger teams can also be pre-positioned along planned counterattack routes. As with other type battalions, the Stinger battalion commander must mass his air defense where the attack helicopter unit will most likely attack.

RETROGRADE OPERATIONS

Retrograde operations are conducted to economize forces, maintain the freedom to maneuver, or to avoid decisive combat. Divisions use retrograde operations to gain time, draw the enemy into a trap, disengage, shorten lines of communications, or eliminate exposed flanks. The three types of retrograde operations are delay, withdrawal, and retirement.

CONSIDERATIONS

The following are some considerations that leaders need to pay attention to when conducting retrograde operations.

Leadership and Morale

Soldiers may perceive a move to the rear as a defeat. The challenge of leaders is to inform the soldiers as to their role in the overall operation and how it will help destroy the enemy. Leaders must be present to maintain the soldier's confidence in their leadership.

Surveillance and Reconnaissance

As combat power is echeloned to the rear, the need for reconnaissance increases. Air defense early warning assets must maintain vigilance to prevent enemy fixed-wing attacks or massed attack helicopter ambushes. The enemy will attempt interruption by use of air assault forces.

Mobility

Mobility for air defense forces must be maintained. Retrograde operations are fluid in nature and air defense assets must maintain the agility to adjust the coverage throughout the operation.

DELAY AND WITHDRAWAL OPERATIONS

Delay and withdrawal operations are the two main types of retrograde operations.

Delay Operations

The intent of delay operations is to trade space for time, inflict maximum damage on the enemy, and avoid decisive engagement. Delays consist of a variety of subordinate unit missions ranging from attacking and conducting ambushes to defending and conducting feints. The delay buys time to allow something else to happen, such as allowing reinforcements to concentrate. The division may delay for the corps, or have one brigade delay for the division (see the V/S Battalion With Division During Delay Mission illustration).

Withdrawal Operations

In the withdraw all or a portion of the division disengages from the enemy and withdraws in an organized manner. Withdrawals are either assisted or unassisted. During assisted withdrawals the division provides its own covering force (see the (V/S/A Battalion During a Division Withdrawal illustration, page 6-6).

AIR DEFENSE OF DELAY AND WITHDRAWAL OPERATIONS

In a delay mission, air defense must remain forward to defend maneuver forces moving to the rear. Since contact is still maintained, air defense systems should deploy slightly to the rear and flanks but not outside of the delaying force. When defending the forward maneuver units in a withdrawal operation, Vulcans need to travel with the units as they are breaking contact. Again, they need to deploy to the flanks, but not outside of the withdrawing force. Chaparral, Stinger, and Avenger systems are best controlled by a preplanned system of "leapfrog" positions. Request for support from corps to help protect critical areas such as river crossings should be made to allow for maximum combat power forward.

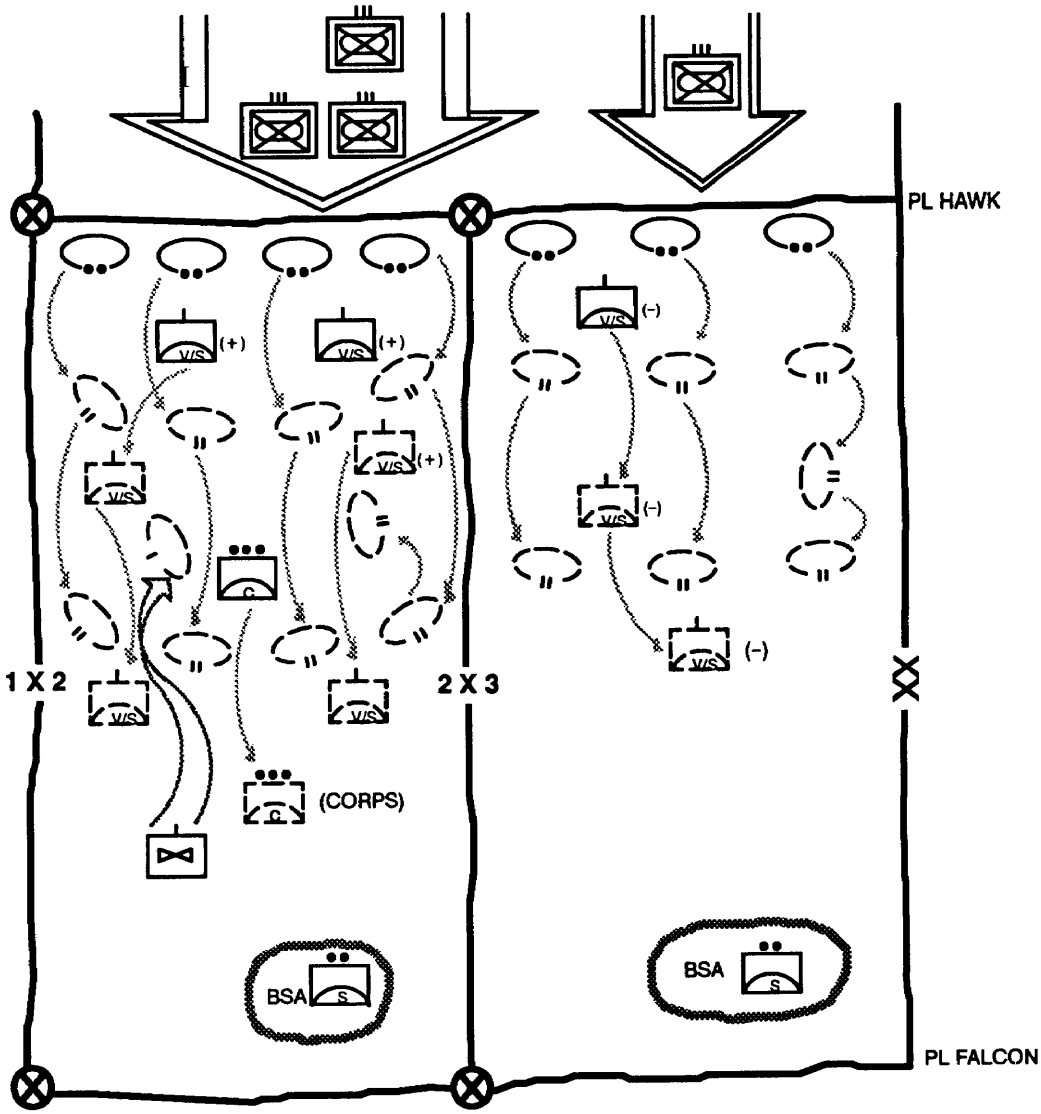
Chaparral/Vulcan Battalion

A Chaparral/Vulcan battalion needs to maintain air defense coverage forward in protecting the maneuver forces in the vicinity of the suspected enemy main attack. Vulcans are the best for this role due to their mobility. Chaparrals and Stingers should be used to defend choke points behind delaying/withdrawing units and defend against enemy air assault and attack helicopter ambush sites.

Vulcan/Stinger Battalion

The Vulcan/Stinger battalion will use assets the same as a Chaparral/Vulcan battalion. Stinger teams must be used throughout the depth of the division area to defend delaying or withdrawing units in templated aerial ambush sites.

V/S BATTALION WITH DIVISION DURING DELAY MISSION



Vulan/Stinger/Avenger Battalion

The Vulcan/Stinger/Avenger battalion will defend with Vulcans and Stingers forward with maneuver units. Stingers and Avengers should be deployed to cover choke points templated aerial ambush sites, and air assault landing zones.

Stinger Battalion

Stinger heavy or Stinger under armor should be allocated to units still in contact. Stinger teams in organic wheeled vehicles should be pre-positioned to protect units passing through choke points, traveling in convoys, and passing near templated enemy LZs. Positive command and control is critical to ensure pre-psitioned Stinger teams are not left behind.

RETIREMENTS

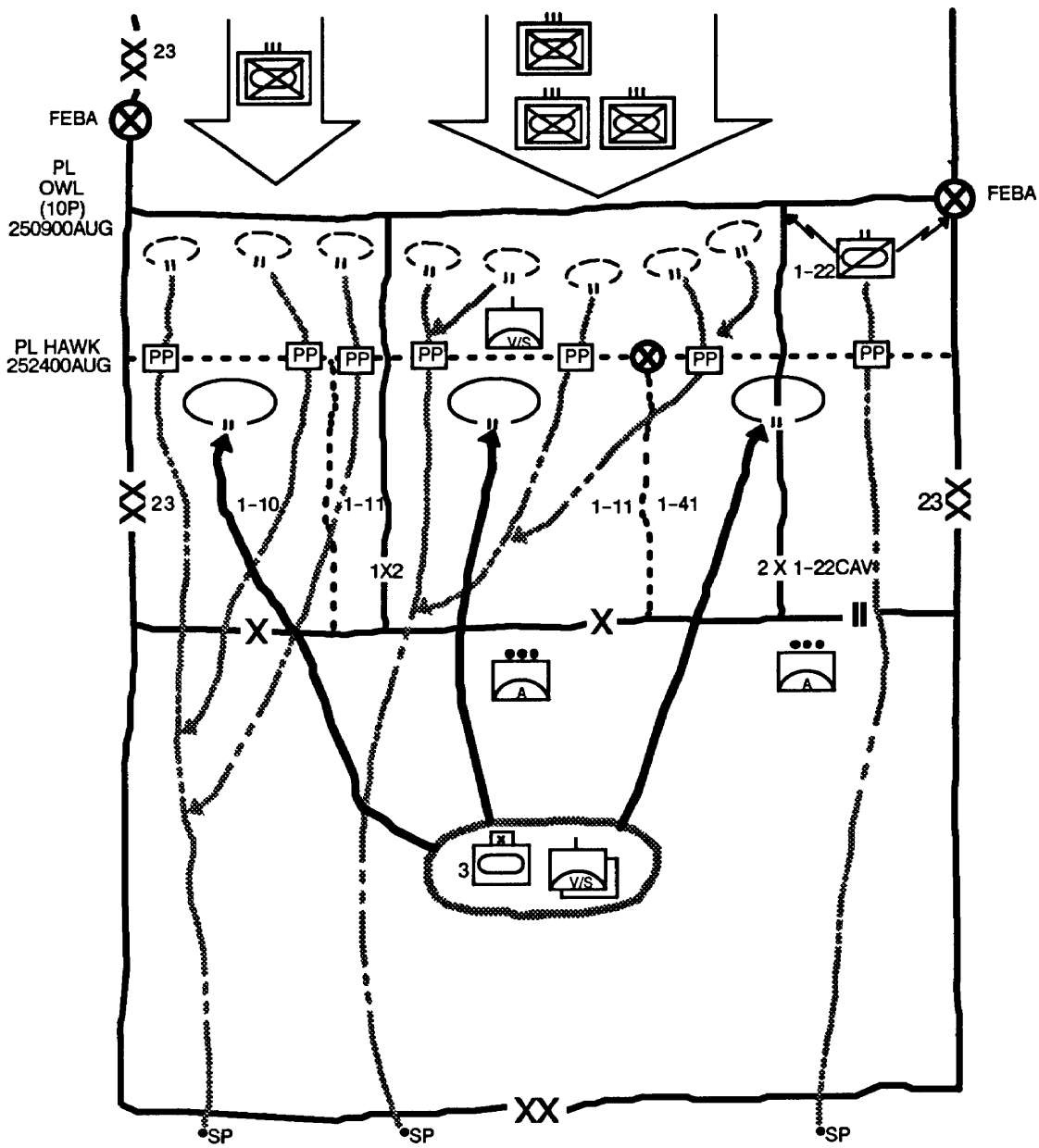
A retirement is an orderly move to the rear by an element not in contact with the enemy. The division conducts a tactical or administrative move to the rear along

multiple routes Security is essential. Advance, flank, and rear guards are employed (see C/V Battalion-Retirement Operation illustration). A division in retirement remains a target for enemy aircraft especially fixed-wing. Units travel in tactical column or in convoy and are thus an inviting target for enemy interdiction aircraft.

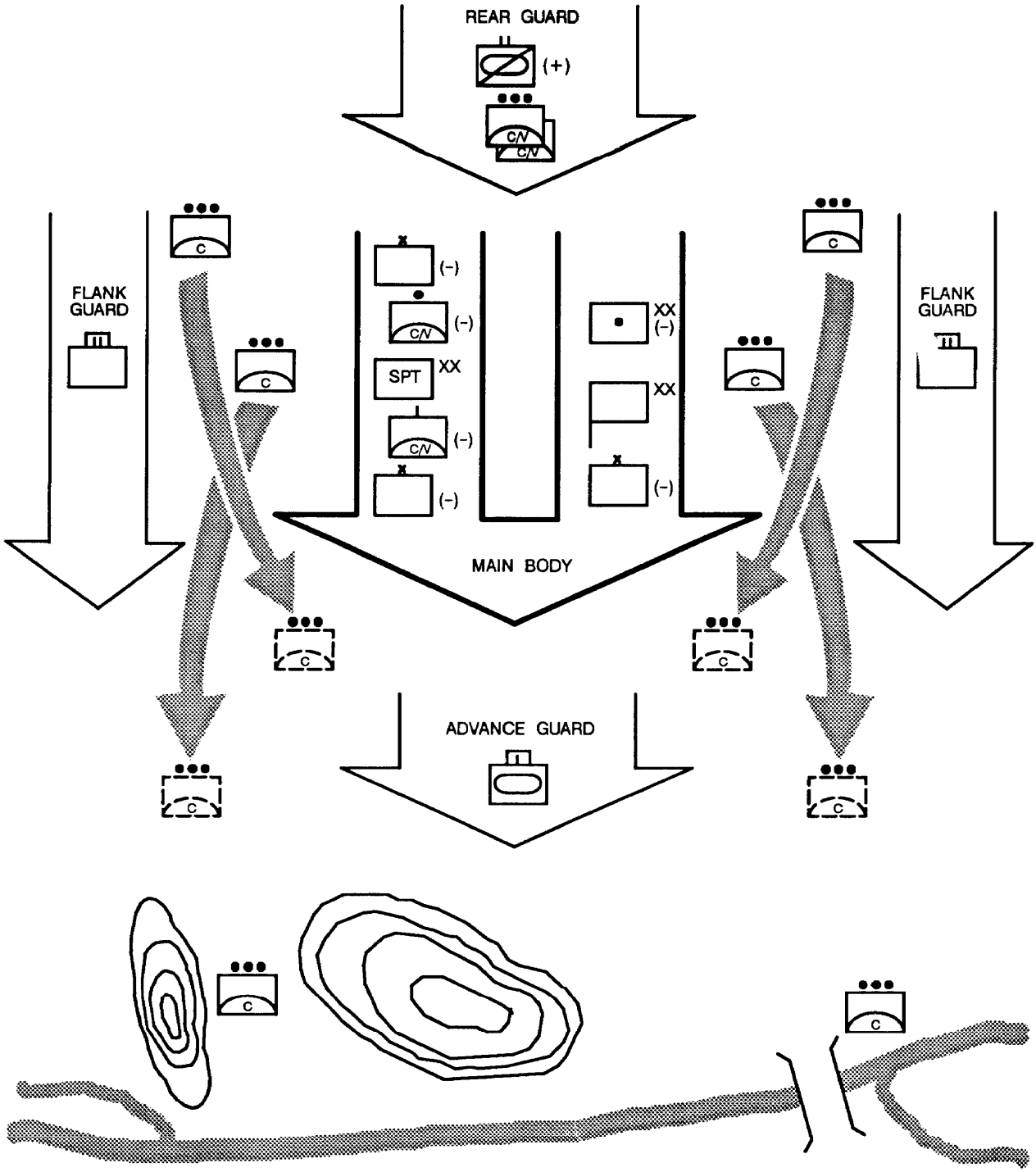
AIR DEFENSE OF RETIREMENTS

Since retiring units travel in tactical roadmarches or administrative convoys, air defense is divided between convoy integration and pre-positioned fire units.

V/S/A BATTALION DURING A DIVISION WITHDRAWAL



C/V BATTALION—RETIREMENT OPERATION



Chaparral/Vulcan Battalion

Chaparral/Vulcan units integrate Vulcans with Stingers into the columns of the maneuver units. HMMWV-mounted Stingers and Chaparral systems are best suited pre-positioned at choke points or along vulnerable points in the route of march. Coverage can be weighted to the flanks at templated aerial ambush sites.

Vulcan/Stinger Battalion

The Vulcan/Stinger battalion will deploy its assets in the same manner as the Chaparral/Vulcan battalion.

Vulcan/Stinger/Avenger Battalion

The Vulcan/Stinger/Avenger battalion has an added advantage in that Avengers can also be integrated into the columns due to their shoot-on-the-move capability. Pre-positioning at choke points and other critical areas such as river crossings is still important.

Stinger Battalion

The Stinger battalion commander must employ a combination of pre-positioned and integrated Stinger teams Stinger platoons mounted in their organic wheeled vehicles should be pre-positioned as much as possible. Stinger heavy should be integrated into the march column of the maneuver units.

CHAPTER 7

Combat Service Support

This chapter discusses how the ADA battalion supports its ADA batteries. It examines the tie-into command and support relationships that the battalion commander must consider when task organizing. It also covers resupply for each class of supply but with a distinct ADA bias to ensure support to ADA battalion assets. The chapter focuses on planning and execution in the combat service support of the battalion. It briefly covers maintenance and refers to the platoon FMs for most maintenance operations.

S1 SECTION

The ADA battalion S1 and S4 assist the battery commanders by anticipating and planning for CSS requirements. The S1 officer has primary staff responsibility for providing personnel services for the battalion. The S1 must also be knowledgeable of S4 responsibilities. During combat operation, the S 1 concentrates on four maior task

- Casualty reporting.
- Strength accountability.
- Replacement operations.
- Monitoring S4 activities and assisting as necessary.

The S1 also coordinates with the S3 to determine priorities for personnel replacement. He coordinates with the staff, special staff, and commanders to monitor the effectiveness of the personnel replacement system. The effectiveness is measured by how well the system supports the commander's need for flexibility during combat. The most common indicators of effectiveness are—

- Crew proficient (matching the MOS to the weapon).
- Unit cohesion and integrity in spite of casualties.
- Positive morale indicators (for example, identification with unit, motivation, resolve, aggressiveness, and confidence in leaders).
- Low incidents of uncontrolled combat stress.

S4 SECTION

The S4 section requisitions, stores, turns in, and distributes supplies to supply sections. The S4 also turns in captured supplies and equipment. The section is supervised by the S4 officer, normally a captain, who is assisted by the battalion supply sergeant. The S4 officer has primary staff responsibility for the supply, transportation, and field service functions of the battalion. He must also be knowledgeable in S1 responsibilities. In combat, the S4 concentrates his efforts on seven classes of supply: Classes I, II, III, IV, V, VII, and IX (see the Classes of Supply illustration descriptions). The S4 coordinates the requision, receipt, and delivery of Classes I, III, and V. The supply section is responsible for requisition, receipt, and delivery of Classes II, IV, and VII. Class VIII is normally coordinated through medical channels. Additionally, the S4 officer monitors S1 activities and assists as necessary.

C O N T E N T S

Page

S1 Section.....7-1
S4 Section.....7-1
DISCOM.....7-2
Supplying the ADA Battaion.....7-3
LOGPAC Operations.....7-8
Maintenance Operations.....7-9
Field Services.....7-11
Reconstitution.....7-14

DISCOM

The division support command (see the Division Support Command illustration below) is the support brigade organic to the division base. It has the responsibility to provide division level CSS to all organic and attached elements of the division.

FORWARD SUPPORT BATTALION

One forward support battalion (FSB) (see FSB illustration) supports each maneuver brigade within the division. The FSB has a supply company which handles all classes of supply less engineer construction material and Class VIII. The maintenance company provides direct support maintenance for that equipment organic to the supported brigade along with limited evacuation. The medical company provides health services to the supported brigade along with supply Class VIII, as required.

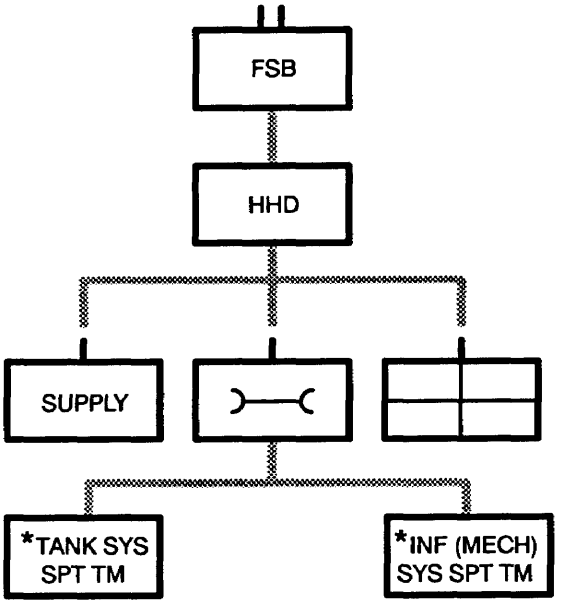
MAIN SUPPORT BATTALION

The main support battalion (MSB) provides division level CSS for divisional and as necessary, nondivisional units loated in the division support area. The MSB also supports the FSBs. The MSB consists of the units shown in the MSB illustration.

ORGANIZATION FOR COMBAT

The MSB is located in the division support area (DSA) and the FSBs are located in their respective brigade support areas (BSAs). These areas are sited to assist CSS support of the maneuver elements. The BSA is normally 15 to 20 kilometers behind the FEBA to protect it from indirect artillery fire.

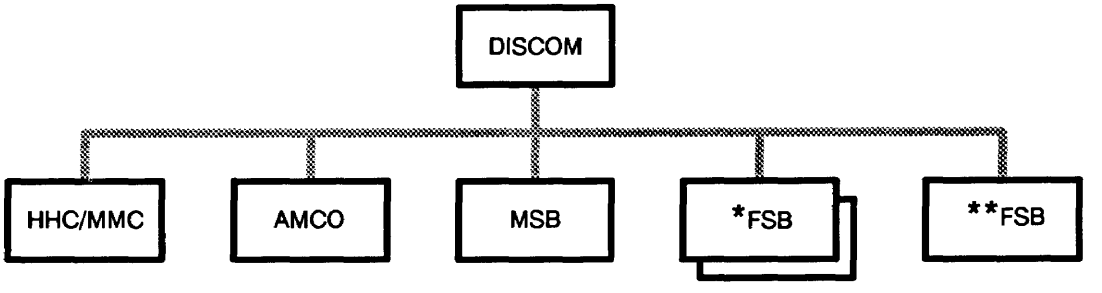
FORWARD SUPPORT BATTALION



LEGEND:

*NUMBER AND TYPE OF TEAMS ARE BASED ON THE NUMBER AND TYPE OF MANEUVER BATTALIONS ATTACHED TO THE SUPPORTED BRIGADE.

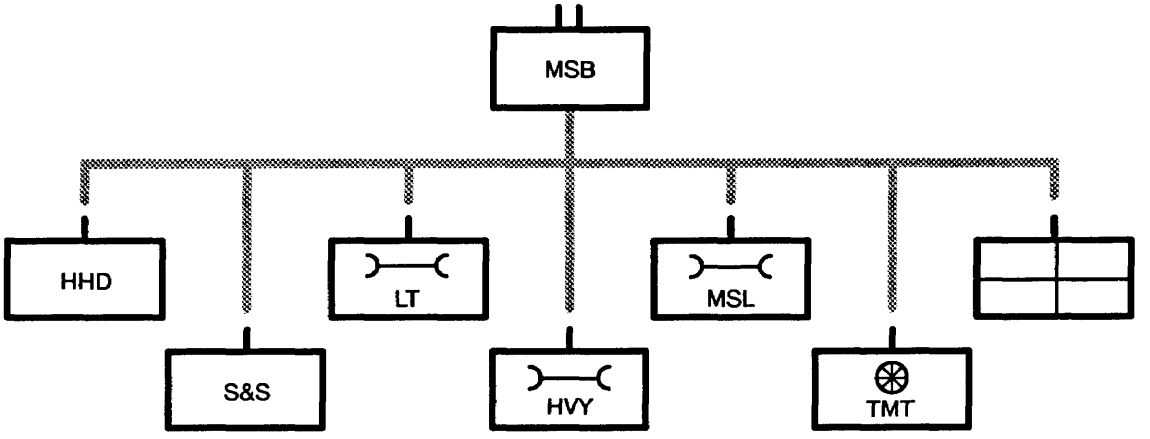
DIVISION SUPPORT COMMAND



LEGEND:

*SUPPORTS 2 TANK AND 1 INFANTRY (MECHANIZED) BATTALIONS.
**SUPPORTS 2 TANK AND 2 INFANTRY (MECHANIZED) BATTALIONS.

MAIN SUPPORT BATTALION



Maneuver battalions or task forces may locate their support in one area (called unit trains) or may locate their CSS in two areas with approximately 1/3 of their support forward and 2/3 located rearward. The forward element is called "combat trains" and the rearward element is called "field trains." Combat trains consists of only critical support needed for combat such as Classes III and V, and maintenance teams.

SUPPLYING THE ADA BATTALION

The CSS organization must concentrate supplies in much the same way combat elements concentrate weapons systems. To do this, the ADA battery commander and battalion staff must know what resources are available, their location, and condition. For administrative and planning purposes, the Army divides supplies into 10 classes The Classes of Supply illustration on page 7-4 shows these classes.

Scheduled supplies can be reasonably predicted based on troop strength, equipment density, and type of mission (Classes I, III (bulk), and VI). Demand supplies are supported by a requisition (Classes II, III (packaged), IV, VII, and IX). Regulated supplies are command controlled due to high cost or high demand (Class IV or VII). Each class of supply, as it relates to the ADA battalion or battery, is explained in the following paragraphs.

CLASS I

Class I items are subsistence items and gratuitous issue health and welfare items. These items are coordinated for in two areas-area feeding and Class I rations.

Area Feeding

The area feeding support concept provides ration support to units operating in isolated areas. This concept requires ADA units to coordinate with the supported units in isolated areas to ensure that all ADA personnel are fed three meals per day. For example, if a Vulcan squad or Stinger team is in support of a battle position, the squad or team leader will coordinate with the commander to ensure that ADA personnel are fed.

Class I Rations

Meals, ready to eat (MRE) for the feeding of personnel assigned to a vehicle are stored on the vehicle. It is normal practice to carry three to five days of rations. Personnel can then eat as time permits (crew feeding). Whenever possible, A or T rations are prepared by the mess section and delivered to the units (unit feeding). Rations are automatically requested for the battalion by the DISCOM based on the daily strength report submitted by the S1, through brigade, to the division adjutant general. Under unusual circumstances, or when a specific item is required, the S4 can submit a separate ration request to the forward support battalion.

CLASSES OF SUPPLY

SUPPLY CLASS	DEFINITION/EXAMPLES
I	SUBSISTENCE ITEMS AND GRATUITOUS ISSUE HEALTH AND WELFARE ITEMS: MEALS, READY TO EAT; FRESH VEGETABLES; AND SUNDRY PACKS.
II	ITEMS OF EQUIPMENT, OTHER THAN PRINCIPAL ITEMS, WHICH ARE PRESCRIBED IN AUTHORIZATION/ ALLOWANCE TABLES: INDIVIDUAL EQUIPMENT, CLOTHING ITEMS, TENTAGE, TOOL SETS, AND ADMINISTRATIVE AND HOUSEKEEPING SUPPLIES.
III	PETROLEUM,OILS, AND LUBRICANTS: PETROLEUM FUELS, HYDRAULIC AND INSULATING OILS, CHEMICAL PRODUCTS, ANTIFREEZE COMPOUNDS, COMPRESSED GASES, AND COAL.
IV	CONSTRUCTION AND BARRIER MATERIALS: LUMBER, SAND BAGS, AND BARBED WIRE.
V	AMMUNITION: SMALL ARMS AMMUNITION, ARTILLERY ROUNDS, HAND GRENADES, EXPLOSIVES, MINES, FUZES, DETONATORS, AND MISSILES. BOMBS INCLUDES SPECIAL AMMUNITION (CHEMICAL AND NUCLEAR ROUNDS).
VI	PERSONAL DEMAND ITEMS: ITEMS WHICH WOULD NORMALLY BE SOLD THROUGH THE EXCHANGE SYSTEM: CIGARETTES, CANDY, AND SOAP.
VII	MAJOR END ITEMS: FINAL COMBINATION OF ITEMS WHICH IS READY (ASSEMBLED) FOR ITS INTENDED USE: VEHICLES, SELF-PROPELLED ARTILLERY PIECES, MISSILE LAUNCHERS, AND MAJOR WEAPONS SYSTEMS (THE WEAPON ITSELF-NOT INCLUDING THE CREW).
VIII	MEDICAL MATERIEL: MEDICINES, STRETCHERS, SURGICAL INSTRUMENTS, AND MEDICAL EQUIPMENT REPAIR PARTS.
IX	REPAIR PARTS AND COMPONENTS, INCLUDING KITS AND ASSEMBLIES, ITEMS REQUIRED FOR MAINTENANCE SUPPORT OF ALL EQUIPMENT: BATTERIES, SPARK PLUGS, AXLES, AND TANK ENGINES.
X	MATERIEL REQUIRED TO SUPPORT NONMILITARY PROGRAMS: ITEMS WHICH WOULD BE USED TO SUPPORT CIVIL AFFAIRS OPERATIONS: COMMERCIAL DESIGN TRACTORS FOR USE BY LOCAL CIVILIANS, AND FARM TOOLS.
MISC	MISCELLANEOUS ITEMS WHICH DO NOT FIT INTO ONE OF THE 10 CLASSES ABOVE: WATER, MAPS, CAPTURED ENEMY EQUIPMENT AND MATERIEL, AND SALVAGE MATERIEL.

Water is also a Class I item. It is a critical combat commodity required for personal consumption, sanitation, cooking, maintenance, equipment operation, decontamination, and other purposes. Water consumption depends on the type of environment (hot or cold). Complete water consumption planning factors are detailed in FM 10-52.

CLASS II

Class II supplies and equipment (except cryptographic) are prescribed by TOES, TDAs, and PLLs This class of supply includes clothing, individual equipment, tentage, tool sets, and administrative and housekeeping supplies. When a Class II item is lost, destroyed, or worn out, battalion units send replacement requests through the S4 to the supply company of the forward support battalion. The supply section picks up Class II items from the FSB supply company in the BSA and delivers them to the requesting unit. In some cases, corps or divisional support units may deliver critical items directly to the requesting unit. Class II distribution is shown in the Requisition and Release for Classes II, III (Package), and IV illustration.

CLASS III

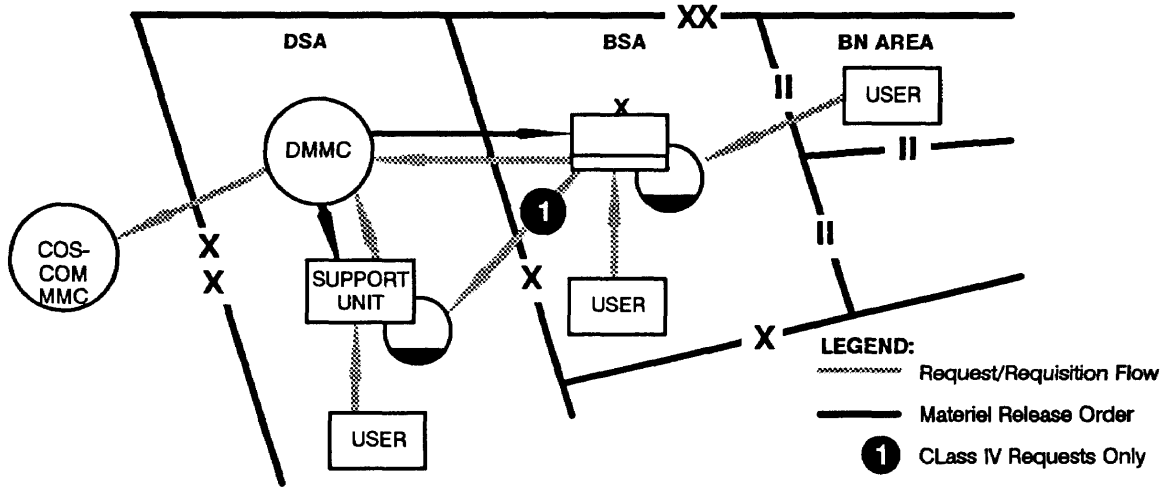
Class III supplies consist of fuels, petroleum products, and packaged bulk fuels. It also includes packaged products such as lubricants, greases, and hydraulic fluids.

Class III packaged products are requested through the S&S company or supply company to the MMC. The divisional requisitions and release for Class package products are shown in the requisition and release illustration. The division does not normally carry reserves of Class III packaged products as they are already included in authorized stockage lists (ASLs).

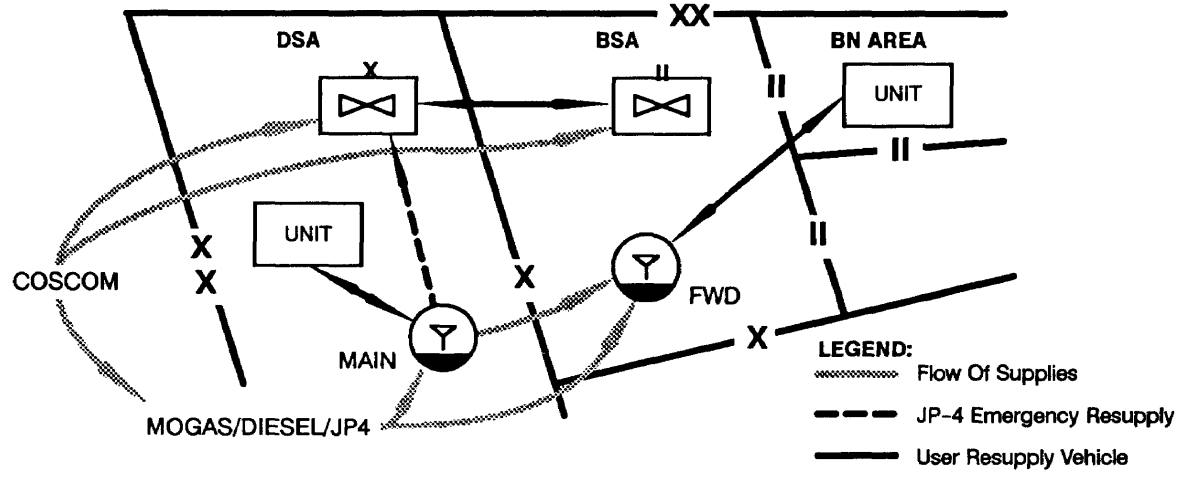
Class III (Bulk)

The S&S company of the MSB or supply company of each FSB receives, temporarily stores, issues, and distributes Class III bulk fuels. The petroleum section of the S&S company in the MSB operates the Class III supply point in the DSA. Fuel is stored in collapsible storage tanks of a fuel system supply point (FSSP) or transferred to MSB 5,000-gallon fuel servicing tank trucks. This is for further distribution to the FSB supply company in the BSA. The ADA batteries normally receive fuel by the supply point distribution method as shown in the Class III (Bulk) Resupply illustration.

REQUISITION AND RELEASE FOR CLASSES II, III (PACKAGE), AND IV



CLASS III (BULK) RESUPPLY



ADA Resupply

For POL resupply, formal requests are unnecessary. To obtain POL empty fuel vehicles and containers need only be brought to a distribution point to be filled. Battalions do, however, submit POL forecasts which form the basis for division and corps stockage levels. Package grease and lubricants are obtained through the general supply system. For these items, formal requisitions are required.

Class III resupply of argon is critical to the operation of the Avenger system. To ensure adequate argon cylinders are maintained within the Avenger unit, resupply requests must be submitted well in advance. The argon bottles are refilled at the battery trains by the rearm team, by use of the gas charging unit (GCU). Therefore, an extra coordination point is required to ensure that recharged argon bottles are brought with the load of missiles being shipped fonward. Since these cylinders are quite expensive and nonexpendable, it cannot be foreseen that the battery will have excessive stocks. It is critical that the return of these cylinders to the battery trains be intensively managed. Forecasting usage rates of argon to the DSU becomes just as critical as advance requests for more missiles.

When empty, fuel tankers go to a POL supply point, replenish, and return. The battalion SOP should prescribe how this is to be done. The battalion S4 makes sure that fuel and argon are available at the right time and place to resupply batteries. He also ensures that bulk fuel vehicles are kept filled by whatever procedures are being used. POL is normally obtained from the supply company Class III POL supply point located in the brigade support area. Generally, battery refueling operations are carried out in two ways.

Tailgate method. The fuel truck is taken to platoon positions.

Service station method. Leaving security in position, platoon vehicles are moved, in intervals, to centrally located fuel trucks.

Refueling is also done while the platoon is on the move by having fuel vehicles meet the platoon at a predesignated location along their route of march. The battalion SOP should prescribe procedures for a service station or tailgate operation and they should be practiced during field training.

"Hot refuel" (or refuel on the move) operations are tactical service stations where columns of combat vehicles pull in to refuel without shutting off their engines. The support platoon leader of the supported force coordinates the hot refuel point. The ADA unit will be given the location by the supported unit. This type of operation takes place when refueling is critical and units are being displaced because of mission changes. Rarely will each vehicle in the column be topped off. The amount of fuel each vehicle gets depends on the total amount of fuel on hand divided by the number of combat vehicles to be supplied. All available fuel trucks organic to the maneuver unit are usually used in hot refuel.

CLASS IV

Class XV supplies are items for which allowances are not prescribed, such as construction, barrier, and fortification materials. Requisitions for Class IV items are submitted through command channels. Most Class IV items are distributed the same way as Class II items. A planning factor of 8.5 pounds per soldier per day can be used by the ADA S4 for estimating Class IV requirements.

CLASS V

Class V supplies consist of ammunition of all types. It includes bombs, explosives, mines, fuzes, detonators, pyrotechnics, missiles, rockets, propellants, and other associated items. The scope of ammunition supply varies with the type of conflict and the operational environment where the conflict takes place. Ammunition service support is discussed in FM 9-6.

Ammunition Transfer Point

The ammunition transfer point (ATP) is a Class V supply point set up in the BSA and DSA by CSS personnel of the FSB and corps ordnance company (DS). COSCOM transportation, with loads configured per direction of the division commander, delivers ammunition directly to the ATP in the brigade areas.

Basic Load

This is the quantity of nonnuclear ammunition authorized for wartime purposes. The basic load is normally approved by the theater commander. It provides the unit with sufficient ammunition to sustain itself in combat until resupply can occur. The basic load is managed by the unit and includes, but is not limited to, ammunition carried by the individual soldier, stored in crew vehicles, carried on prime movers, and in the unit trains. The basic load is expressed in rounds, units, or units of weight as appropriate. Basic loads do not include items authorized by TOE or table of distribution and allowances (TDA), such as explosive components of sets or kits.

Required Supply Rate

The required supply rate (RSR) is the amount of ammunition estimated to be necessary to sustain a

force in combat without restriction, fora specific length of time. The RSR is expressed in rounds per weapon per day for items fired by weapons systems. It is expressed in other terms or units of measure for other items. The tactical commander uses the RSR to state ammunition requirements. The RSR is not fixed. RSRs will vary with the type of operation, and may vary from one command to another.

Controlled Supply Rate

The controlled supply rate (CSR) is the rate of ammunition use that can be sustained with available supplies. The CSR is expressed in rounds per unit, individual, or weapon per day. CSRs are imposed by the various levels of command on subordinate units for individual items of ammunition. If no restriction is imposed, the CSR will equal the RSR. CSRs are normally included in operation plans and orders as well as fire support annexes, and fragmentary orders. A unit may not draw ammunition in excess of the CSR without authority from its next higher headquarters.

Requisition and Distribution

Requisitioning of ammunition is done at the brigade ATP by the ADA battalion or battery on a DA Form 581. The normal basis for approval is to ensure that it is within the limits of the CSR.

ADA missile ammunition is a joint responsibility of the conventional and ammunition support structure. The division is primarily concerned with those missiles supplied in the conventional ammunition support structure. This includes Stinger, Avenger, and Chaparral missile systems. These missiles are classified as medium cost high-density systems. Class V resupply is conducted as part of logistics package (LOGPAC) operations on a daily basis.

CLASS VI

This class of supply consists mainly of Army and Air Force exchange service items. These supplies should not be confused with the ration supplement-sundries pack. The sundries pack is composed of items necessary for the health and comfort of troops. For example, essential toilet articles, tobacco, and confections compose this packet, distributed through Class I channels. Requests for Class VI support are submitted by the S1 through administrative channels when a PX is not available (combat or field duty). A planning factor of 3.2 pounds per soldier per day can be used for estimating Class VI requirements.

CLASS VII

Major end items, such as Vulcans, Chaparrals, or Avengers, which are ready for intended use, are normally controlled through command channels. Requests for operational readiness float, and issues of additional or replacement items are normally based on TOEs or similar authorization documents. Requests are processed through command channels.

Combat Losses

A combat loss is any incident that precludes the ADA system from performing its assigned combat mission. Loss may be caused by battle damage, crew failure, or maintenance failure. This loss rate is dependent on theater of operations, force structure, terrain, condition and training of troops, enemy to friendly ratio, maintenance, and supply. FM 101-10-1 can provide the S4 with combat loss experiences to determine planning factors for similar type ADA systems.

Operational Readiness Float

The division is authorized an operational readiness float of selected FAAD and SHORAD Class VII items which are maintained by the MSB. The criteria for an item to be included in the operational readiness float (ORF) is that it be high density, fast moving, or critical to the division. The DISCOM commander establishes the policies and procedures for the control and utilization of ORF within the guidelines established by the corps and division commander. The ORF is carried by the support platoon of the missile maintenance company of the MSB located in the DSA. The maintenance company of the FSB normally does not have the capability of providing a float. Regardless of the location of the division ORF, it is accountable by the division property book officer in the MMC. The PBO is responsible for its issue to a requesting ADA battalion. ORFs may be used in peacetime field situations or during initial phases of hostilities.

Weapon System Replacement Operation

The management of Class VII requires extraordinary procedures for weapons systems. This is because weapons systems can fall into one of two categories.

Ready for issue weapon. A weapon system that has been removed from a condition of preservation and made mechanically operable according to operational standards. All ancillary equipment has been installed. For example, these include machine guns, FUs, and radios. The vehicle is fully fueled and has all of its basic issue (BI) and component of end items (COEI). However, there is no ammunition on board.

Ready to fight weapon. A ready to fight weapon is fully crewed, has its ammunition on board, and has been foresighted or calibrated.

To maximize the number of weapon systems available on the battlefield, the battalion XO and BMO will match as many serviceable weapon systems and surviving crews as possible.

CLASS VIII

In combat, an informal method of requisitioning and distribution is used for medical supplies and medical peculiar repair parts. The MSB medical company normally establishes the division medical supply point that is accessible to ambulances providing support to forward medical facilities. Supplies are dispatched forward through backhaul by supporting ground and air ambulances. The battalion aid station replenishes supplies from the appropriate support battalion. The division medical supply officer in the MSB ensures that stocks are maintained and shipped forward to requesting units.

While the ADA battalion does have a medical section, the firing batteries will be dispersed throughout the division area. The distances from the HHB will normally preclude rapid medical evacuation by the battalion ambulance. In turn, medical supplies and support for forward deployed ADA units normally come from the battalion, the task force, or brigade that is being supported.

CLASS IX

This class of supply is made up of repair parts (less medical peculiar repair parts, and components, kits, and assemblies), and subassemblies. It includes those items required for maintenance support of all equipment.

The ASL and unit PLLs represent the stockage of Class IX in the division. These stockages are computed on the basis of 15 days of supply (DOFS) for PLL. Stockage varies, depending on the item for the ASL. The MMC develops and manages the division's ASL.

Class IX stocks are maintained by the missile maintenance company of the MSB and the maintenance company of the FSBs. What is to be stocked in the ASL is determined by the PLLs of the units to be supported. The remainder of the division's Class IX ASL is maintained by the appropriate maintenance operating unit.

There are minor repairable components included in Class IX repair parts. However, to recover and repair these items, they are treated as repairable exchange items.

Requisitioning of Class IX items is unique in that it is accomplished through the maintenance support structure. Units submit requests for quick supply store items, intensively managed items, and major assemblies, to their maintenance support company or activity. Low-cost, high-demand items such as light bulbs and hardware, are obtained from the repair parts quick supply store (QSS), without formal requests. Unit PLL replenishment is obtained from the maintenance support company Class IX activity which stores a portion of the division Class IX ASL.

Repairable exchange items are exchanged at the maintenance support activity by turning in an unserviceable item for a serviceable-like item. In some cases, controlled substitution may be required to obtain Class IX items, particularly RX items.

FAAD and SHORAD batteries stock repair parts based on a combat PLL. High-demand repair parts are also stocked by the battery. Other repair parts (except medical) are stocked by the FSB maintenance company. The FSB medical platoon stocks medical repair parts. Each battey PLL is managed and operated separately. Repair parts are issued to the battery maintenance team as required. Repair parts are also issued in response to a specific request or through the repairable exchange activity. The battery obtains repair parts from the Class IX supply point located in the BSA or from the UMCP of the supported maneuver battalion. The battery maintenance section delivers them to the battery maintenance teams in response to requests by battery maintenance team personnel.

LOGPAC OPERATIONS

The most effective form of resupply for forward ADA units is accomplished by LOGPACS. LOGPACs consist of predetermined supply packages pushed forward, as well as demand-supported items and quantities. Dedicated resupply vehicles come forward a minimum of once a day under control of the battery 1SG.

When the tactical plan calls for centralized control of the majority of the air defense, the battalion logistics assets will be centrally controlled by the battalion. When the tactical plan includes decentralized control of the battalion, the battalion will decentralize control of the resupply functions.

CENTRALIZED CONTROL

When the majority of the ADA battalion is with one brigade, the HHB and battalion logistics assets should collocate with that brigade supporta area (BSA). This enhances survivability and resupply. The battalion S4 and S1 will control the battalion logistics assets. All battery resupply vehicles will be centrally controlled by the S4. The S1 and S4 will coordinate with the forward support battalion (FSB) support operations officer in the BSA for resupply. The ADA LOGPACs will push forward, led by the lSGs, with the LOGPACs for the maneuver battalions. At the logistics release points (LRPs) designated for the maneuver battalions, the platoon sergeants will meet the lSG and lead their platoon vehicles to their platoons.

The S4 will function as the support platoon leader for the battalion. His section must assemble all reports from the batteries for personnel, supply, medical, and maintenance needs. The S1 will coordinate with the maneuver brigade S1 for replacement personnel and send them forward on the appropriate LOGPACs. The S4, in conjunction with the battery 1SGs, will ensure each of the platoon resupply vehicles is loaded with the necessary supplies peculiar to the needs of each platoon. The only maintenance parts that are included in a LOGPAC are nonemergency, nondeadlining parts needed for routine maintenance or battery PLL fill. Most maintenance needs will be handled by the batteries whose maintenance assets are located in the respective TF UMCPs. The battalion logistics area will include the DS missile maintenance company from the DISCOM.

DECENTRALIZED CONTROL

When the tactical plan includes decentralize control of the batteries the battalion will decentralize control of the resupply functions. The A/L section and HHB will centrally locate themselves on the battlefield as much as possible. The DS company will assume a slice configuration and support each FSB. Batteries will retain control of their platoon resupply vehicles and coordinate with the FSB support operations officer and support platoon leaders with the appropriate maneuver battalions.

RESUPPLY OF REINFORCING CORPS ASSETS

When the battalion is reinforced by ADA units from corps, the support system must be tailored to METT-T If the parent battalion of the reinforcing unit, whether SHORAD or HIMAD, cannot effectively resupply its battery due to amount of dispersion, the divisional ADA battalion may have to support the reinforcing unit with some classes of supply. Classes I, III, and some Classes II, V, and IX can be supplied by the divisional battalion with coordination with the FSB support operations officer.

MAINTENANCE OPERATIONS

Maintenance is the function of sustaining equipment in an operational status or restoring it to a serviceable condition. Since the modern battlefield is a more lethal environment than ever before, repairs must be made quickly. They must be made at, or as close as possible to, the point of equipment failure or damage. This implies a forward thrust to the maintenance operation. The emphasis is on placing assets in the brigade area and having those assets perform their mission as far forward as the tactical situation will permit. Equipment that cannot be repaired quickly must be removed from the battlefield as soon as possible to preclude further damage or capture.

LEVELS OF MAINTENANCE

To provide responsive support to units, the maintenance system is organized into three levels: unit, intermediate, and depot. These levels are summarized below. For further details, see AR 750-1.

Unit Maintenance

Unit maintenance is performed by the operator, crew, and unit maintenance personnel. It is characterized by quick turn around repairs, replacement minor repairs, and performance off scheduled services.

Intermediate Maintenance

The intermediate maintenance level has two orientation direct support and general support. Direct support maintenance (DSM) is performed in direct support of the user. DSM units are tailored to repair equipment and return it for user maintenance. Within the division, DSM units are structured to provide dedicated support to the ADA battalion. This is normally the highest level of maintenance provided by the division. The division missile maintenance company of the MSB provides support for FAAD and SHORAD missiles of the division. They replace components and modules repair line replaceable units, and provide missile peculiar RX items. Maintenance tasks include battle damage assessment, diagnosis, fault isolation, repair by replacement, and repair of high-mortality components in support of the RX system. General support (GS) maintenance repairs equipment DS units cannot repair.

Depot Maintenance

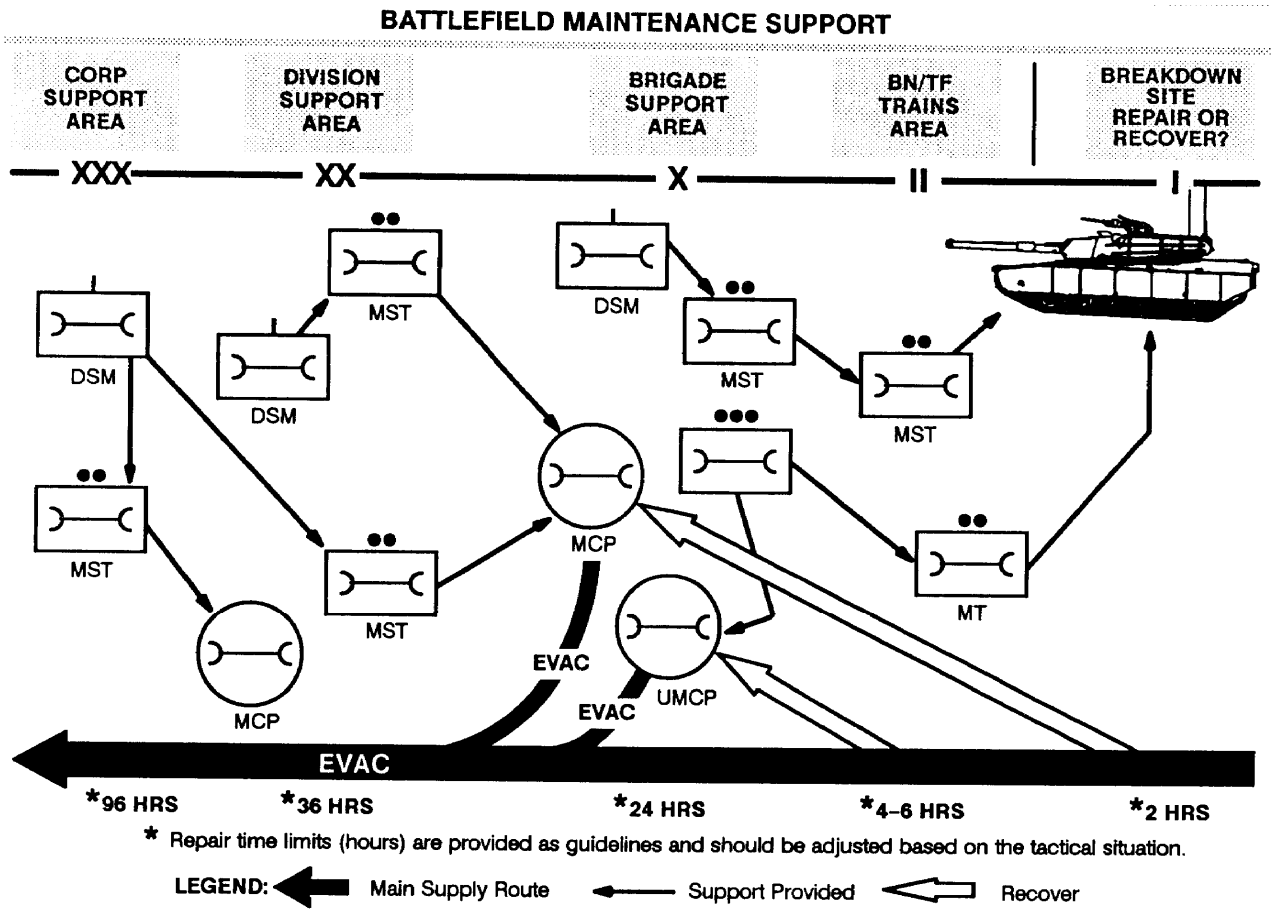
Depot level maintenance is performed by Army materiel command depots and contractors, and also by host nation support personnel. This level of maintenance is strictly in support of the supply system.

OPERATING PROCEDURES

To maintain the greatest amount of combat power on the battlefield, damaged weapons systems must be repaired as far forward as maintenance assets and the tactical situation will permit. To do this, the BMO is charged with coordinating the efforts of his battalion maintenance section. The BMO must recommend to the commander what action to take once maintenance requirements and prioritization have been evaluated. This is done to provide the maximum number of operational fighting systems.

Battlefield Maintenance Support

The path of a representative item of damaged equipment is depicted in the Battlefield Maintenance Support illustration. The operator or crew is the first to attempt to overcome a malfunction or repair the damage. If unable to accomplish the repair, they turn to the ADA battery's maintenance support team who will, in turn, seek assistance from the maintenance support teams provided by the FSB or MSB. The item of equipment will first be recovered to the unit maintenance collection point if on-site repair cannot be accomplished. At the UMCP, the decision to evacuate is made if the system is beyond repair or if the time-to-repair guidance issued by the ADA battalion commander will be exceeded. To return a weapon system or item of equipment to service as rapidly as possible, it is evacuated no further than the lowest maintenance level capable of effecting repairs. The determination of the lowest capable level of repair should be made as early as possible to allow for direct evacuation.



ADA System Support

The FAA and SHORAD battery maintenance section supervisors are responsible for ensuring that all operator PMCS is performed per appropriate TMs. Section personnel also perform all unit organizational-level repairs, services, troubleshooting, and lubrication. This is done per maintenance allocation charts, TMs, and lubrication orders for all equipment assigned to their units.

The systems maintenance section troubleshoots the system using test equipment to determine the malfunction. Then, the section replaces the malfunctioning LRU using the special equipment assigned to the section. The batteries receive their DS from the MSB within the DISCOM. Each battery receives a DS maintenance team from the MSB.

The maintenance concept for Stinger and Avenger is based on its high density in the combat zone and the locale for its tactical employment. The Stinger missile is considered to be a highly reliable round of ammunition (certified round concept). The maintenance concept for the Stinger weapon system is based on limiting the maintenance and logistical burden placed on the units to maintain a combat-ready posture. Operator and organizational maintenance is the responsibility of the Stinger platoon leader and is performed by the Stinger crews and sections. Unit organizational repair parts for the missile are made available in kits. Spare BCUs are issued with each Stinger. Weapons that cannot be repaired at unit organizational level are exchanged for operational rounds at the ammunition supply point.

FIELD SERVICES

Field services are those sustainment support functions provided to an armed force that are not included in supply, maintenance, transportation, or personnel services. They consist of food service, clothing exchange and bath, laundry, salvage, bakery, airdrop, graves registration, and textile renovation. Services are divided into primary and secondary field services. Primary field services are essential to support combat operations. Secondary services include all the other categories.

PRIMARY FIELD SERVICES

Primary field services are essential to support combat operations. Graves registration and airdrop are essential services. It is a tenet of faith that the Army will always take proper care of its dead. Airdrop is essential in that it provides a method of supply delivery that is rapid enough to meet the unexpected demands of modern battle.

SECONDARY FIELD SERVICES

Secondary field services support is tied closely with personnel services since field service is dependent on the number of troops supported. These services are requested and coordinated by the S4. Other field services are—

- Salvage collection.
- Clothing exchange.
- Laundry.

PERSONNEL OPERATIONS

Personnel operations services include personnel management, maintenance of unit strength, personnel services, prisoners of war, casualty and strength reporting, welfare activities, and rest and recreation. All of these help the commander maintain a high state of morale within the unit. The goal of personnel services is to man each weapon system with qualified, motivated crews.

Personnel Management

Personnel actions are performed primarily by the battalion S1 section. Batteries have no administrative capability.

Strength Management

Batteries submit daily strength information to the battalion S1/PAC who forwards a hasty and deliberate consolidated strength report to the division adjutant general element. Casualty feeder reports, including witness statements, are also processed by the S1 and forwarded directly to the personnel service company per established procedures. These reports, together with authorized position vacancies, are the basis for requesting individual replacements. Normally the S1, in coordination with the battalion executive officer, determines the assignment for individual replacements. For critical skills, the S3 or commander may establish assignment priorities. When operating in an active nuclear environment, the battalion S3 determines a unit's potential to operate in an area contaminated by radiation. He does this by comparing radiation damage reports submitted by units with the operational exposure guidance established by the commander. The amount

of radiation exposure previously suffered by individual replacements may also influence unit assignments.

Personnel Services

Leaves and passes, command information, postal service, religious activities, exchanges, financial service, legal assistance, welfare, special services, and rest and relaxation help unit commanders maintain morale. The battalion commander is responsible for making sure these services are fairly and impartially provided to soldiers of his battalion.

Prisoners of War

Processing and evacuation of prisoners of war is the responsibility of the battalion S1. The battalion S1 establishes the EPW collection point and ensures that prisoners are handled per the Geneva Convention. Interrogation and evacuation of captured enemy documents and equipment is the responsibility of the S2. Finally, furnishing construction material and transportation is the responsibility of the S4.

Casualty Reporting and Strength Accounting

During combat operations, the S1 must make sure that both strength accounting and casualty reporting occur in a timely and accurate manner. Accurate strength reports provide the commander and staff with the necessary information to plan for future operations. Casualty reporting provides accurate and detailed data on casualty and the incident surrounding injury or death.

The S1 organizes for continuous operations and predicts the need for replacements. Personnel service support is coordinated from the combat trains CP. Normally, the S1 locates at the combat trains CP. The S1 has one NCO and two clerks from the PAC located with him. From the administrative and logistics center, the S1, along with the S4, prepares the personnel portion of combat orders and plans. During combat operations, the S1 and the S4 maintain the S1/S4 situation map and the unit CSS journal. The remainder of the S1 section (PAC) locates in the field trains under the supervision of the PAC NCO. The bulk of personnel actions are accomplished at the field trains. See FM 22-9 for a detailed explanation of planning for continuous operations.

Casualty reporting and strength accounting begin at the squad or crew level. Normally, strength accounting occurs at specified times, follows a prescribed format, and is time sensitive. Casualty reporting occurs as soon as possible after the event and is more accuracy sensitive. It is initiated by the squad leader or vehicle commander, either orally or in writing. Usually, casualties are reported to the first sergeant over the battery radio net. At this point, the first sergeant collects the reports and forwards them to the combat trains CP, either orally or in writing. If not already prepared, the S1 section in the combat trains initiates a casualty feeder report and sends it to the PAC. The PAC is responsible for cross-checking the report and requesting any clarification necessary. The format for strength reporting varies with the unit SOP and the type information required by the commander.

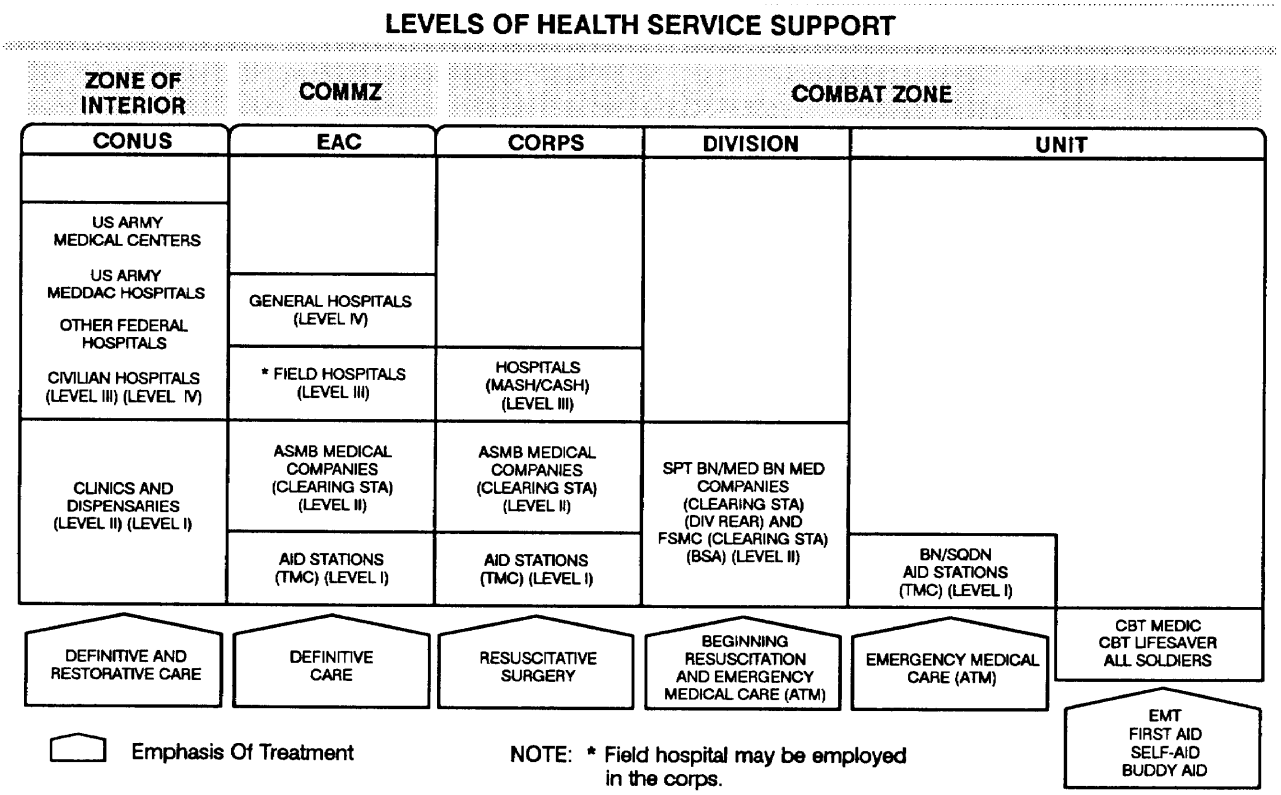
Replacement Operations

These operations are normally conducted by the PAC located in the field trains. The battalion S1 establishes a replacement receiving point (RRP) at the PAC and notifies the brigade S1 and division AG elements of its location. All replacements or returnees are brought to the RRP for initial processing. The division AG element is normally responsible for delivering replacements in the RRP. However, in some instance, units may be required to pick up their own replacements. Hospital returnees are handled as replacements by the division AG element if they have been evacuated beyond the clearing station. Returnees from the division clearing station are released directly to the battalion from the clearing station. Replacements to the battery are picked up at the field trains RRP and transported to the battalion combat trains by the unit supply vehicle or mess truck with the daily LOGPACS. They are transported forward by returning combat vehicles or supply vehicles. During lulls in the battle, the S1 completes other necessary personnel actions. If possible, these are accomplished by forming personnel contact teams which move forward to battery locations.

HEALTH SERVICES LEVELS OF SUPPORT

The basic health service mission is to preserve the fighting strength. To accomplish this, there is a full array of services. These services include hospitalization, evacuation, dental, preventive medicine activities, medical supply and maintenance, optical support, laboratory support, and C^2. Medical maintenance and supply have been discussed previously. Health service support is divided into four levels (see the Levels of Health Semite Support illustration).

Within the division, the structure is designed to acquire, receive, sort, and provide medical and surgical treatment for personnel. Health service provided in the division includes both unit-level and division-level support.



Unit Level

Unit-level (ADA battalion) medical support is provided by medical platoons or sections organic to combat units, including FAAD and SHORAD battalions. Elements responsible for unit-level health services support provide—

- Emergency medical treatment.
- Patient evacuation.
- Medical supply.
- Limited preventive medicine.
- Limited management of battle stress.

Division Level

Division-1evel medical support is provided by the MSB medical support company to all division and nondivision units operating in the DSA, and by the FSB medical company to firing batteries in the BSA. The organizations provide—

- Routine medical and initial resuscitative treatment.
- Patient evacuation and medical regulating.
- Emergency dental and preventive dentistry care.
- Limited psychiatric and mental health care.
- Preventive medicine.
- Medical logistics, to include unit-level medical equipment maintenance.
- Optometry and optometry services.
- Limited pharmacy, medical laboratory, and X-ray services.

Evacuation

Initial aid or evacuations are provided by the battalion aidmen attached to the batteries from the battalion medical platoon or section. The aidman is the first to acquire patients at the site of wound or injury. If emergency medical treatment does not return the patient to duty, he is evacuated to the battalion aid station. Due to the dispersion of ADA platoons and sections, evacuation will normally be to the nearest maneuver battalion aid station.

The battalion aid station is located as far forward as possible, normally with the battalion trains. It should be

located in an area providing cover and concealment and near concealed helicopter landing areas for air evacuation. The battalion aid station is supervised by a physician's assistant who is a technically trained warrant office. Here also, triage is performed and casualties are given medical treatment within the capabilities of aid station personnel. Casualties requiring further treatment are evacuated by division or corps medical support units to medical facilities located further to the rear.

RECONSTITUTION

Reconstitution is the timely and extraordinary action taken to restore combat ineffective units to a specified level of combat effectiveness. This action includes—

- Replacing personnel, supplies, and equipment using specified priorities to allocate resources.
- Reestablishing or reinforcing C^2.
- Conducting mission-essential training.

When the responsible commander determines a unit to be combat ineffective, or not sufficiently effective to meet operational requirements, reconstitution should begin as soon as possible. A unit selected for reconstitution should be given as much time as the situation allows to stabilize and begin establishing internal cohesion before it is again committed to battle.

Commanders have two options available for restoring units to a combat-capable level. These options are reorganization and regeneration and can be used separately or in combination. Application of these options depends on current and anticipated situations, command priorities, resources, and time available. Reconstitution does not require unit withdrawal. In many cases, it maybe preferred to leave a unit well forward.

REORGANIZATION

Reorganization is an action taken within an attrited unit to increase its combat effectiveness. Reorganization consists of such measures as redistributing equipment and personnel between internal elements to better balance their combat capabilities. This redistribution matches operational weapon systems with crews so that they may continue to function. For example, two attrited units maybe put together to form a composite unit made up of a full-strength or overstrength combat-effective unit.

REGENERATION

Regeneration is the—

- Rebuilding of a unit through large-scale replacement of personnel, equipment, and supplies.
- Reestablishment of command and control.
- Conduct of mission-essential training.

Due to the large-scale nature of regeneration, consideration must be given to withdrawing the unit to a designated area safe from enemy interdiction and harassment. It must be an area where personnel, equipment, and supplies can come together to accomplish the task of returning the attrited unit to a level of combat effectiveness.

Of the two reconstitution options (reconstitution and regeneration), regeneration is the most difficult to execute because it requires the greatest amount of effort, coordination, and consumption of materiel. Time for the unit to train is particularly important to reestablish cohesion and develop teamwork. This is necessary because the unit changes are very drastic.

The responsibility for managing regeneration efforts is retained by the commander who has the capability to perform it. This is normally the commander two levels higher than the unit requiring reconstitution. For example, ADA battalions are regenerated by the division.

PLANNING FOR RECONSTITUTION

During development of unit SOPs, commanders develop plans and procedures for reconstitution and especially reorganization. These SOPs must focus on how to maintain continuous combat capability until more extensive efforts can be accomplished.

Planning for reconstitution complements the commander's efforts to protect his force. Reconstitution must employ the most economical and effective means to accomplish the required force protection with minimal requirements for personnel and equipment resources. Timely reconstitution will sustain the fight. It will also preserve the initiative and agility of the commander and his forces on the AirLand battlefield.

APPENDIX A

Battalion Combat Checklists

This appendix provides three checklists describing the actions during planning, preparation, and execution of battle by the key players in the battalion. The first checklist is the battalion planning combat checklist and contains the planning tasks and the key players to accomplish these tasks. The second checklist is the preparation checklist and depicts who must accomplish what tasks in preparation for future operations. The third checklist depicts which key player must accomplish which task during the execution of the operation.

BATTALION PLANNING COMBAT CHECKLIST

PLANNING	BN CDR	XO	S1/S4	S2	S3	AD COORD	BDE LNO	BC
RECEIVES MISSION	X	X	X	X	X	X	X	X
ISSUES WARNING ORDER	X							X
UNDERSTANDS MANEUVER CDR'S GUIDANCE/INTENT	X					X	X	X
ISSUES OWN GUIDANCE/INTENT	X							X
CONDUCTS RECONNAISSANCE	X							X
CONDUCTS IPB				X			X	
COORD WITH/G2/S2 FOR GROUND IPB/DST						X	X	
RECOMMENDS PIR TO G2/S2:								
CP						X		
FACs						X	X	
FAAs						X	X	
FARPs						X	X	
COORD W/G3/S3 FOR –								
MANEUVER COAs						X	X	
WARGAME OF MANEUVER COAs						X	X	
MANEUVER CDR'S DECISION						X	X	
INITIATES ADA DST						X	X	
DEVELOPS ADA COAs		X	X	X	X		X	
WAR-GAMES ADA COAs	X	X	X	X	X	X	X	X
COORD WITH USAF LNO FOR –								
USAF TACAIR PLAN						X	X	
PLANNED TOTs						X	X	
AIR ROUTES						X	X	
IFF						X	X	
COORD WITH AVN LNO FOR –								
AVN PLAN						X	X	
AVN ROUTES/BPs/EAs						X	X	
AIR IPB						X	X	
IFF						X	X	

BATTALION PLANNING COMBAT CHECKLIST (CONTINUED)

PLANNING	BN CDR	XO	S1/S4	S2	S3	AD COORD	BDE LNO	BC
COORD WITH FSE FOR --								
TARGETING OF TEMPLATED ENEMY AIR-ASSOC								
ASSETS:								
CP						X		
FAAs						X	X	
FARPs/RARPs						X	X	
LZs						X	X	
DZs						X		
FIRE SUPPORT PLAN						X	X	
FINALIZES DST/DSM					X		X	
WRITES ADA ANNEX						X	X	

PREPARATION CHECKLIST

PREPARATION	BN CDR	XO	S1/S4	S2	S3	AD COORD	BDE LNO	BC	CSM
REHEARSES WITH DIV	X					X			
REHEARSES WITH BDE							X	X	
REHEARSES WITH ADA BN	X	X		X		X	X	X	
REHEARSES EARLY WARNING PLAN						X	X		
COORD WITH HIMAD/ADCS					X	X			
TRACKS PREPARATION EFFORT	X							X	X
ENSURES SUB ADA UNITS EFFECT LINKUP	X							X	X
ADJUSTS COLLECTION PLAN AS NEEDED				X					
REFINES DST	X							X	

EXECUTION CHECKLIST

EXECUTION	BN CDR	XO	S1/S4	S2	S3	AD COORD	BDE LNO	BC	CSM
COORD AIRSPACE						X	X		
KEEPS HIMAD COVERAGE OVER MBA						X	X		
DIRECTS EARLY WARNING/PASS LAYDOWN	X				X	X	X	X	
TRACKS BATTLE -- REPORTS TO CDR						X	X		
LOCATES IN VICINITY OF MAIN EFFORT	X	X	X					X	
RECEIVES INTEL UPDATES FROM S2/ADCOORD	X				X			X	
IDENTIFIES AHR/2D ECHELON (GROUND)				X			X		
ADJUSTS COVERAGE BASED ON DST	X							X	

APPENDIX B

Safety Checklist

This appendix provides examples and guidelines concerning safety issues during or prior to combat operations. Commanders and their leadership representatives must ensure that safety is an ongoing process during wartime. Although not all-encompassing, this checklist provides commanders with some basic rules of safety. Leadership should add to this checklist as it deems necessary.

ADMINISTRATIVE

The purpose of this checklist is to provide commanders, safety officers, and supervisors with a ready safety reference that encompasses most tasks common to a command. Use this checklist in conjunction with DA Pamphlet 385-1. Users are encouraged to add additional checklist items that cover their particular mission needs. The safety reference checklist is as follows-

• Does the commander ensure that the safety annex of the unit tactical SOP is current and covers all field training operations?

• Is the commander and or safety officer familiar with the safety position of the SOPS?

• Does the commander ensure that adequate provisions for safe practices, procedures, and physical standards are incorporated into unit predeployment exercises?

• Do the unit safety officers keep their commanders informed of the unit safety status by reporting all accidents, injuries, and incidents, and recommending corrective actions?

RISK MANAGEMENT PROCESS

The risk management approach gives leaders a tool to improve efficiency, effectiveness. and safety in all operations. The payoff is increased readiness as a result of safer, smarter, and more beneficial operations. Leaders who routinely use risk management techniques in peacetime automatically make better risk decisions in wartime, resulting in better tactical decisions and greater mission potential. The six-step process is shown in the illustration on below.

SIX-STEP RISK MANAGEMENT PROCESS

TASK	CRITERIA
STEP 1	
IDENTIFICATION	THIS IS RISKY, THIS IS NOT.
STEP 2	
EVALUATION AND QUANTIFICATION	THIS RISK IS GREAT, THIS IS NOT.
STEP 3	
REDUCTION	RISK CAN BE REDUCED BY THIS AND THIS.
STEP 4	
DECISION MAKING	THIS RISK WE CAN LIVE WITH, THIS WE CANNOT.
STEP 5	
DECISION FOLLOW-UP	IS THE RISK AND BENEFIT AS PROJECTED?
STEP 6	
RESEARCH	WHAT IS THE RISK? WHAT RISK IS ESSENTIAL?

CONTENTS

Page

Administrative.....B-1

Risk Management Process.....B-1

Vehicle Movements and Convoys.....B-2

Vehicle Swimming and Fording Operations.....B-2

VEHICLE MOVEMENTS AND CONVOYS

Proper management of vehicle movements and convoy procedures will ultimately affect the number of vehicles on the battlefield, and more importantly, their timeliness in getting there. All leaders should ensure that the following conditions have been met during movement operations:

- Are basic issue items on every wheeled vehicle convoy?
- Are operators performing before-, during-, and after-operation PMCS?
- Are all radio antennas tied down properly to a length of not more than 7 feet?
- Have operators been trained to drive in adverse weather and difficult terrain?
- Are convoy drivers provided with adequate rest (8 hours rest per 10 hours driving)?
- Are ground guides used in the appropriate circumstances (for example, backing, in bivouac areas, limited visibility areas, et cetera)?
- Are personnel prohibited from sleeping in vehicles while the engine is running?
- Are vehicle dismount points clearly marked and ground guide procedures strictly enforced at all bivouac areas?
- Are fine drills practiced on all vehicles?

VEHICLE SWIMMING AND FORDING OPERATIONS

Battlefield conditions and operations may dictate that vehicular swimming and or fording operations take place. At a minimum, the following steps should be taken to ensure crew safety and equipment serviceability after completion of each swim and or ford mission:

- Before crossing lakes or rivers, do commanders—
  - Ensure on-site reconnaissance has been performed prior to crossing operations?
  - Ensure that a rescue boat is in the water standing by?
  - Ensure that entry and exit points are clearly marked?
  - Ensure an assembly precheck area has been set up?
  - Ensure that all personnel are wearing vests?
  - Ensure that all vehicles have been predipped prior to crossing?
- During swim and or fording operations do commanders—
  - Ensure vehicles head across slow streams and diagonally cross swift current streams downstream?
  - Ensure crew awaits rescue if vehicle stalls and is not sinking?

APPENDIX C

Combined Arms For Air Defense

This appendix explains how every member of the combined arms team can provide passive and active measures of AD protection. It explains how to use all arms fire to provide a significant terminal defense.

Threat air forces will be operating over the battlefield, attacking US ground forces. Divisional units operate under the protective umbrella of ADA units. However, for close-in protection, they must also depend on passive and active measures of AD protection. Every member of the combined arms team must be capable of firing at attacking aircraft in self-defense. Small arms fire against aircraft provides a significant terminal defense. Individual and crew-served weapons can mass their fires against any aircraft. The use of tank main guns, SAWS, 25 millimeters, TOWS, Dragons, caliber .50 and M60 machine guns, field artillery, and the M16 rifle are the primary assets (outside of ADA systems) available for use in an antiaircraft role. If a unit is not given dedicated ADA assets in an operation, then the unit must use active and passive means available to his unit. Likewise, ADA soldiers whose systems are inoperable or out of ammunition must fight as infantry and use their small arms in an air defense role when necessary.

PASSIVE AIR DEFENSE

Enemy pilots must see and identify a target to attack it. The effectiveness of high-performance aircraft is greatly reduced when ground units take full advantage of terrain for cover and concealment. All ground forces should–

• When stopped, occupy positions which offer natural cover and concealment. Camouflage vehicles that are exposed. When moving, travel by covered and concealed routes.

• Dig in dismounted positions as well as camouflaging them. If vehicles must occupy positions visible from the air, improve cover by scooping a hole or building up protection on the sides.

• Disperse vehicles as much as possible. This makes detection difficult. Additionally, if detected, a single aircraft on a single pass can only attack a single vehicle.

• Wipe out track marks made when moving into position.

• If moving when an enemy aircraft attacks, turn vehicles 90 degrees to the direction of attack (the attack is normally parallel to the movement of the convoy) and seek cover and concealment. This is a quick way to get vehicles out of the line of fire.

• Require air guards on each vehicle or in each position. Rotate the responsibility, since scanning for long periods dulls spotting ability.

• Establish an air warning system in the SOP. Include both visual and audible signals.

Passive air defense concerns all measures used, except engagement by fire, to prevent attack by hostile aircraft. The purpose is to avoid detection. In addition to the above, covering windshields, headlights, or canopies of concealed vehicles makes them more difficult to detect.

CONTENTS

Passive Air Defense.....C-1
Active Air Defense.....C-2

Passive air defense also concerns movement along covered and or concealed routes, forests, or shadows cast by mountains or buildings. Strict communications security reduces the enemy's ability to pinpoint friendly units. This is particularly important for C^3I nodes which are primary threat targets. Lateral and in-depth dispersion helps reduce the effectiveness of an enemy air strike.

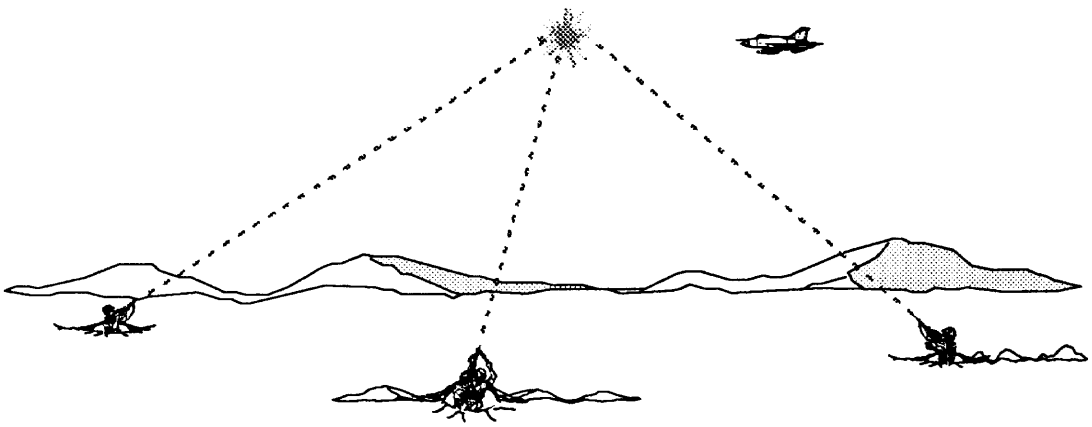
ACTIVE AIR DEFENSE

Active air defense is the use of all suitable weapons to engage attacking aircraft. Techniques of engaging aircraft for non-ADA systems are summarized below and are further discussed in FM 44-8.

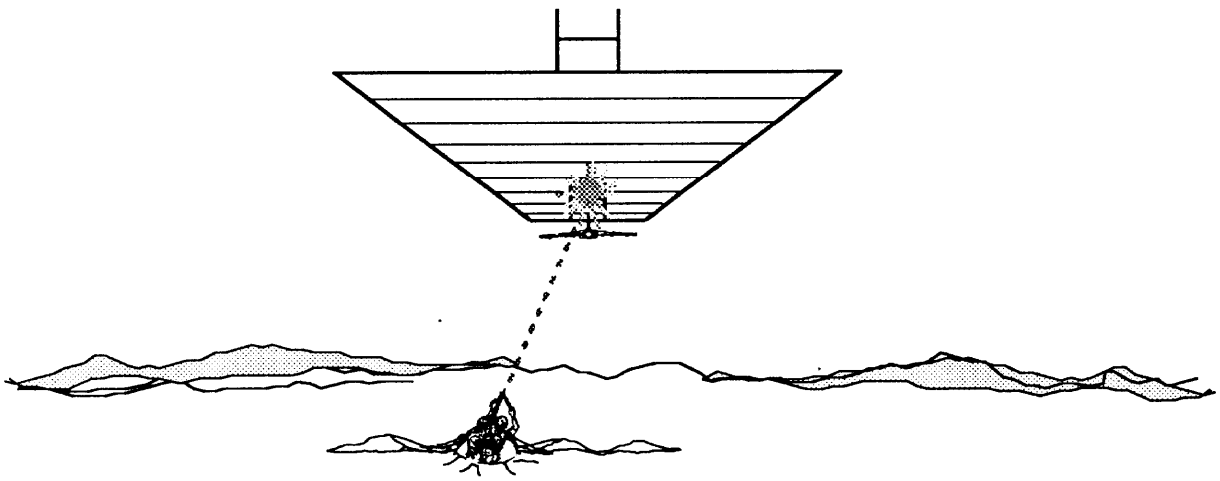
A large volume of fire from small arms can destroy attacking aircraft or disrupt their attack. The volume fire technique is used to engage aircraft with small arms (see the Massed Small Arms Fire illustration). A high volume of sustained fire (M16, M60, and caliber .50) is massed ahead of an aircraft. The intention is to destroy the aircraft when it flies into the fire.

When an enemy is flying directly toward you, fire as fast as possible and slightly above the nose of the aircraft (see the Direct Attack illustration).

MASSED SMALL ARMS FIRE



DIRECT ATTACK



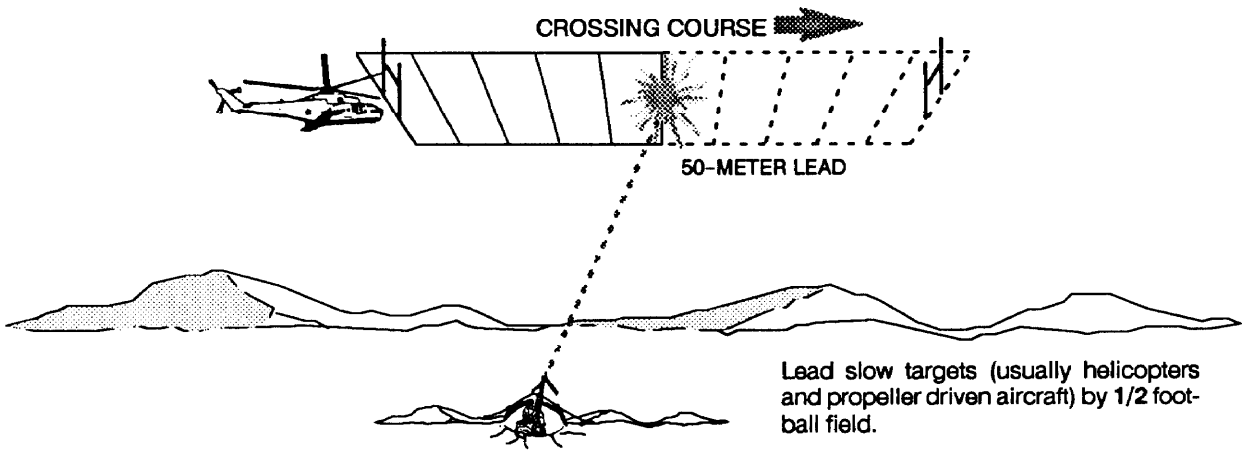
A lead angle is required for aircraft flying crossing and overhead courses. The amount of lead required depends on aircraft speed (see the illustrations below).

Automatic weapons can use an alternate technique called the sweep through method (see the Sweep-Through Method illustration on page C-4). The gunner starts tracking to the rear of the hostile aircraft and then sweeps through the aircraft. He begins firing as he sweeps through, and continues firing until the target is destroyed.

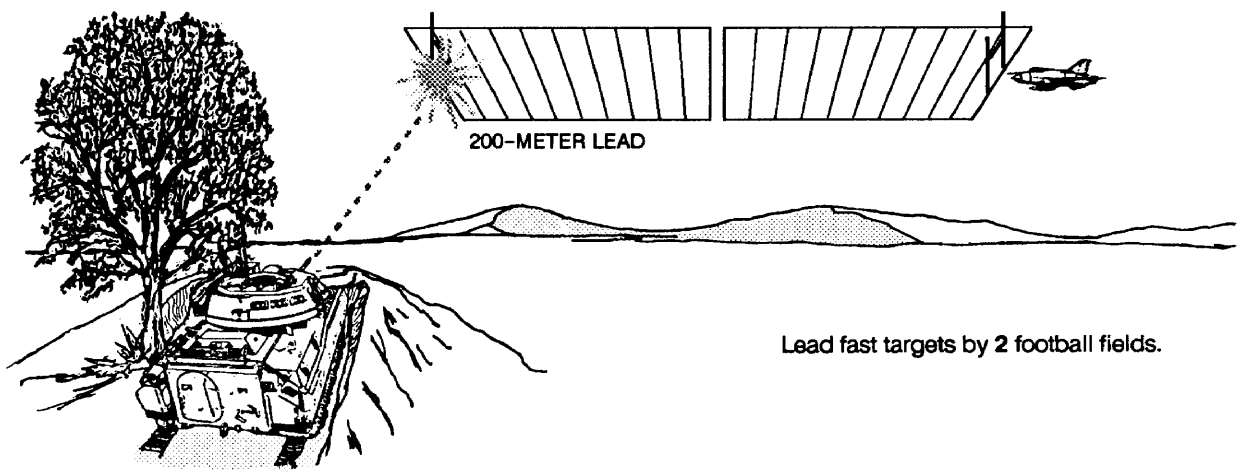
Although not reflected in current FA doctrine, field artillery weapons can likewise engage aircraft. During an artillery barrage, many helicopters can be engaged. In isolated instances, a call for fire can be directed on rotary-wing aircraft. Use of artilley on helicopters has proven lethal in numerous confrontations and should be exploited whenever possible.

Field artillery should be targeted against such critical enemy air-associated assets as FAC, FAA, LZ/DZ, and the CP. The air portion of the IPB should identify these elements for the division G2 and FSE.

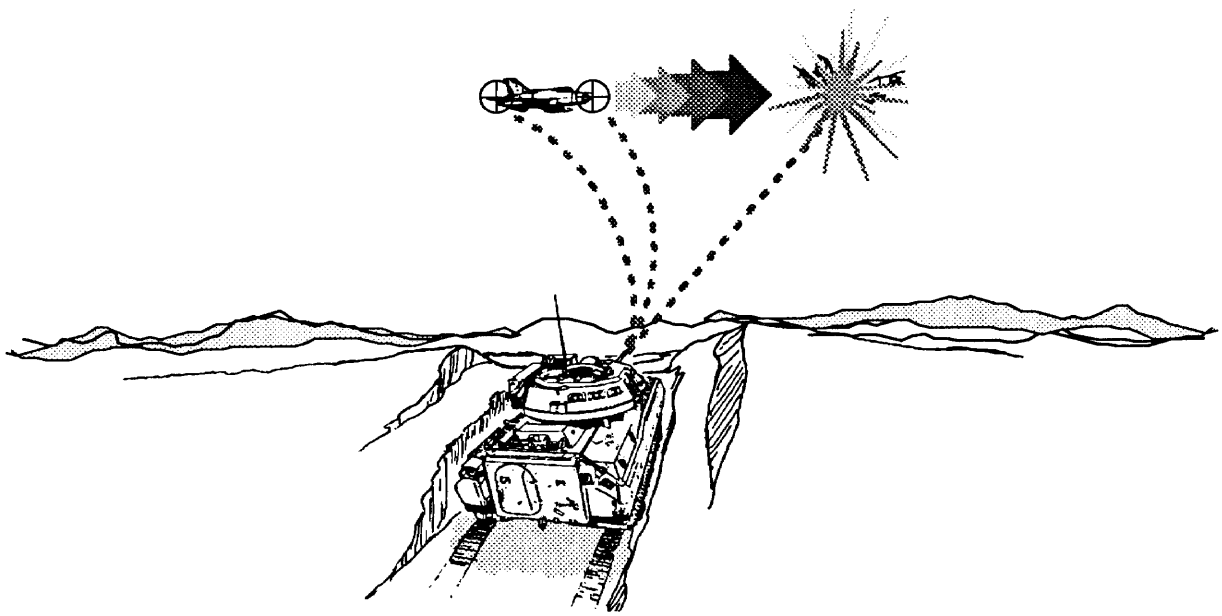
SLOW TARGETS LEAD ANGLE



FAST TARGETS LEAD ANGLE



SWEEP-THROUGH METHOD



APPENDIX D

ADA Allocation Employment Guidelines

This appendix provides the commander with the fundamental considerations necessary to allocate and employ ADA assets in support of an operation. It explains command and support relationships for ADA force allocation. It also explains the ADA employment guidelines for optimum positioning of fire units.

COMMAND RELATIONSHIPS

Types of command relationships are: organic, assigned, attached, operational control (OPCON), and operational command. Depending on the type of command relationship between units and elements, command responsibility and authority varies. Basically, a command relationship is determined by its impact on the maneuver force's concept of the operation.

ORGANIC

Organic is defined as a unit that forms an essential part of an Army unit and is listed in its TOE.

ASSIGNED

Assigned units are those units placed in an organization on a permanent basis. These units are controlled and administered by the organization to which they are assigned.

ATTACHED

An attached unit is placed in an organization on a temporary basis. Attached units are subject to limitations specified in the attachment order. The attachment order should state clearly any variation in the administrative and support responsibility of the gaining unit or the attached unit. When an ADA unit is attached, the supported force is responsible for providing administrative and logistical support to the ADA unit.

OPERATIONAL CONTROL

OPCON is when a unit has been provided to another commander to accomplish specific missions or tasks which are usually limited by function, time, or location. When operational control is the appropriate special command relationship, it should only be maintained for brief periods of time. Also, it should never be assigned when the parent unit has the capability to *exercise* effective control.

OPERATIONAL COMMAND

Within DOD, operational command is the authority exercised by the commanders of unified and specified commands over assigned forces. It is synonymous with OPCON. However, OPCON includes administrative and logistical responsibility.

SUPPORT RELATIONSHIPS

Support relationships are established to define specific relationships and responsibilities between supporting and supported units. The four support relationships are: general support (GS), reinforcing (R), general support reinforcing (GSR), and direct support (DS).

GENERAL SUPPORT

An ADA unit with a GS mission provides air defense for the force as a whole. It supports the entire force and is not committed to any specific element of the force. This is the case when an ADA unit defends priority assets as specified by the force commander. Thus, it remains under the close control of the ADA battalion commander. An ADA unit with a GS mission can be used to rapidly respond to changes in either the scheme of maneuver or the air threat. This relationship is commonly used when the ADA unit is to protect division-level control and support elements in brigade and division rear areas.

C O N T E N T S

Page

Command Relationships.....D-1

Support Relationships D-1

ADA Employment Guidelines.....D-2

GENERAL SUPPORT REINFORCING

An ADA unit with a GSR mission augments the coverage of another ADA unit. GSR units are not committed to any specific element of the force. For example, this mission could be used where the division commander desires to provide additional air defense for a brigade that has an ADA battery in DS and, at the same time, retain close control over the additional unit.

REINFORCING

An ADA unit with an R mission augments the coverage of another ADA unit, or strengthens the air defense of the force. This mission differs from GSR in that an ADA unit assigned this mission is positioned by the reinforced unit to protect assets specified by the supported unit commander.

DIRECT SUPPORT

An ADA unit with a DS mission provides dedicated air defense for a specific element of the force. An ADA unit with a DS mission provides close and continuous support and coordinates its movement and positioning with the element it supports.

To determine the most appropriate support relationship for accomplishing the ADA mission, the following questions need to be answered:

- Who establishes AD priorities?
- Who locates the ADA unit?
- With whom do you establish liaison?
- Who positions ADA fire units?
- With whom do you establish communications?

The ADA Support Relationships illustration shows responsibilities associated with each ADA relationship.

ADA EMPLOYMENT GUIDELINES

ADA employment guidelines are used as aids for positioning individual ADA fire units (FUs) when tailoring an asset's defense. The six ADA employment guidelines are: mutual support, overlapping fires, balanced fires, weighted coverage, early engagement, and defense in depth.

MUTUAL SUPPORT

Mutual support is achieved by positioning FUs so that they can cover the dead zones of adjacent FUs. Mutual support should be used so that attacking aircraft can be engaged by adjacent FUs. The maximum mutual support distances listed in the Maximum Distances illustration are guidelines only. The distance may be less depending upon aircraft speed, attack angles, or OCOKA factors.

OVERLAPPING FIRES

When there are terrain constraints, or a scarcity of available FUs, it may not be possible to achieve mutual support. In this case, the commander should plan, and the platoon leader should implement, overlapping fires. This ensures that an attacking enemy aircraft will be engaged by at least one ADA FU. Overlapping fires is less preferred than mutual support since threat aircraft seldom fly alone, and since dead zones are no longer protected by adjacent systems.

BALANCED FIRES

FUs are positioned and oriented to provide approximately equ firepower in all directions. Since critical assets maybe attacked as targets of opportunity, an attack can come from any direction. As determined by the air IPB, terrain may confine enemy aircraft to a well-defined air avenue of approach. Balance may then be sacrificed and the defense weighted in the direction of the attack. This should be done, however, only when there is little risk of an attack from another direction.

WEIGHTED COVERAGE

FUs are positioned and oriented so that their combined firepower is concentrated toward the most likely air avenues of approach. Weighted coverage is employed when enemy attack routes are identified through the air IPB or when insufficient assets are available to provide balanced fires. Routes that allow aircraft low-level approaches (valleys and rivers) into the defended area should receive weighted coverage.

EARLY ENGAGEMENT

FUs must be positioned so that they are capable of engaging aircraft prior to their ordnance release line (ORL). The determination of enemy approaches and ordnance loads comes from the air IPB. Early engagement is the most important divisional ADA employment guideline.

ADA SUPPORT RELATIONSHIPS

ACTION	GENERAL SUPPORT	GENERAL SUPPORT REINFORCING	REINFORCING	DIRECT SUPPORT
Who establishes AD priorites?	The force commander.	1. The force commander. 2. The supported commander through the reinforced ADA commander.	The supported commander through the reinforced ADA commander.	The supported commander.
Who locates[1] the ADA unit?	The commander assigning the mission in coordination with the supported ground force commander.	The commander assigning the mission in coordination with the supported ground force commander.	The reinforced ADA commander in coordination with the supported ground forces commander.	The DS ADA commander with approval of the local ground commander.
Who positions[2] ADA fire units?	ADA fire unit commanders in coordination with the local ground force commander.	ADA fire unit commanders in coordination with the reinforced ADA unit commander and the local ground force commander.	ADA fire unit commanders with approval of the reinforced unit commander and the local ground force commander.	ADA fire unit commanders with approval of the local ground force commander.
With whom should lialson be established?	As required.	As required, but including the reinforced ADA commander.	As required, but including the reinforced ADA commander.	Supported unit commander.
With whom should communications be established?[3]	As required.	As required, but including the reinforced ADA unit.	As required, but including the reinforced ADA unit.	Supported unit.

NOTES:

1. The term "locates" specifies the establishment of a broad operating area (commonly, a "goose egg").

2. The term "positions" specifies the selection of an exact point within the operating area. (Although not addressed in this chapter, the term "siting" specifies the placement of individual items of equipment on selected spots within the position.)

3. A unit supporting another unit is responsible for the establishment and maintenance of communications with the supported unit.

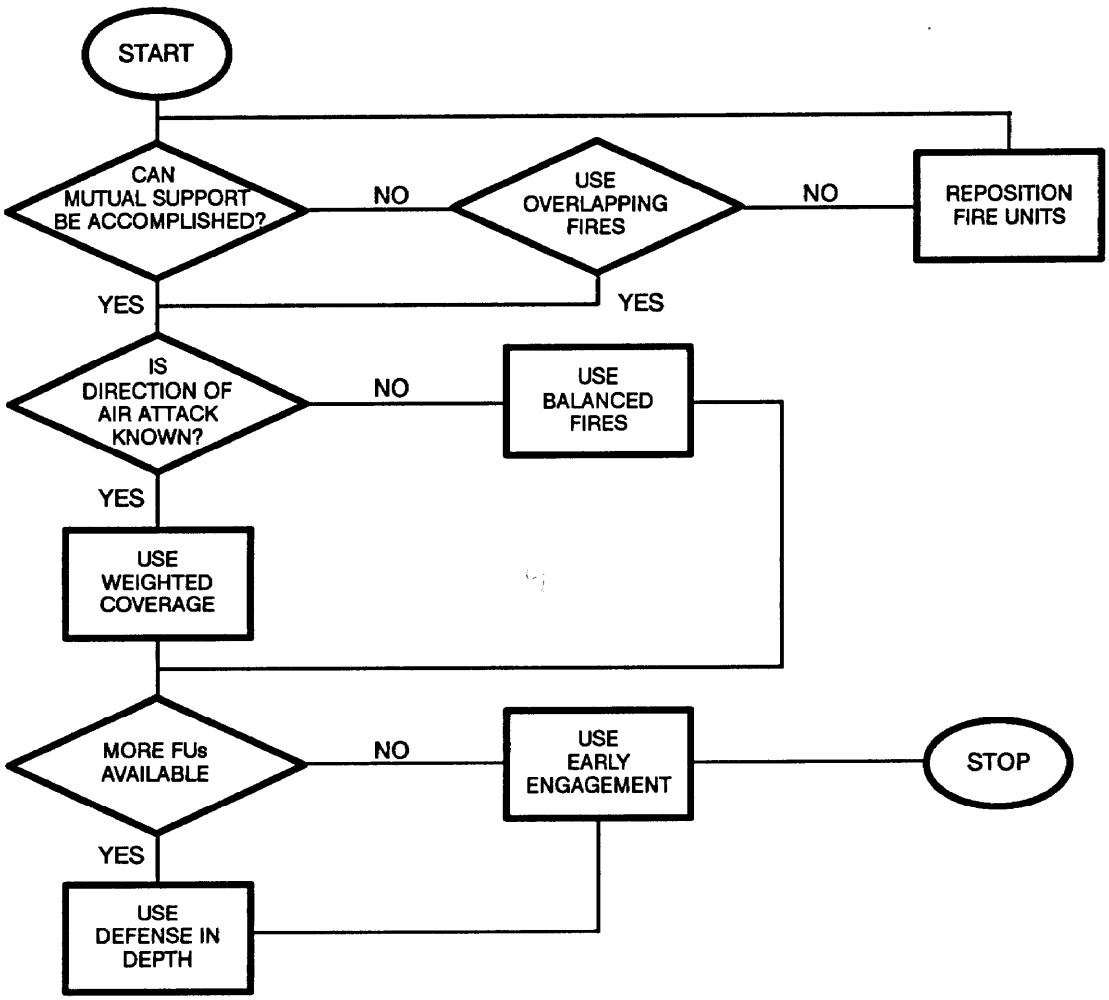
MAXIMUM DISTANCES

SYSTEM	MUTUAL SUPPORT	OVERLAPPING FIRES
AVENGER	3,000 METERS	6,000 METERS
CHAPARRAL	3,000 METERS	6,000 METERS
STINGER	2,000 METERS	6,000 METERS
VULCAN	1,000 METERS	1,500 METERS

DEFENSE IN DEPTH

This can be achieved by positioning weapons so that threat aircraft are engaged by an ever-increasing volume of fire as they approach a specific defended asset. Defense in depth is maximized through the principles of mix and mass. A decision tree for the use of the six guidelines (including combinations) is depicted in the Employment Principles Guidelines Decision Tree illustration.

EMPLOYMENT PRINCIPLES GUIDELINES DECISION TREE



LEGEND:

MS - Mutual Support
OF - Overlapping Fires
BF - Balanced Fires
WC - Weighted Coverage
DD - Defense In Depth
EE - Early Engagement

POSSIBLE CONFIGURATIONS							
1	2	3	4	5	6	7	8
MS	NS	MS	MS	OF	OF	OF	OF
WC	BF	WC	BF	WC	BF	WC	BF
DD	DD	EE	EE	DD	DD	EE	EE
EE	EE			EE	EE		

APPENDIX E

Air IPB

Conducting a well-planned intelligence preparation of the battlefield (IPB) is fundamental to the execution of the air defense artillery mission in AirLand Battle doctrine. It is essential that the ADA commander can visualize what the enemy ground force commander is looking at to predict when and where he will use his aviation to support his ground operations.

It is important to realize that IPB has different uses. For the ADA brigade, battalion, and SHORAD battery commanders, it is a tool by which they can visualize the battle. For the HIMAD battery commander and SHORAD platoon leader, it is used to position their fire units to kill enemy aircraft.

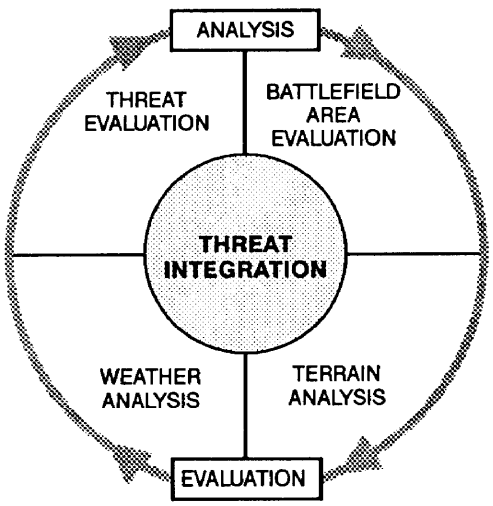
OVERVIEW

IPB is an analytical methodology employed to reduce uncertainties concerning the enemy, weather, and terrain for all types of operations. Without first obtaining and analyzing the ground IPB, the analysis of enemy aerial activity is impossible. The enemy air attack is tied to the ground attack. This appendix discusses those planning steps that need to be taken to perform an analysis of the aerial dimension of the IPB. The IPB process is depicted in the IPB Process illustration.

BATTLEFIELD AREA EVALUATION

The first step in the IPB process is to define the area of interest (AI). The AI for the aerial dimension of the IPB begins with the location of the enemy's fixed aviation and tactical ballistic missile (TBM) facilities and stretches past the FLOT to a maximum depth to which enemy aviation can fly, or fire TBMs, into the Army force's rear areas. The AI is not confined to the supported unit's boundaries. Aviation can approach from outside the defended sector rather than approach on likely ground avenues of approach. IPB should answer the basic questions of who, what, when, and how. The AI varies by type organization as shown in the illustration on page E-2.

IPB PROCESS



The S2 must also depict the area of operations (AO). The AO is a geographical area where the commander has been assigned the responsibility and authority to conduct military operations.

Priority intelligence requirements (PIRs) must be defined by the commander to identify critical intelligence gaps. Any activity or characteristic that occurs within the battlefield that significantly impacts on the

CONTENTS

Overview.....E-1
Battlefield Area Evaluation.....E-1
Terrain Analysis.....E-2
Weather Analysis.....E-3
Threat Evaluation.....E-3
Threat Integration.....E-6

commander's tactical decisions should be a PIR. Example of PIRs are as follows:

- When and where will the enemy attack?
- Where are TBM fixed sites located?
- Where is the enemy's main reconnaissance effort?
- Will the enemy employ chemicals in the brigade sector?

TERRAIN ANALYSIS

Terrain analysis is the process used to reduce uncertainties regarding the effects of natural and manmade terrain on military operations. The aerial terrain analysis, which will identify low-altitude aviation routes into the defended sector in depth, must be superimposed on the ground terrain analysis for the S2 to visualize the air battle. Terrain analysis must be performed throughout the depth of the defended sector, from the FLOT to the supported unit rear boundary.

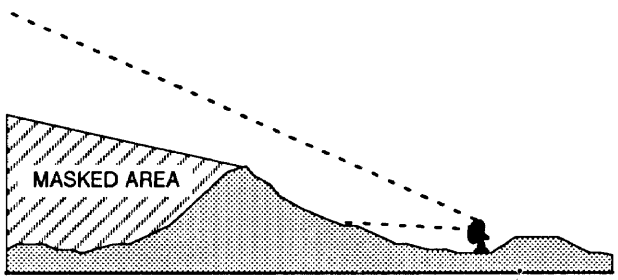
During the terrain analysis, the S2 determines where possible enemy drop zones, landing zones, standoff attack orbits may be used, and where the low-altitude avenues of approach are likely. These areas are determined using the OCOKA (obstacles, cover and concealment, observation and fields of fire, key terrain, and avenues of approach) method. OCOKA also addresses the terrain's effects on friendly ADA systems and threat aircraft.

To determine enemy air avenues of approach, frost find the enemy air staging area. Next, determine probable targets enemy aircraft would attack. Fixed-wing air will take a relatively direct route using valleys and low areas perpendicular to the FLOT or flanks between these two points due to the limited fuel on board arid the amount of ordnance being carried. Rotary-wing aircraft would use low-altitude avenues of approach to the flanks and to the rear of friendly forces. The key variables on the enemy air avenue of approach are METT-T factors and friendly ADA sites. In air IPB, the importance of predicting enemy air avenues of approach is paramount.

In HIMAD units, the platoon leader or the battery commander must next make a line-of-sight (LOS) overlay. The LOS overlay will determine the ADA fire unit's line of sight against enemy aircraft attacking into sector (see the Line of Sight for Masked Terrain illustration).

Enemy TBMs and aircraft involved in the independent air operation are generally not subject to terrain restrictions. To determine avenues of approach for these threats, the S2 must first determine the likely flight profiles. In the case of TBMs, the S2 must also determine ranges, CEPs, and routes to friendly targets.

LINE OF SIGHT FOR MASKED TERRAIN



AREAS OF INTEREST

ORGANIZATION	OPPONENT	DEPTH OF AI	WIDTH
DIVISION	ARMY	RW AIRFIELDS AND FIXED TBM SITES TO DEPTH OF 240 KM	METT-T
CORPS	FRONT	ENEMY AIRFIELDS AND FIXED TBM SITES TO CORPS REAR	METT-T

WEATHER ANALYSIS

To determine when the enemy will most probably use his aviation, the analyst must next determine the effects of visibility and ceiling, wind speed, precipitation, temperature, and illumination on the threat and on the friendly forces' ability to conduct aviation operations. An example of the weather variables' impact on aviation operations is shown in the illustration on page E-4.

Weather has a limited effect on TBMs. However, the enemy may find it easier to use TBMs without the threat of interdiction when weather conditions inhibit friendly air operations.

THREAT EVALUATION

In the threat aviation evaluation phase, doctrinal templates are used. Doctrinal templates indicate how the enemy would fight if there were no weather or terrain restrictions. During this phase, enemy order of battle files are updated and organized. Order of battle factors include capabilities of enemy aircraft, command and control procedures, tactics, and organization of units.

In air IPB, attack profiles are used to predict the phases and type of fixed-wing aircraft used in the air operation. They also depict probable air-to-surface and surface-to-surface missile (SSM) flight patterns. The Attack Profile Template on page E-4 depicts the different aircraft missions and types of aircraft used in a typical air operation. The vertical bar on the left of the graph indicates the relative altitudes above ground level (AGL) at which the aircraft will fly. The horizontal line on the bottom of the graph depicts the time (in minutes) it takes the aircraft to reach friendly forces. Therefore, it depicts the air attack in time and space.

WEATHER VARIABLES' IMPACT ON AVIATION OPERATIONS

TYPE AIRCRAFT	MINIMUM VISIBILITY AND CEILINGS	WIND SPEED AND DIRECTION[1]	PRECIPITATION	TEMPERATURE AND HUMIDITY[2]	ILLUMINATION[3]
FIXED-WING	5 KM VISIBILITY 2.5 KM VISIBILITY 2.5 AGL CEILING IN HILLY TERRAIN 1.0 AGL CEILING IN FLAT TERRAIN	FOR AIRBORNE OPS SPEED MUST BE < 13 KNOTS	SEVERE WEATHER WITHIN 4.83 KM OF TGT WILL HINDER ACQUISITION FREEZING RAIN GREATLY LIMITS LIFT ABILITY	TEMP > 100°F AND HUMIDITY < 80% WILL DEGRADE PAYLOAD CAPACITY	LITTLE AIR TO AIR OR POINT CAS CAPABILITY AT NIGHT EXCEPT FOR NEWEST FW AIRCRAFT
ROTARY-WING	1.85 KM VISIBILITY 9 KM AGL	FOR AIRMOBILE OPS SPEED MUST BE < 13 KNOTS	SAME	SAME	NO CAS WITHOUT ILLUMINATION EXCEPT NEWEST RW AIRCRAFT

NOTES:

1. Strong perpendicular winds to air avenue of approach increases difficulty in hitting target.
2. Amount of degradation differs with type aircraft.
3. Newer FW aircraft are Foxhound, Fulcrum, and Frogfoot; newer RW aircraft are Havoc and Hokum.

This graph enables the HIMAD air defender to prioritize the air targets. By using the specific parameters such as AGLs, heading and or speed, a priority for engagements can be established.

The SHORAD air defender can use this profile to determine the order of the attack aircraft. It is essential that SHORAD air defenders know the order of the aircraft missions and the types of aircraft used.

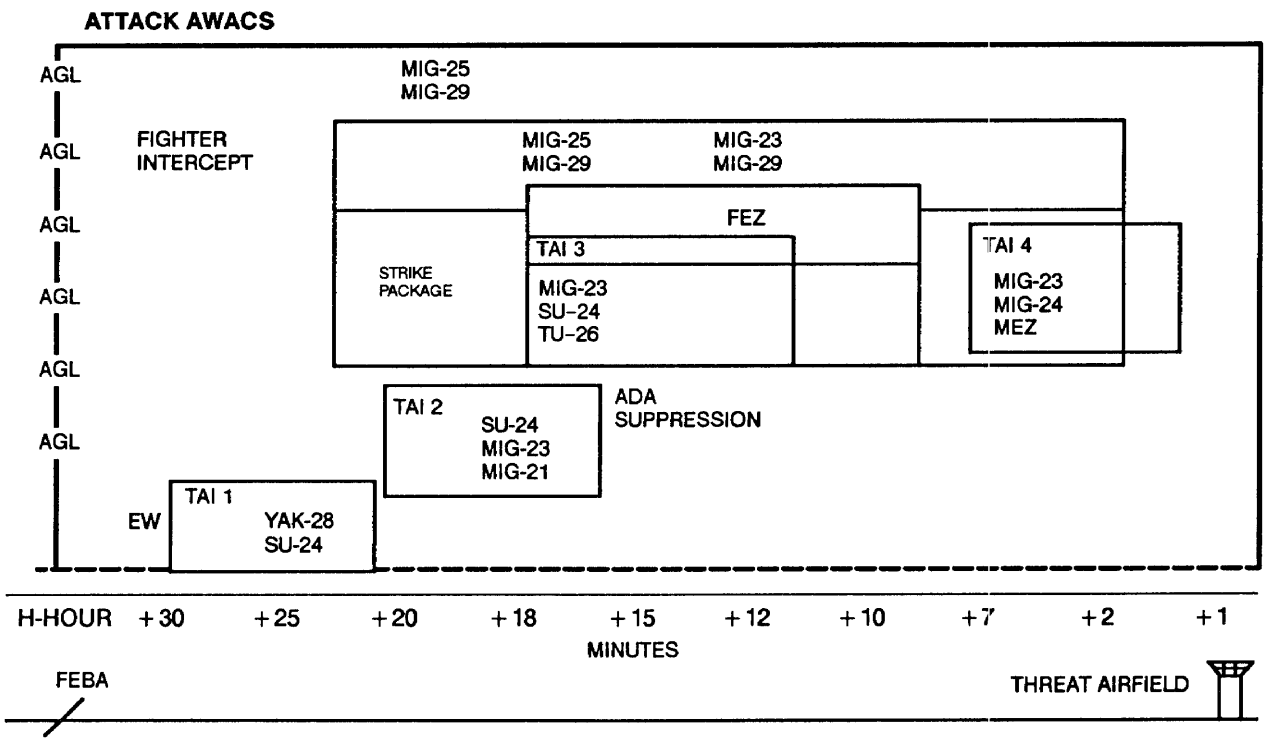
The graphic below is a rotary-wing (RW) attack profile template. The vertical bar on the left of the graph shows the expected altitude (above ground level) the RW aircraft are expected to fly. The horizontal bar at the bottom of the graph presents the distance from the enemy airfield to the friendly forces. There are different profiles for each mission and each aircraft.

The SHORAD air defender can use the profile to predict the type of mission an incoming aircraft may be attempting. For example, if a single Hip flies in at nap-of-the-earth altitude, most likely the mision is laying mines, relaying information to another element, or using command and control to direct another aircraft.

Most information on TBMs will come from a national real-time source. However, the ADA S2 must doctrinally template the flight patterns, ranges, and circular error of probability (CEP) for short, medium, and long-range TBMs in the AI. This information, once plotted, will enable the HIMAD commander to orient the primary target line (PTL). Due to the short reaction time for TBMs, intelligence must focus on launch trends and indicators. Examples of these are weather conditions, location of fixed and or mobile sites, associated radars, command and control vehicles, and refueling tankers.

The next step in the threat evaluation stage is target value analysis (TVA). TVA allows the commander to anticipate enemy courses of action and gain initiative. TVA includes determining high-value targets (HVTs) and high-payoff targets (HPTs).

ATTACK PROFILE TEMPLATE



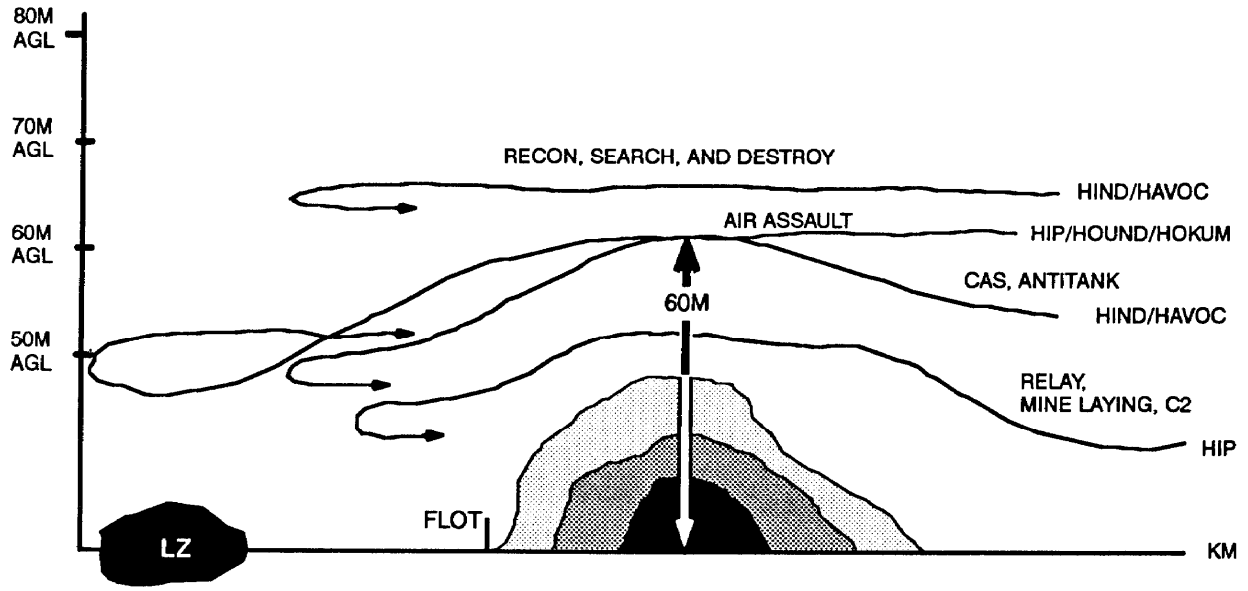
HVTs are targets which, if successfully attacked by friendly forces, will contribute to the degradation of important enemy battlefield functions. HVTs are assets, operations, or actions which the enemy commander must to control or protect. The HVT list is developed by imagining how the enemy will fight, relative to the friendly force mission. The S2 determines the HVTs by identifying those assets the enemy commander would consider valuable or critical for the accomplishment of his mission.

For example, if the S2 is thinking through an enemy attack and knows that the friendly force is in a prepared defense with extensive air defense assets, it is logical to assume the enemy commander will want substantial air defense suppression strikes. Enemy aircraft commonly used in air defense suppression packages (Su-24, MiG-23, and MiG-21) become HVTs. The enemy's air attack will be coordinated on the ground with forward air controllers (FACs), radio navigation points (RNPs), and vectoring target designation points (VTDPs). These command and control points are critical to the enemy air operation and are also HVTs.

HPTs are HVTs which, if successfully attacked, will contribute to the success of friendly operations. The HPTs are determined by the commander and S3 by prioritizing the HVTs during the war-gaming process. Once the HVT list is compiled, the S2 gives the list to the S3, FSO, and commander. Then, from the perspective of friendly forces, the HPT list is compiled. The HVTs that meet the requirements of being acquirable, attackable, and capable of ensuring friendly success are designated as HPTs. The HPTs will be targeted at a later time for successful accomplishment of the friendly forces mission.

For example, the two air attack HVTs stated earlier (the air defense suppression aircraft and the command and control) would be prioritized and listed as HPTs. The commander would determine that without the listed aircraft, ADA suppression would be impossible. However, if the command and control structure were destroyed or disrupted, the attack could still occur. Therefore, the HPTs would be listed in priority as follows: MiG-23, MiG-21, Su-24, FACs, RNPs, and VTDPS.

RW ATTACK PROFILE

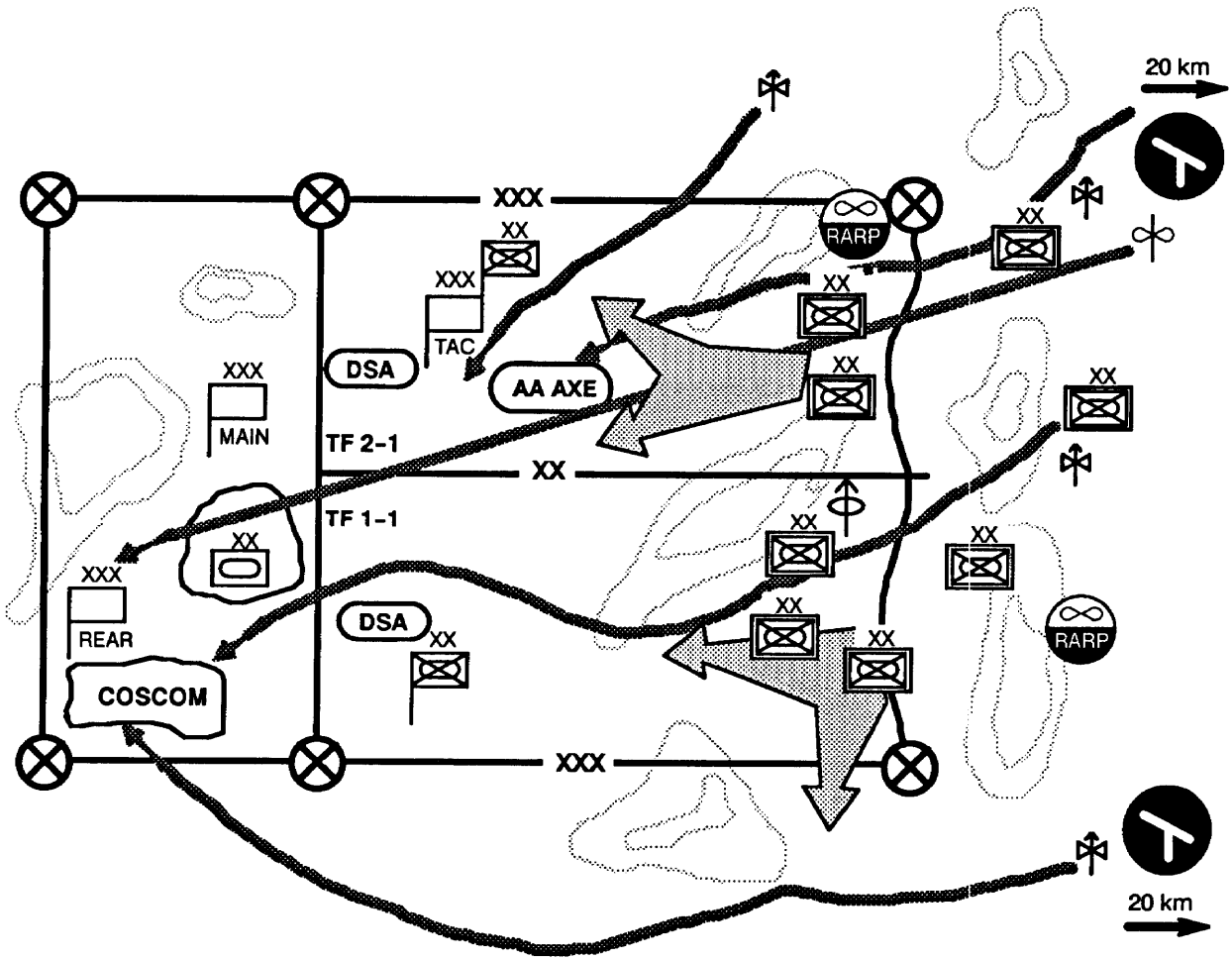


THREAT INTEGRATION

Threat integration is the final and possibly the most important phase of the IPB process. In this step, the analyst compiles all the information gathered to create a situation template. A situation template is a doctrinal template arrayed on the map with weather and terrain restrictions applied (see the Air IPB Situation Template).

The next step in threat integration is to develop an event template. The event template is a collection plan in graphic form (see the Event Template for Ground IPB on page E-7). It identifies areas which confirm or deny enemy courses of action. These areas are called named areas of interest. NAIs can be a specific point or an area on the map.

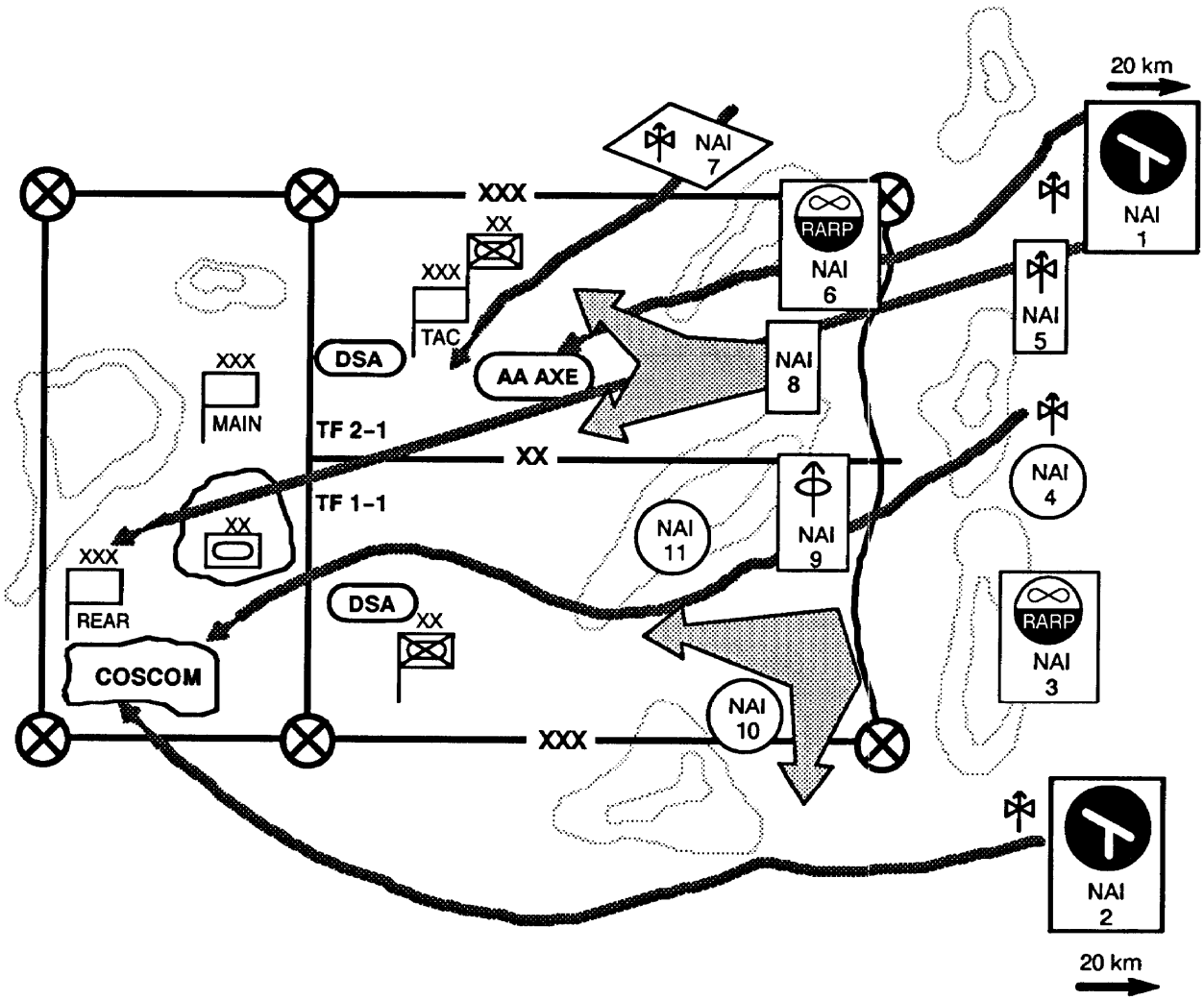
AIR IPB SITUATION TEMPLATE



In ground IPB only, the NAIs are sent to the division or corps on a collection plan as a request that those specific areas be monitored. These NAIs become part of the reconnaissance and surveillance plan. Once in the surveillance plan the NAIs can be dropped from the template. Ground IPB also incorporates timed-phase lines (TPLs). The TPLs depict the expected times of movement of the maneuver forces, which then predict expected times for different courses of action and reaction.

In air IPB, NAIs selected by ADA units can be monitored by their own assets. For this reason aerial NAIs are left on the templates. The aerial portion of the battle is much more fluid and dynamic than the ground battle. Once aircraft and TBMs are spotted, the reaction time is very minimal. The aircraft and TBMs are acquired on the radar scope and fired upon almost instantly. TPLs are not necessary on the aerial portion of IPB.

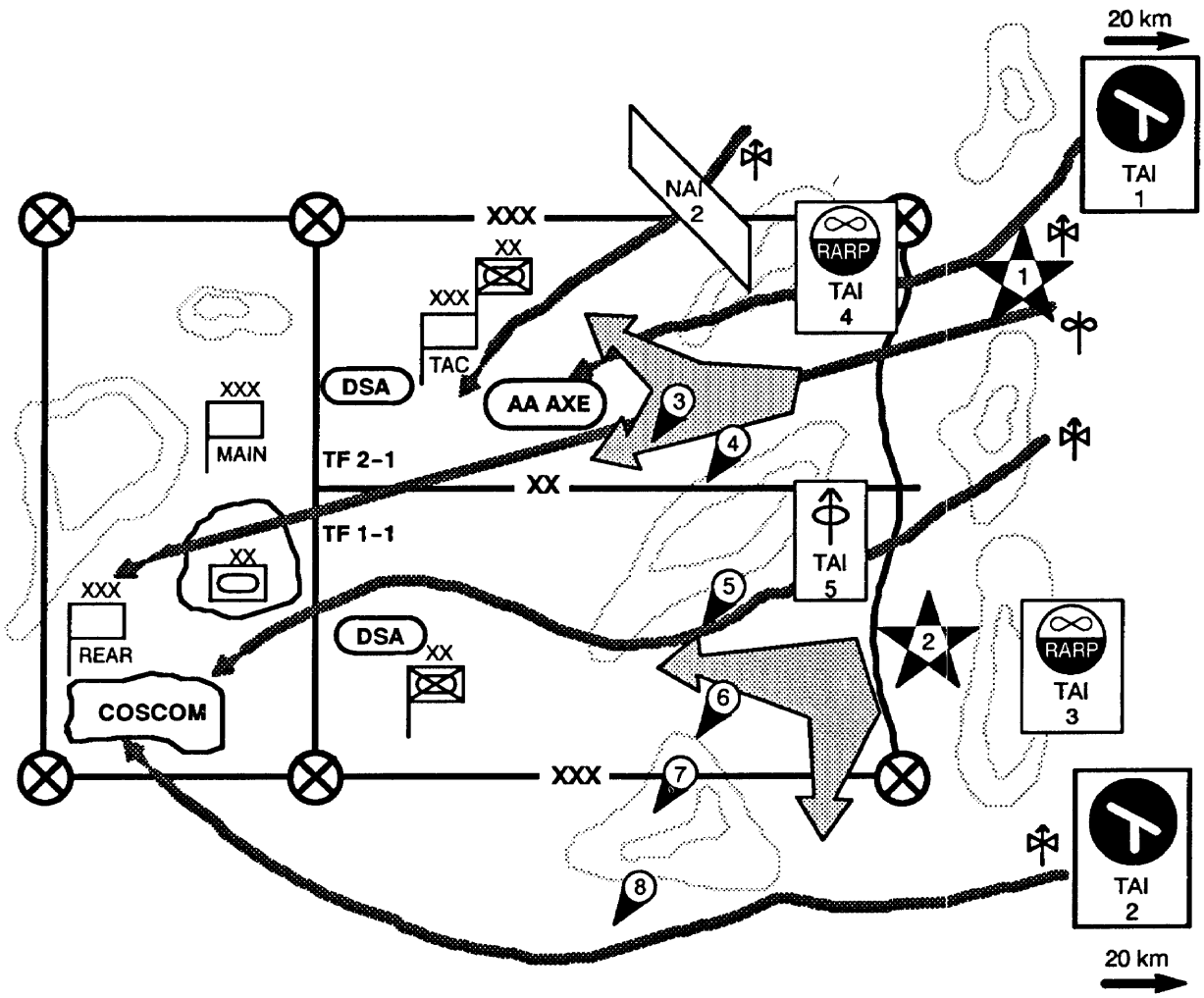
EVENT TEMPLATE FOR GROUND IPB



The final phase of threat integration is developing the decision support template (see the illustration below). The DST is the intelligence estimate with the operations plan depicted in graphic form. It identifies critical events relative to location, time, and the current situation which require tactical solutions. The DST is the synchronization tool that brings the entire staff together. The DST does not dictate decisions to the commander; rather, it identifies when critical decisions must be made. The aerial DST includes NAIs, target areas of interest (TAIs), and decision points (DPs). Aerial NAIs, usually along air avenues of approach, should be integrated with the ground scheme of maneuver in the DST. For ease of identification, ground NAIs and aviation NAIs are identified by different symbols as shown in the Event Template for Ground IPB illustration on page E-7.

For Patriot units aerial NAIs maybe quite large relative to NAIs for SHORAD units. For example, if the G2 identifies a region 50 by 500 kilometers in area as a possible source of short-range TBMs, it would be designated as an NAI for a Patriot battalion.

DECISION SUPPORT TEMPLATE



TAIs are areas where interdiction of enemy forces by maneuver, fires, or jamming will eliminate or reduce a particular capability or course of action, or will require the enemy to expend unusual amounts of resources to continue operations. (See the Decision Support Template.)

Finally, decision points are depicted on the DST to indicate where critical decisions must be made by the commander. These decision points may or may not be the same as NAIs in ground IPB. The fluid and dynamic pace of air operations reduce the ADA commander's reaction time to much less than that of a maneuver commander.

Once the DST has been prepared the S2 will brief the XO or commander on his analysis. The S3 will identify decision points based on the NAIs that may require decisions. The decision may involve shifting primary target lines (PTLs), changing the EMCON status, targeting enemy aviation C^2 facilities, adjusting CSS, or even relocating fire units.

The decision support matrix (DSM) is appended to the DST The DSM is the planning tool used by the commander to integrate all the battlefield operating systems (BOSS) to counter a potential threat's course of action. These detailed plans must be devised during the planning and training periods. During a battle exercise or actual conflict, the situation becomes too dynamic for detailed planning.

DECISION SUPPORT MATRIX

DP	1	2	... 5
EVENT	1ST ECHELON (MAIN EFFORT) PENETRATING 1ST BDE SECTOR (TF 2-1) LEAD ECM TK RGT MOVING WEST	2D ECHELON TK ATK WEST TK RGT ATK IN NORTHEAST SECTOR	
INTEL	GUARDRAIL OR QUICKLOOK IDENTIFY TK RGT MOVEMENT WEST	LRPs IDENTIFY TK RGT NORTHEAST	
MANEUVER	TF 2-1 DELAY IN SECTOR: DRAW TK RGT INTO SECTOR 3D BDE PREPARE TO EXECUTE "KILLER" TO EA BLUE	TF 1-77 DEFEND IN SECTOR 3D BDE COA IN EA RED	
HHB	ATTACH 3D PLT TO A BTRY	ATTACH 3/HHB TO C BTRY	
A	DS TO TF 2-1 ACCEPT 3/HHB / ORIENT NAI 4	DETACH 3/HHB	
B	GS TO TF 2-1 (AA AXE) / ORIENT NAI 2, 3, 4	DS TO TF 1-1 / ORIENT NAI 5, 6, 7	
C	GS TO 3D BDE / ORIENT NAI 4	MOVE WITH 3D BDE ESTABLISH AD COVER / AT EA RED ORIENT NAI 4 ALONG ROUTE ACCEPT 3/HHB	
CHAP	GS DIVISION (DSA) / ORIENT NAI 3, 4	NO CHANGE	
HAWK	GS CORPS EXECUTE "TRAP" / ORIENT NAI 2, 3, 4 VIC LV5572	EXECUTE / ORIENT NAI 5, 6, 7 "LINEBACKER"	
C^2	TOC MV1523 TAC MV2925	TOC MV1523 TAC MV3347	
EW	NAI 3, 4, 5	NAI 5, 6, 7, 8	
AAAD	REQUEST BAI ON TAI 1, 3 FIRE TAI 4	REQUEST BAI ON TAI 2, 3 FIRE TAI 5	
A^2C^2	CAB ATK EA RIM ALONG ROUTE COBRA AT D+1 HR	JAAT ATK 2D ECH DIV TK RGT	
CSS	FLD TRAINS LV4532/ CBT TRAINS MV0055	NO CHANGE	

ADA brigades and FAAD battalions and batteries prepare DSMs. HIMAD batteries and FAAD platoons will prepare an execution matrix based on the DSM. For the subordinate units to accurately prepare their execution matrix, both the DST and DSM must be available to them.

The DSM illustration displays potential threat actions and the ADA commander's intent to counter them. This illustration is the DSM for the DST shown on page E-9. Decision point 1 in the DST corresponds to column 1 in the DSM. The specific ADA units are listed under the DP column. Critical actions such as reorienting on a different NAI or TAI, or executing a particular "tactical play" are designated to occur at a later time or place. The decision point is the point when the commander must make the decision to execute and inform subordinate units, not the actual time when the action must take place.

APPENDIX F

ADA Liaison Officer Checklist

This appendix for the ADA LNO is in a question format. The LNO can use these questions to evaluate his performance. He can determine whether or not he has accomplished all the things he must do. The LNO is the key to synchronization because of the rapid and fluid nature of the threat in the third dimension.

COORDINATION PROCESS CHECKS

The ADA LNO must establish and maintain coordination with a number of other elements. To determine that all coordination has taken place, the LNO can answer the questions in the Coordination Checklist illustration.

EARLY WARNING PLAN

The ADA LNO must be certain that early warning of threat air attack is available to the division. The Early Warning Checklist illustration presents some questions to verify the working of AD early warning.

COORDINATION CHECKLIST

1. What staff officers were coordinated with to plan synchronized air defense?
2. Was adjacent ADA unit coordination completed?
3. Were personnel statuses verified with the S1?
4. Did the ADCOORD/LNO develop the aerial dimension of the IPB?
5. Were PIRs recommended to the S2?
6. Were enemy FAC vehicles established as HVTs?
7. Were staff estimates conducted?
8. Was an air defense estimate developed and briefed?
9. Was an ADA annex developed?
10. Was the ADA scheme of maneuver briefed?
11. Does the plan include future operations or missions, et cetera?

EARLY WARNING CHECKLIST

1. Does the sensor management plan include the following:
   a. Survivability of sensors?
   b. Continuous early warning?
   c. Redundant early warning?
   d. Support of future operations?
2. Are land management issues resolved with the S3?

CONTENTS

	Page
Coordination Process Checks	F-1
Early Warning Plan	F-1
Logistical Coordination	F-2
Fire Support Coordination	F-2
A^2C^2 Coordination	F-2
Engineer Support Coordination	F-3
NBC Coordination	F-3

LOGISTICAL COORDINATION

The ADA LNO can establish or verify logistical coordination by answering several questions (see the Logistics Checklist illustration below).

FIRE SUPPORT COORDINATION

The FSO and the ADALNO must coordinate to put the division's fire support assets into the counterair plan. The questions in the Fire Support checklist illustration enable the ADA LNO to verify the coordination.

A^2C^2 COORDINATION

Coordination for A^2C^2 requires that the ADA LNO participate in the planning process. The ADA LNO can verify coordination by answering the questions in the A^2C^2 Coordination Checklist illustration.

LOGISTICS CHECKLIST

1. What is the command/support relationship?
2. What A/L requirements were prearranged between staffs of the parent and supported units?
3. Did the ADCOORD coordinate for Classes I, III, IV, and V resupply?
4. Did the ADA unit keep the S4 informed of status of equipment and levels of supply?
5. Did the S4 respond to the ADA unit's request?
6. Is there a recovery and evacuation plan?
7. What unit was responsible for recovery and evacuation?
8. What unit performed the recovery and evacuation?

FIRE SUPPORT CHECKLIST

1. Did the FSO have enemy LZs, DZs, division HQ, and FAAs templated and or targeted?
2. Was the FSE kept informed of all ADW and WCS changes?
3. Did the ADA CP have a copy of the FS plan?

A^2C^2 COORDINATION CHECKLIST

1. Was the A^2C^2 plan developed?
2. Was the ADCOORD/LNO involved in A^2C^2 planning?
3. What air management issues (if any) were not resolved between the aviation LNO, ALO, and ADO?
4. Did the ADA unit have all A^2C^2 information that affected the supported unit's AO:
   a. Air corridors?
   b. Air battle positions?
   c. ACAs?
5. Has IFF been coordinated?
6. Did the ADA unit know the TOT for all preplanned CAS?

ENGINEER SUPPORT COORDINATION

Engineer support is usually needed to assure survivability of ADA positions and equipment. The questions in the Engineers Coordination Checklist illustration enable the ADA LNO to verify coordination for engineer support.

NBC COORDINATION

Coordination for NBC protection is necessary in all units. The questions in the NBC Coordination Checklist illustration enable the LNO to verify unit preparation.

ENGINEERS COORDINATION CHECKLIST

1. What priority did ADA receive for the survivability effort?
2. Did ADA provide coverage for the engineers during survivability preparation?
3. Did the ADA CP have a current copy of the engineers obstacle overlay? With changes and updates?
4. Did they know where clear lanes were located?
5. If ADA units moved through clear lanes, was movement coordinated? With whom?

NBC COORDINATION CHECKLIST

1. Did the ADA unit understand the decontamination plan?
2. Was the ADA unit informed of all contaminated areas?

Glossary

A Avenger

A/L administration and logistics

A^2C^2 Army airspace command and control

AA assembly area

AAAD all arms for air defense

AADC area air defense commander

AADO area of air defense operations

ABMOC air battle management operations center

ABT air breathing threat

ACA airspace control authority

ACC air component commander

acft aircraft

ACL allowable cargo load

active air defense direct defensive action taken to destroy attacking enemy aircraft or missiles or to nullify or reduce the effectiveness of such attack.

AD air defense

ADA air defense artillery

ADC assistant division commander

ADCN air defense coordination net

ADCOORD air defense coordinator

ADCS air defense coordination section

ADFCO air defense fire coordination officer

ADO air defense officer

ADOA air defense operations area

ADTOC air defense tactical operations center

ADW air defense warning

AFU assault fire unit

AG Adjutant General

AGL above ground level

AH attack helicopter

AHR attack helicopter regiment

AI area of interest

AIM armored, infantry, mechanized (infantry divisions)

air battle management a fundamental task of air defense command and control and airspace management which encompasses the principles for the control and coordination of both tactical air and ground-based air defense resources.

air component commander (ACC) the commander of the service component having the largest number of air assets.

air corridor a restricted air route of travel specified for use by friendly aircraft.

air defense operations area (ADOA) an area and the airspace above it within which procedures are established to minimize mutual interference between air defense and other operations.

airspace control a service provided in the combat zone to increase operational effectiveness by promoting the safe, efficient, and flexible use of airspace.

airspace control authority (ACA) the commander designated to assume overall responsibility for the operation of the airspace control system in the airspace control area.

air superiority that degree of dominance in the air battle of one force over another that permits the conduct of operations by the former and its related land, sea, and air forces at a given time and place without prohibitive interference by the opposing force.

A/L administrative logistics

ALB AirLand Battle

ALO air liaison officer

alternate position a place located generally adjacent to the primary position from which a weapon, a unit, or an individual can perform the original task when the primary position becomes untenable or unsuitable.

AM amplitude modulated

AMCO aviation maintenance company

AO area of operations

APOD aerial port of debarkation

AR Army regulation

area air defense commander (AADC) within an overseas unified command, subordinate unified command, or joint task force, the single commander assigned overall responsibility for air defense; normally, the Air Force component commander.

ARNG Army National Guard

ASL authorized stockage list

ASM air-to-surface missiles

ASMB area support medical battalion

ASP ammunition supply point

ASOC air support operation center

ATGM antitank guided missile

atk attack

ATM antitactical missile

ATP Allied Tactical Publication
ammunition transfer point

attach the placement of units or personnel in an organization where such placement is relatively temporary.

attn attention

Aug August

avn aviation

AWACS airborne warning and control system

BAI battlefield air interdiction

basic load (ammunition) that quantity of nonnuclear ammunition that is authorized and required by each service to be on hand within a unit or formation at all times.

battle position a location selected as a result of terrain and weapon analysis from which units can defend or attack.

BC battery commander

BCU battery coolant unit

BDA battle damage assessment

bde brigade

BDZ base defense zone

BF balanced fires

BI basic issue

BICC battlefield information control center

BMNT beginning morning nautical twilight

BMO battalion maintenance officer

BMP Soviet airborne amphibious combat vehicle

bn battalion

bomb release line an imaginary line around a defended area or objective over which aircraft should release its bomb to obtain a hit or hits on an area or objective.

BOS battlefield operating system

bounding overwatch a movement technique used when contact with enemy forces is expected. The unit moves by bounds. One element is always halted in position to overwatch another element while it moves.

BP battle position

BSA brigade support area

btry battery

C Chaparral

(C) Confidential

C/V Chaparral/Vulcan

C^2 command and control

C^2I command, control, and intelligence

C^3 command, control, and communications

C^3I command, control, communications, and intelligence

CA Civil Affairs

CAA combined arms Army

CAAD combined arms air defense

CAB combined arms battalion

CAI combined arms initiative

CAS close air support

CASH corps area support hospital

cav cavalry

cbt combat

CBU cluster bomb unit

cdr commander

CE communications-electronics

CEO communications-electronics officer

CEOI communications-electronics operation instructions

CEP circular error of probability

CESO communications-electronics staff officer

CFA covering force area

Chap Chaparral

close air support (CAS) air action against hostile targets in proximity to friendly forces, which requires detailed integration of each air mission with the fire and movement of those forces.

cmd command

co company

COA course of action

COEI component of end items

combat service support (CSS) the assistance provided operating forces primarily in the fields of administrative services, chaplain services, civil affairs, finance, legal service, health services, military police, supply, troop construction, acquisition and disposal of real property, facilities engineering, topographic and geodetic engineering functions, food service, graves registration, laundry, dry cleaning, bath, property disposal, and other logistic services.

combat trains the portion of unit trains that provides the combat service support required for immediate response to the needs of forward tactical elements.

COMINT communications intelligence

comm communications

communications security (COMSEC) the protection resulting from all measures designed to deny unauthorized persons information of value which might be derived from the possession and study of telecommunications, or to mislead unauthorized persons in their interpretation of the results of such possession and study.

COMMZ communications zone

company team a team formed by attachment of one or more nonorganic tank, mechanized, or infantry platoons to a tank, mechanized, or infantry company either in exchange for or in addition to organic platoons.

COMSEC communications security

CONUS continental United States

coord coordination

COSCOM corps support command

counterair operations air operations conducted to attain and maintain a desired degree of air superiority by the destruction or neutralization of enemy forces.

covering force a combined arms force operating apart from the main body which provides early warning, reaction time, maneuver space, and information about the enemy. The covering force is a tactically self-contained security force which operates at a considerable distance from the main body.

CP command post
critical point

CRC control and reporting center

CS combat support

CSM command sergeant major

CSR controlled supply rate

CSS combat service support

ctr counter

CVRT criticality/vulnerability/recuperability/threat

DA Department of the Army

DAG division artillery group

DAO division ammunition officer

DC District of Columbia

DCA defensive counterair

DD defense in depth

dead space an area within the maximum range of a weapon, radar, or observer, which cannot be covered by fire or observation from a particular position.

decisive engagement an engagement in which a unit is considered fully committed and cannot, or is not free to, maneuver or extricate itself.

decon decontamination

defensive counterair operations (air defense) the protection of assets from air attack through both direct defense and destruction of the enemy's air attack capacity in the air.

delaying operation an operation in which a force under pressure trades space for time by slowing down the enemy's momentum, and inflicting maximum damage on the enemy without (in principle) becoming decisively engaged.

DEW directed early warning

DISCOM division support command

div division

DIVARTY division artillery

DMMC division material management center

DOD Department of Defense

DOFS day of supply

DP decision point

DPU diesel powered unit

DS direct support

DSA division support area

DSM decision support matrix
direct support maintenance

DST decision support template

DSU direct support unit

DTO division transportation officer

DTOC divisional tactical operations center

DZ drop zone

EA engagement area

EAC echelon(s) above corps

early warning (EW) early notification of the launch or approach of unknown weapons or weapon carriers. Information concerning an impending hostile air attack by use of an air defense warning.

ECCM electronic counter-countermeasures

ech echelon

ECM electronic countermeasures

EE early engagement

EEI essential elements of information

EENT end of evening nautical twilight

electromagnetic pulse (EMP) the electromagnetic radiation from a nuclear explosion (may also be caused by nonnuclear means).

electronic countermeasures (ECM) that division of electronic warfare involving actions taken to prevent or reduce an enemy's effective use of the electromagnetic spectrum.

electronic counter-countermeasures (ECCM) that division of electronic warfare involving actions taken to ensure friendly effective use of the electromagnetic spectrum despite the enemy's use of electronic warfare.

ELINT electronic intelligence

ELSEC electronic security

EMCON emission control

EMP electromagnetic pulse

EMT emergency medical treatment

EPW enemy prisoner of war

ESM electronic warfare support measures

est estimate

evac evacuation

EW early warning
electronic warfare

EWBN early warning broadcast net

1SG first sergeant

F Fahrenheit

F/S FAAD and SHORAD

FA field artillery

FAA forward alerting area

FAAD forward area air defense

FAAR forward area alerting radar

FAC forward air controller

FACP forward air control point

FARP forward area rearm and refuel point

FASCAM family of scatterable mines

FCC flight coordination center

FDC fire direction center

FEBA forward edge of the battle area

FEZ fighter engagement zone

field trains the portion of the unit trains that provides the combat service support not required for immediate response to the needs of tactical elements.

fire support coordination line (FSCL) a line established by the appropriate ground commander to ensure coordination of fire not under his control but which may affect current tactical operations. The FSCL should follow well-defined terrain features.

FIST fire support team

fld field

FLIR forward-looking infrared

FLOT forward line of own troops

FM field manual
frequency modulated

FOB forward operational base

FOC flight operations center

forward area rearm and refuel point (FARP) a temporary facility organized, equipped, and deployed by an aviation unit commander and normally located closer to the area of operation than the aviation unit's combat service area to provide fuel and ammunition necessary for the employment of helicopter units in combat.

forward edge of the battle area (FEBA) the foremost limits of a series of areas in which ground combat units are deployed, excluding the areas in which the covering or screening forces are operating.

forward line of own troops (FLOT) a line which indicates the most forward positions of friendly forces in any kind of military operation at a specific time (JCS Pub 1-02, NATO).

FRAGO fragmentary order

FS fire support

FSB forward support battalion

FSCL fire support coordination line

FSCOORD fire support coordinator

FSE fire support element

FSMC forward support medical company

FSO fire support officer

FSSP fuel system supply point

FU fire unit

FW fixed-wing

fwd forward

G1 Assistant Chief of Staff, Personnel

G2 Assistant Chief of Staff, Intelligence

G3 Assistant Chief of Staff, Operations and Plans

G4 Assistant Chief of Staff, Logistics

G5 Assistant Chief of Staff, Civil Affairs

GCI ground control interception

GCU gas charging unit

GRREG graves registration

GS general support

GSR general support reinforcing

H Hawk

HE high explosive

HEI high-explosive incendiary

hel helicopter

HF high frequency

HHB headquarters and headquarters battery

HHC headquarters and headquarters company

HHD headquarters and headquarters detachment

HHT headquarters and headquarters troop

HIDACZ high-density airspace control zone

HIMAD high- to medium-altitude air defense

HIMEZ high-altitude missile engagement zone

HMMWV high-mobility, multipurpose wheeled vehicle

hostile criteria conditions under which an aircraft or vehicle may be identified as hostile for engagement purposes.

HPT high-payoff target

HQ headquarters

hr hour

HVT high-value target

hvy heavy

identification, friend or foe (IFF) a system using electromagnetic transmissions to which equipment carried by friendly forces automatically responds, thereby distinguishing themselves from enemy forces.

IDSM intermediate direct support maintenance

IFF identification, friend or foe

IHFR improved high-frequency radio

inf infantry

info information

intel intelligence

intelligence preparation of the battlefield (IPB) a continuous, integrated, and comprehensive analysis of the effects of terrain, weather, and enemy capabilities on operations.

IPB intelligence preparation of the battlefield

IR infrared

JAAT joint air attack

JCS pub Joint Chiefs of Staff Publication

JFACC joint force air component commander

joint force air component commander (JFACC) the joint force air component commander is appointed by the joint force commander. His responsibilities normally include, but are not limited to, planning, coordination, allocation and tasking, based on the joint force commander's apportionment decision.

JTF joint task force

km kilometer

KPH kilometer per hour

LADW local air defense warning

LAW light antitank weapon

LC line of contact

LD line of departure

ldr leader

LIC low-intensity conflict

LLTR low-level transit routes

LN liaison

LNO liaison officer

LOC lines of communications

LOGPAC logistics package

LOMEZ low-altitude missile engagement zone

LOS line of sight

LP listening post

LRF laser range finder

LRP logistics release point

LRU line replaceable unit

lt light

lv leave

LZ landing zone

m meter

M^3I mix, mass, mobility, and integration

main attack the principal attack or effort into which a commander throws the full weight of the offensive combat power at his disposal. An attack directed against the chief objective of the campaign or battle.

main battle area (MBA) that portion of the battlefield extending rearward from the FEBA and in which the decisive battle is fought to defeat the enemy attack.

maint maintenance

MANPADS man-portable air defense system

MASH mobile army surgical hospital

MBA main battle area

MCO movement control officer

MCP maintenance collection point

mech mechanized

med medical

MEDDAC medical department activity

medic medical aid specialist

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

MI military intelligence

MiG Soviet aircraft manufacturer

minimum risk routes (MRRs) temporary routes of flight recommended for fixed-wing aircraft use, prescribing the minimum known hazards to low-flying aircraft transiting the tactical operations area.

misc miscellaneous

MLRS multiple launch rocket system

MMC Materiel Management Center

MOGAS motor gasoline

MOPP mission-oriented protection posture

MOS military occupational specialty

MP military police

MPH miles per hour

MRE meals, ready-to-eat

MRR minimum risk route

MS mutual support

MSB main support battalion

MSCS manual SHORAD control system

msl missile

MSR main supply route

MST maintenance support team

MTOE modification table of organization and equipment

mutual support (MS) that support which units render each other against an enemy, based on their assigned tasks, their position relative to each other and to the enemy, and their inherent capabilities.

mv move to

NAI named area of interest

NATO North Atlantic Treaty Organization

NBC nuclear, biological, chemical

NCO noncommissioned officer

NCS net control station

NDP night defensive position

NOE nap-of-the-earth

(O) For Official Use Only

obj objective

OCA offensive counterair

OCOKA observation and fields of fire, concealment and cover, obstacles, key terrain, and avenues of approach.

OCONUS outside continental United States

OF overlapping fires

off officer

offensive counterair operations operations mounted to destroy, disrupt, or limit enemy air power as close to its source as possible.

OMG operational maneuver group

OP observation post

OPCOM operational command

OPCON operation control

operation order (OPORD) a directive issued by a commander to subordinate commanders for the purpose of effecting the coordinated execution of an operation.

operation plan (OPLAN) a plan for a single or series of connected operations to be carried out simultaneously or in succession, usually based upon stated assumptions and in the form of a directive employed by higher authority to permit subordinate commanders to prepare supporting plans and orders. An operation plan may be put into effect at a prescribed time, or on signal, at which time it becomes the operation order.

operational command functions of command involving the composition of subordinate forces, the assignment of tasks, the designation of objectives, and the authoritative direction necessary to accomplish the mission.

operations security (OPSEC) the process of denying adversaries information about friendly capabilities and intentions by identifying, controlling, and protecting indicators associated with planning and conducting military operations and other activities.

OPLAN operational plan

OPORD operation order

opns operations

OPSEC operations security

ORF operational readiness float

ORL ordnance release line

P Patriot

PAC Personnel and Administration Center

passive air defense all measures, other than active defense, taken to minimize the effects of hostile air action.

PBO property book officer

PGM precision guided munition

PIR priority intelligence requirement

PIVADS product improved Vulcan air defense system

PL phase line

PLL prescribed load list

plt platoon

PMCS preventive maintenance checks and services

POL petroleum, oils, and lubricants

POM preparation for overseas movement

PP passage point

PPI plan position indicator

PSF primary sector of fire

PSG platoon sergeant

PTL primary target line

PX post exchange

QSS quick supply store

r receive

R reinforcing

RADC regional air defense commander

RAF regimental armor force

RAG regimental artillery group

RAOC rear area operation center

RARP rear arming and refueling point

RATT radio teletypewriter

RCU remote control unit

RDF radio direction finding

remotely piloted vehicle (RPV) an unmanned air vehicle capable of being controlled by a person from a distant location through a communications link and normally designed to be recoverable (see UAV).

req request

rgt regiment

RISTA reconnaissance, intelligence, surveillance, and target acquisition

RNP radio navigation point

ROA restricted operations area

ROE rules of engagement

ROR range only radar

RP release point

RPV remotely piloted vehicle (**see UAV**)

RRP replacement receiving point

RSR required supply rate

RSS rosette scan seeker

RSOP reconnaissance, selection, and occupation of position

RTO radiotelephone operator

rules of engagement (ROE) directives that delineate the circumstances under which weapons may fire at an aircraft.

RW rotary-wing

RX repairable exchange

RXA repairable exchange activity

S Stinger

(S) Secret

S&S supply and service

S1 Adjutant (US Army)

S2 Intelligence Officer (US Army)

S3 Operations and Training Officer (US Army)

S4 Supply Officer (US Army)

SAAFR standard use Army aircraft flight route

SAEDA Subversion and Espionage Directed Against US Army and Deliberate Security Violations

SAFAD small arms for air defense

SAM surface-to-air missile

SAW squad automatic weapon

SEAD suppression of enemy air defense

sec section

SFCM supplemental fire control measure

SHORAD short-range air defense

SIGINT signal intelligence

signal intelligence (SIGINT) a category of intelligence information comprising all communications intelligence, electronics intelligence, and telemetry intelligence.

signal security (SIGSEC) a generic term that includes both communications security and electronic security.

SIGSEC signal security

SLAR side-looking airborne radar

SMP sensor management plan

SOA state of alert

SOI signal operating instructions

SOP standing operating procedure

SP self-propelled
start point

SPO security, plans, and operations

spt support

sqdn squadron

SSM surface-to-surface missile

sta station

STANAG Standardization Agreement

STB super tropical bleach

sub subordinate

supplementary position a site which provides the best means to accomplish a task that cannot be accomplished from the primary or alternate position.

supporting attack an attack designed to hold the enemy in position, to deceive him as to where the main attack is being made, to prevent him from reinforcing the element opposing the main effort, and or to cause him to commit his reserves prematurely at an indecisive location (synonymous with holding attack).

suppression of enemy air defense (SEAD) the activity which neutralizes, destroys or temporarily degrades enemy air defenses in a specific area by physical attack or electronic warfare (JCS Pub 1-02 DOD, NATO).

sys system

t transmit

TAADCOM Theater Army Air Defense Command

tac tactical (headquarters)

TACAIR tactical air

TACC tactical air control center

tactical operations center (TOC) an element within the main command post which contains staff elements that permit the commander to see the battle, allocate resources, and position combat service support.

TAI target area of interest

TASKO task organized

TASM tactical air-to-surface missile

task organization a temporary grouping of forces designed to accomplish a particular mission.

TBM tactical ballistic missile

TDA table of distribution and allowances

temp temperature

TF task force

tgt target

tk tank

tm team

TM technical manual

TMC temporary medical care

TMT transportation motor transport

TOC tactical operations center

TOE table(s) of organization and equipment

TOT time over target

TOW tube-launched, optically tracked, wire guided antitank missile

TPL timed phase line

traveling a movement technique used when speed is necessary and contact with enemy forces is not likely. All elements of the unit move simultaneously. (The unit leader is located where he can best control.)

traveling overwatch a movement technique used when contact with enemy forces is possible. The lead element and trailing element are separated by a short distance which varies with the terrain. The trailing element moves at variable speeds, keying its movement to terrain and the lead element, and pauses for short periods to overwatch the lead element.

TSOP tactical standing operating procedure

TVA target value analysis

TVD theater of military operation

TX Texas

UAV unmanned aerial vehicles

UCMJ Uniform Code of Military Justice

UHF ultrahigh frequency

UMCP unit maintenance collection point

US United States

USAADASCH US Army Air Defense Artillery School

USAF United States Air Force

USN United States Navy

VHF very high frequency

vic vicinity

V/S Vulcan/Stinger

V/S/A Vulcan/Stinger/Avenger

VTDP vectoring target designation point

VTR vehicle tracked recovery

WC weighted coverage

WCS weapon control status

weapon control status (WCS) one of three degrees of weapons fire control used by a commander to control the fires of air defense weapons: WEAPONS FREE, WEAPONS TIGHT, and WEAPONS HOLD.

weapon engagement zone (WEZ) in air defense, airspace of defined dimensions within which the responsibility for engagement normally rests with a particular weapon system.

WEAPONS FREE in air defense, a weapon control status used to indicate that weapons systems may be fired at any target not positively identified as friendly.

WEAPONS HOLD in air defense, a weapon control status used to indicate that weapons systems may be fired only in self-defense or in response to a formal order.

WEAPONS TIGHT in air defense, a weapon control status used to indicate that weapons systems may be fired only at targets identified as hostile.

WEZ weapon engagement zone

WFZ weapon free zone

WSRO weapon system replacement operation

XO executive officer

References

SOURCES USED

These are the sources quoted or paraphrased in this publication.

AR 310-25. Dictionary of United States Army Terms. 15 October 1983 (Change 1, May 1986).

AR 310-50. Authorized Abbreviations and Brevity Codes. 15 November 1985.

DA Pamphlet 385-1. Unit Safety Management. 3 May 1976.

FM 5-20. Camouflage. 20 May 1968:

FM 5-36. Route Reconnaissance and Classification. 10 May 1985.

FM 6-20. Fire Support in the AirLand Battle. 17 May 1988.

FM 9-59. Unit Operations for Support of Missile and Air Defense Gun Systems. 16 September 1985.

FM 11-50. Combat Communications Within the Division (How to Fight). 31 March 1977.

FM 24-1. Signal Support in the AirLand Battle. 15 October 1990.

FM 34-130. Intelligence Preparation of the Battlefield. 23 May 1989.

FM 43-5. Unit Maintenance Operations. 28 September 1988.

FM 44-1-2. Air Defense Artillery Reference Handbook. 15 June 1984.

FM 44-8. Small Unit Self-Defense Against Air Attack. 30 September 1981 (Change 1, August 1984).

FM 44-16. Chaparral/Vulcan/Stinger Platoon Combat Operations. 29 May 1987.

FM 44-31. Tactics, Techniques, and Procedures for Avenger Squad Operations. 13 June 1990.

FM 44-100. US Army Air Defense Operations. 22 November 1988.

FM 55-30-2. Camouflage Wheeled Vehicles. (TBP).

FM 63-21. Main Support Battalion. 7 August 1990.

FM 71-3. Armored and Mechanized Infantry Brigade. 11 May 1988.

FM 71-8. Close Combat Heavy Brigade (CCH) and Divisional Armored Cavaly Squadron Organizations. (TBP).

FM 71-100. Division Operations. 16 June 1990.

FM 90-14. Rear Battle. 10 June 1985.

FM 100-2-1. Soviet Army Operations and Tactics. 16 July 1984.

FM 100-5. Operations. 5 May 1986.

FM 100-10, Combat Service Support. 18 February 1988.

FM 100-15. Corps Operations. 13 September 1989.

FM 100-28. Doctrine and Procedures for Airspace Control in the Combat Zone. 1 December 1975.

FM 100-103. Army Airspace Command and Control in a Combat Zone. 7 October 1987.

FM 101-5-1. Operational Terms and Symbols. 21 October 1985.

JCS Publication 1-02. Department of Defense Dictionary of Military and Associated Terms. 1 June 1987.

These international agreements are available on request from the Naval Publications and Forms Center, 5801 Tabor Avenue, Philadelphia, PA 19120.

STANAG 2034 Land Forces Procedures for Allied Supply Transactions.

STANAG 2041 Operation Orders, Tables and Graphs for Road Movement.

STANAG 2047 Emergency Alarms of Hazard or Attack (NBC and Air Attack Only).

STANAG 2103 Reporting Nuclear Detonations, Biological and Chemical Attacks, and Predicting and Warning of Associated Hazards and Hazard Areas-ATP-45.

STANAG 2112 Radiological Survey.

STANAG 2868 Land Force Tactical Doctrine –ATP-35(A).

STANAG 3700 NATO Tactical Air Doctrine –ATP-33(B).

STANAG 3736 Offensive Air Support Operation –ATP-27(B).

STANAG 3805 Doctrine and Procedures for Airspace Control in the Combat Zone.

STANAG 3880 Counter Air Operations-ATP-42.

STANAG 4162 NATO Identification System.

DOCUMENTS NEEDED

These documents must be available to the intended users of this publication.

AR 55-359. Terminal Facilities Guide: US Air Force. 1 June 1984.

AR 710-2. Supply Policy Below the Wholesale Level. 13 January 1988 (Change 1, September 1989).

AR 750-1. Army Materiel Maintenance Policies and Retail Maintenance Operations. 31 October 1989.

DA Pamphlet 310-35. Index of International Standardization Agreements. 15 September 1978.

FM 1-100. Doctrinal Principles for Army Aviation in Combat Operations. 28 February 1989.

FM 3-3. NBC Contamination Avoidance. 30 September 1986 (Change 1, May 1987).

FM 3-4. NBC Protection. 21 October 1985.

FM 3-5. NBC Decontamination. 24 June 1985.

FM 3-9. Military Chemistry and Chemical Compounds. 30 October 1975.

FM 3-100. NBC Operations. 17 September 1985.

FM 5-34, Engineer Field Data. 14 September 1987.

FM 5-100. Engineer Combat Operations. 22 November 1988.

FM 7-7J. The Mechanized Infantry Platoon and Squad (Bradley. 18 February 1986.

FM 9-6. Munitions Support in the Theater of Operations. 1 September 1989.

FM 10-52. Water Supply in Theaters of Operations. 11 July 1990.

FM 19-30. Physical Security. 1 March 1979.

FM 21-60. Visual Signals. 30 September 1987.

FM 21-76. Survival. 26 March 1986.

FM 22-9. Soldier Performance in Continuous Operations. 8 December 1983.

FM 24-18. Tactical Single-Channel Radio Communications Techniques. 30 September 1987.

FM 34-81. Weather Support for Army Tactical Operations. 31 August 1989.

(S) FM 44-1A. Air Defense Artillery Operational Planning Data (U). 21 September 1984.

FM 44-4. Operations and Training, Chaparral. 2 November 1984.

FM 44-5. Operations and Training, Vulcan. 29 September 1978 (Change 2, September 1987).

FM 44-6. Operations and Training Forward Area Alerting Radar (FAAR). 8 October 1987.

FM 44-18. Air Defense Artillery Employment, Stinger (How to Fight). 30 September 1981(1 May 1985).

FM 44-18-1. Stinger Team Operations. 31 December 1984.

FM 44-23(HTF). US Army Air Defense Employment, Redeye (How to Fight). 30 September 1977 (Change 1, June 1979).

FM 44-30. Visual Aircraft Recognition. 28 October 1986.

FM 44-61. Procedures and Drills for Twin 40-MM Self-Propelled Gun, M42 and M42A1. 26 January 1968.

FM 55-12. Movement of Units in Air Force Aircraft. 10 November 1989.

FM 55-65. Strategic Deployment by Surface Transportation. 10 May 1989.

FM 55-450-1. Army Helicopter External Load Operations. 3 October 1988.

FM 90-6. Mountain Operations. 30 June 1980.

FM 9O-10(HTF). Military Operations on Urbanized Terrain (MOUT) (How to Fight). 15 August 1979.

FM 9O-10-1(HTF). An Infantryman's Guide to Urban Combat (How to Fight). 30 September 1982.

FM 90-13(HTF). River Crossing Operations (How to Fight). 1 November 1978.

FM 100-2-2. Soviet Army Specialized Warfare and Rear Area Support. 16 July 1984.

FM 100-2-3. The Soviet Army and Troops Organization and Equipment. 16 July 1984.

JCS Publication 3-01.2. Joint Doctrine for Theater Counterair Operations. 1 April 1986.

(0) JCS Publication 3-01.3. Joint Doctrine for Air Defense. 23 May 1964.

JCS Publication 3-56. Tactical Command and Control Planning Guidance and Procedures for Joint Operations (Information Exchange Planning Guide). 1 April 1974 (Change 1, 16 May 1979).

JCS Publication 3-56.1. Tactical Command and Control Planning Guidance and Procedures for Joint Operations. (Procedures and formats). 1 December 1972 (Change 2, 20 April 1978).

(C) JCS Publication 3-56.20. Tactical Command and Control Procedures for Joint Operations– Joint Interface Operational Procedures-Planning Guide (U). 1 December 1982.

(C) JCS Publication 3-56,21. Tactical Command and Control Procedures for Joint Operations- Joint Interface Operational Procedures-Description and Procedures (U). 1 December 1982.

(S) JCS Publication 3-56.22. Tactical Command and Control Planning Guidance and Procedures for Joint Operations-Joint Interface Operational Procedures-Secret Supplement (U). 1 December 1982.

(C) JCS Publication 3-56.23. Tactical Command and Control Procedures for Joint Operations – Joint Interface operational Procedures-Air Control/Air Defense Procedures for Joint Services Operations (U). 1 December 1982.

(C) TB 380-6-7, Electronic Security (ELSEC) for Artillery Battlefield Survivability (U). 8 September 1981.

TM 3-216. Technical Aspects of Biological Defense. 12 January 1971.

TM 9-130&206. Ammunition and Explosives Standards. 30 August 1973 (Change 10, December 1989).

TM 9-1400-425-12. Operator and Organizational Maintenance Manual for Intercept-Aerial Guided Missile System M41 and Training Intercept-Aerial Guided Missile System M46A1 and M46A2 Redeye Air Defense Guided Missile System). 6 January 1%7 (Change 14, May 1988).

(C) TM 9-1410-586-24. Organizational, Direct Support and General Support Maintenance Manual for Intercept-Aerial Guided Missile (MIM-72C and MIM-72E) and Guided Missile Trainer M33, and Support Equipment (Chaparral ***Air*** Defense Guided Missile System) (U). 30 March 1978 (Change 7, October 1989).

TM 9-1425-429-12. Operator's and Organizational Maintenance Manual, Stinger Guided Missile System Consisting of: Weapon Round Partial Gripstock Trainer Handling Guided Missile Launcher M60; Interrogator Set AN/PPX-3A, AN/PPX-3B Interrogator Set Programmer AN/GSX-1, AN/GSX-1A; Transport Harness (Stinger Air Defense Guided Missile System). 1 August 1980 (Change 6, July 1988).

TM 9-1425-433-10. Operator's Manual for Guided Missile Battery Control Central, Vehicle Mounted Pedestal Mounted Stinger Air Defense Weapon System. 30 March 1989 (Change 1, March 1990).

TM 9-1425-1586-10. Operator's Manual for Improved Chaparral M48AI, Intercept-Aerial Guided Missile System (Chaparral). 1 September 1981 (Change 9, August 1990).

TM 9-2300-257-20. Organizatioal Maintenance Manual: Carrier, Personnel, Full Tracked, Armored: Ml 13AI and M113A2 Carrier, Command Post, Light, 'Backed: M577A1 and M577A2, Carrier, Mortar, 107-MM, Self-Propelled: M106A1 and M106A2 and 81-MM, Self-Propelled: M125A1 and M125A2; Carrier, Flame Thrower, Self-Propelled: M132A1; Chassis, Gun, Antiaircraft Artillery, 20-MM, Self-Propelled, M741 and Recovery Vehicle, Light, Armored XM806E1. 3 February 1969 (Change 8, June 1987)

TM 9-2320-280-10. Operator's Manual for Truck, Utility Cargo/Troop Carrier, 1 l/4-Ton, 4X4, M998 W/Winch, M1038, Truck, Utility, Tow Carrier, Armored, 1 l/4-lbn, 4X4, M966 W/W M1036; Truck Utility Tow Carrier W/ Supplemental Armor, 1 l/4-'Rm, 4X4, M1045 W/Winch; M1046: Tuck, Utility Armament Carrier, Armored, 1 l/4-Ton, 4X4, M1025 W/Winch, M1O26: Truck, Utility: Armament Carrier W/Supplemental Armor, 1 l/4-Ton, 4X4, M1043 W/Winch, M1044: Truck, Utility: S250 Shelter Carrier, 4X4, M1037 W/Winch, M1042: Truck, Ambulance: 2-Litter, Armored, 4X4, M996 4-Litter, Armored, M997 and 2-Litter, Soft Top, M1035. 1 April 1985(Change 5, June 1990).

TM 9-2350-300-10. Operation and Maintenance Manual (Crew) for Gun, Air Defense Artiller, Self-Propelled, 20-MM, M163A1. 28 May 1976 (Change 6, September 1988).

TM 9-2350-300-20-1. Organizational Maintenance Manuual for Gun, Air Defense Artillery, Self-Propelled: 20-MM, M163A1; Cannon, M168; Mount M157A1, Sight, M61 and Radar AN/VPS-2. 15 April 1977 (Change 4, October 1988).

TM 38-750-1. The Army Maintenance Management System TAMMS) Field Command Procedures. 29 December 1978 (Change 2, February.

TM 55-1425-585-15-1. Transportabiltity Guidance (Chaparral Air Defense Guided Missile System) Guided Missile System Intercept-Aerial M54; ***Carrier,*** Guided Missile Equipment, Self-Propelled M73Q; Guided Missile System Intercept-Aerial, Carrier Mounted M48; Shop Equipment, Guided Missile System AN/TSM-95; Shop Equipment, Guided Missile System AN/TSM-96; Guided Missile Intercept-Aerial, MIM-72A in M570 Container and Guided Missile Intercept-Aerial MIM-72B in M570 Container. 24 February 1972.

Index

active air defense, 6–2, C–2, C–3

ADA advance party, 3–3

advance guard, 5–1 through 5–3, 5–5, 6–6, 6–7

agility, 1–2, 3–5, 7–14

air battle management operations center (ABMOC), 3–13, 3–15 through 3–18

air controller, 2–4, E–3

air defense coordination net (ADCN), 3–15

air defense coordination section (ADCS), 3–15 through 3–17, A–2

air defense coordinator (ADCOORD), 3–4, 3–6, 3–8, 3–10, 3–12, A–1, A–2, F–1, F–2

air defense coverage plan, 1–2

air defense estimate, F–1

air defense operations, 1–2, 4–1

air defense tactical operations center (ADTOC), 3–12, 3–13

air defense warning
  local, 3–12, 3–14, 3–17, 3–18
  standard, 3–1, 4–1, F–2

Air Force, 1–2, 2–2, 3–2, 3–14, 4–2, 7–7, A–1

air guard, C–1

air superiority, 1–2

airdrop, 7–11

AirLand Battle
  ADA battalion's role in, 1–1, 3–5
  ADA communications in, 3–15
  ADA mission in, E–1
  agility, 1–2, 3–5, 7–14
  air superiority, 1–2
  deep operations, 6–2
  depth, 1–2, 3–5
  doctrine, 1–1, 1–2, 6–2
  friendly air superiority in, 1–2
  in planning, 3–2, 6–2
  initiative, 1–1, 3–5, 7–14
  synchronization, 1–1, 1–2, 3–2, 3–5, 3–15
  tenets, 1–1, 3–2, 6–2

airlift, 3–2, 3–3, 3–4, 4–4

airspace control authority (ACA), 3–15, F–2

airspace control measures, 3–17

airspace deconfliction, 1–3

all arms for air defense (AAAD), 1–2, 3–8, 3–11, E–9

ammunition
  as a certified round, 7–11
  as a part of ready–to–fight weapon, 7–8
  as a supply class, 7–4, 7–6
  as controlled supply rate (CSR), 1–3, 7–7
  as required supply rate (RSR), 1–3, 7–6, 7–7
  basic load, 7–6
  lack of, C–1
  requisitioning, 7–7
  supply point, 2–3, 7–11
  transfer point (ATP), 7–6, 7–7

ammunition transfer point (ATP), 7–6, 7–7

area air defense commander (AADC), 3–14, 4–1, 4–2

argon, 7–6

Army airspace command and control (A^2C^2)
  brigade, 3–14
  coordination checklist, F–2
  division, 3–6, 3–13, 3–14, 3–16, 3–17, 5–2
  in DSM, 3–11, E–9
  plan, 1–3, 3–8, 3–10, F–2

Army National Guard (ARNG), 1–3, 1–5

assigned
  as a command relationship, 4–1, D–1
  missions, 3–15, 5–7, 7–7, D–2, E–1

attached, D–1
  as a command relationship, 4–1, D–1
  battalion aidmen, 7–13
  elements, 7–2

Avenger
  air transport load, 3–3
  argon resupply, 7–6
  as a Class VII supply item, 7–7
  battalion, 1–5, 5–2, 5–4, 5–7, 6–5, 6–8
  battery, 1–5
  in defense, 6–3
  in delay and withdrawal, 6–4, 6–5
  in exploiting force, 5–8
  in hasty and deliberate attacks, 5–7
  in meeting engagement, 5–4
  in movement to contact, 5–2
  in planning for threat, 3–3
  in retirement, 6–8
  maintenance concept, 7–11
  missile ammunition, 7–7
  mutual support distance, D–3
  overlapping fires distance, D–3

avenue of approach, 3–2, 3–4, 5–4, D–2, E–2, E–4

aviation, 1–2

balance, 1–2, 3–5, 4–4, 5–7

balanced fires, D–2, D–4

basic load, 7–6

battlefield operating system (BOS), 1–2, 1–3, 6–2, E–9

brigade support area (BSA), 3–13, 6–3, 6–5, 7–2, 7–4 through 7–6, 7–8 through 7–10, 7–13

Chaparral
  air transport, 3–3
  as a Class VII supply item, 7–7
  battalion, 1–4, 5–2, 5–4, 5–7, 5–8, 6–2, 6–3, 6–8
  battery, 1–4
  in defense, 6–2
  in delay and withdrawal operations, 6–4, 6–5
  in exploiting force, 5–8
  in hasty and deliberate attacks, 5–7
  in meeting engagement, 5–4
  in movement to contact, 5–2, 5–3
  in pursuit, 5–10
  in retirement, 6–7
  mutual support distance, D–3
  overlapping fires distance, D–3

checklist
  A^2C^2 coordination, F–2
  ADA liaison officer, F–1 through F–3
  battalion planning combat, A–1, A–2
  coordination, F–1
  early warning, F–1
  engineers coordination, F–3
  execution, A–2
  fire support, F–2
  logistics, F–2
  NBC coordination, F–3
  preparation, A–2
  safety, B–1, B–2

chemical (see also nuclear, biological, chemical)
  capability in TBMs, 2-1 through 2-3
  enemy use of, 2-1 through 2-3, E-2
  in class of supply, 7-4
  rounds, 7-4
  systems, 4-1

combat loss, 7-7

combat service support (CSS), 1-3, 3-10, 3-11, 4-4, 7-1 through 7-14, E-9

combined arms
  integration of elements, 1-2
  operations, 1-1
  team, ii, 6-1, C-1
  threat use of, 2-4

combined arms for air defense (CAAD), 1-2, 3-10, 3-14, C-1 through C-4

command and control (C^2)
  ADA battalion functions and facilities, 3-12 through 3-15
  as BOS, 1-3
  as threat target, 2-3, 2-4, 3-5, 5-7, 5-8, 6-2, E-5, E-9
  for Stinger survivability, 6-5
  heavy ADA battalion, 3-3, 3-12
  in executing DSM, 3-11, 3-12, E-9
  in lodgement operations, 4-1, 4-2
  in positioning ADA to protect, 5-2, 5-4, 5-7, 5-8, 5-10, 6-2
  in reconstituting, 7-14
  in war-gaming, 3-10
  procedures, 3-1, 3-13 through 3-15, E-3
  threat use of, E-4, E-5
  to achieve depth, 1-2
  to achieve synchronization, 1-2
  USAF facilities, 4-2
  using ADA command nets, 3-15

command, control, and communications (C^3), 3-1, 3-12, 4-1, 4-2, 4-4, C-2

communications
  ADA battalion commander's responsibility, 3-15
  coordination, 3-15
  in exploitation, 5-7, 5-8
  in lodgement operations, 4-1, 4-2
  in meeting engagements, 5-4
  in retrograde operations, 6-4
  in support relationships, D-2, D-3
  interdiction, 2-3, 5-7
  nets, 3-15 through 3-17, 5-7
  protecting lines of, 5-4
  requirements, 3-4, 3-15
  security (COMSEC), 3-4, C-2
  systems interfaces, 3-1 threat, 2-2

contingency
  deployment, 3-1, 3-2, 4-2
  force, 2-1
  in ADA scheme of maneuver, 5-7, 6-2
  LNO involvement, 4-2
  theater, 2-1, 3-1, 3-5, 4-1, 4-4
  threat, 2-1, 2-2
  war-gaming for, 3-10, 6-2

controlled supply rate (CSR), 1-3, 7-7

convoy, 3-8, 6-5, 6-6, B-2, C-1

counterair
  defensive, 3-2
  offensive, 3-2, 3-5
  plan, F-2

decision support matrix (DSM), 1-2, 3-6, 3-8, 3-10, 3-11, 3-12, A-2, E-9, E-10

decision support template (DST), 3-1, 3-5, 3-6, 3-8 through 3-10, 3-12, 3-17, 5-4, 6-2, A-1, A-2, E-8 through E-10

deep operations, 6-2

defense
  critical asset, 1-2, 4-2
  divisional FAAD/SHORAD, 4-4
  framework, 6-1, 6-2
  fundamentals of, 6-1
  hasty, 5-2, 5-4, 5-7
  in depth, 1-2, D-2, D-4
  in pursuit, 5-8
  in sector, 6-3
  mobile and area, 6-1
  of lodgement, 2-3
  self-, 3-14, C-1
  Stinger battalion in, 6-4
  threat, 2-2, 2-4, 5-6, 5-7
  use of ROE in, 3-14

defensive operations, 6-1 through 6-8
  characteristics of, 6-1
  overview, 6-1
  threat's role in, 1-8, 2-4

delay operations, 3-11, 5-1, 5-8, 6-1, 6-4, 6-5, E-9

deliberate attack, 5-4, 5-6, 5-7

depth, 1-2, 3-5

direct support (DS), 3-11, 7-2, 7-6, 7-9 through 7-11, D-1 through D-3, E-9

division support area (DSA), 3-7, 3-9, 3-11, 5-2, 6-3, 7-2, 7-5 through 7-7, 7-10, 7-13, E-6 through E-9

division support command (DISCOM), 3-13, 5-2, 7-2, 7-3, 7-7, 7-9

early engagement, D-2, D-4

early warning (EW)
  ADA, 3-17, 3-18, 4-2
  ADA advance party, 3-3
  as positive control, 3-13
  by security force, 6-1
  checklist, F-1
  directed, 3-12, 3-16 through 3-18
  for contingency, 3-10
  for TBM threat, 4-2
  in ADTOC, 3-12
  in attack profile template, E-4
  in battalion execution checklist, A-2
  in battalion preparation checklist, A-2
  in DSM, 1-28, 3-10, E-9
  in DST, 3-10
  in retrograde, 6-4
  in scheme of maneuver, 5-7, 6-2
  in the AirLand battlefield, 1-1
  long-range, 3-17, 4-2
  net, 3-13 through 3-15, 3-17
  plan, 1-3, F-1
  to achieve depth, 1-2
  USAF coordination, 4-2

electronic countermeasures (ECM), 2-2, 3-11

engineer support, 7-2, F-3

exploitation, 5-7 through 5-9

FAAD
  battalion commander, 3-14
  battalion planning, 3-5
  battalion's role, 3-5, 4-1
  conversion from SHORAD, ii
  DSM preparation, E-10
  execution matrix preparation, E-10
  in lodgement, 3-2, 4-1 through 4-3
  medical support, 7-13
  missile support, 7-10
  operational readiness float, 7-7
  operator PMCS, 7-11
  organization, 1-3 through 1-5
  repair parts, 7-4, 7-8

field services, 7-1, 7-11 through 7-14

fire support (FS)
  air defense to protect units, 6-2
  annex, 7-7
  battalion templates, 1-2, 1-3
  checklist, F-2
  coordination, F-2
  in rear area operations, 6-2
  plan, A-2
  threat, 3-5

flank guard, 5-1 through 5-3, 5-5, 6-6, 6-7
fording operations, B-2
forward air controller, E-3
forward support battalion (FSB), 3-13, 7-2 through 7-10, 7-13
fragmentary order (FRAGO), 5-5, 7-7

general support (GS), 3-11, 7-9, D-1, D-3, E-9
general support reinforcing (GSR), D-1 through D-3
graves registration (GREGG), 7-11

hasty attack, 5-1, 5-4 through 5-7
hasty defense, 5-2
hasty strength report, 7-11
Hawk, 3-3, 3-11, 4-2 through 4-4, E-9
health service, 7-12, 7-13
high-density airspace control zone (HIDACZ), 3-14, 3-15
hostile criteria, 3-4, 3-14

identification, friend or foe (IFF), 3-13, A-1, F-2
initiative, 1-1, 1-2, 3-5, 5-1, 5-4, 6-1, 6-2, 7-14, E-4
intelligence preparation of the battlefield (IPB)
  air, 1-2, 1-3, 3-6, 3-8, 6-2, A-1, C-3, D-2, E-1 through E-10, F-1
  by FAAD/SHORAD, 4-2
  defined, 3-5, 3-6, E-1
  for battalion commander decision, 3-10
  G2, 3-5, 3-9, 5-4, 6-2
  ground, 1-3, 3-6, 3-9, A-1, E-7, E-9
  in coordination checklist, F-1
  indicating air-breathing threat, 4-2
  maneuver unit's, 3-2
  planning, 3-5, A-1
  predeployment, 3-2, 3-3, 4-1
  process illustrated, E-1 S2, 3-5, 3-9, 3-12, 3-13, 3-17
  time in preparing, 5-6
  to base deliberate attack, 5-6
  to identify enemy COA, 1-1
interdiction, 6-6, 7-14, E-3, E-9
international agreements, ii

joint air attack (JAAT), 3-11, 3-15, E-9
joint force air component commander (JFACC), 4-1
joint task force (JTF), 2-1, 3-2, 3-3, 4-1, 4-2, 4-4

liaison officer (LNO), 3-10, 3-16 through 3-18, 4-2, 5-2, 5-7, A-1, A-2, F-1 through F-3
load plans, 3-3, 3-4
local air defense warning (LADW), 3-12, 3-14, 3-17, 3-18
lodgement, 1-1, 2-3, 3-1 through 3-3, 4-1 through 4-4
logistics
  assets, 5-2, 7-8, 7-9
  battalion, 1-2, 7-9
  center, 7-12
  checklist, F-2
  division personnel, 3-13
  enemy, 3-5, 3-10
  facilities, 2-3, 2-4, 5-2, 5-4, 5-7, 5-8, 5-10, 6-2
  medical, 7-13
  package (LOGPAC), 7-7 through 7-9, 7-12
  release point (LRP), 3-11, 7-9, E-9
  theater base, 4-2

main battle area (MBA), 6-1, 6-2, A-2
main support battalion (MSB), 3-11, 3-13, 7-2, 7-3, 7-5, 7-7 through 7-11, 7-13
maintenance
  allocation chart, 7-11
  battlefield support, 7-10
  company, 7-2, 7-7 through 7-9
  concept, 7-11
  depot, 7-9
  direct support (DS), 7-2, 7-9, 7-10, 7-11
  equipment support, 7-4, 7-8
  failure, 7-7
  general support, 7-9
  levels, 7-9, 7-10
  medical, 7-12
  missile, 7-7 through 7-9
  operations, 7-9 through 7-11
  parts, 7-9 section, 7-8, 7-10, 7-11
  system support, 7-11
  tasks, 7-9 team, 7-3, 7-8, 7-10, 7-11
  under centralized control, 7-9
  unit, 7-9, 7-10
manportable air defense (MANPAD), 1-4, 1-5
manual SHORAD communications system (MSCS), 3-13, 3-17
mature theater
  air threat in, 2-1, 2-3, 2-4
  Army's mission in, 1-1, 3-1
  as battalion planning element, 3-2, 3-5
  direct deployment into, 3-2
  escalation from lodgement, 2-3
  lodgement concepts in, 4-1
  transition from nonmature, 3-1, 4-4
medical (see also health services)
  as a class of supply, 7-4
  center, 7-13
  company, 7-2, 7-8, 7-13
  coordination of supplies, 7-1, 7-8, 7-13
  division level support, 7-13
  emergency care, 7-13
  evacuation, 7-8, 7-13, 7-14
  platoon, 7-8, 7-9, 7-13
  repair parts, 7-4, 7-8
  section, 7-8, 7-9, 7-13
  staff actions for preparing to deploy, 3-4
  supply point, 7-8
  unit-level support, 7-13
meeting engagement, 5-1, 5-2, 5-4
mission, enemy, terrain, troops, and time available (METT-T), 3-1, 3-2, 3-6, 3-10, 3-14, 4-2, 4-4, 6-2, 7-9, E-2
movement to contact, 5-1 through 5-4, 5-8
mutual support, 1-2, 3-5, D-2 through D-4

named area of interest (NAI), 1-1, 3-9 through 3-11, 3-17, E-6 through E-10
NATO standardization agreement (NATO), ii
nonmature theater
  air threat in, 2-1
  Army's mission in, 1-1, 3-1
  as battalion planning element, 3-2, 3-5
  combat operations in, 4-4
  contingency deployment into, 3-1, 3-2
  lodgement concepts in, 4-1
nuclear (see also nuclear, biological, chemical)
  environment operation, 7-11
  in class of supply, 7-4
  systems and facilities, 4-1, 4-2
  tactical weapons, 2-3

nuclear, biological, chemical (NBC), (see also nuclear and chemical), 2-2, 3-4, F-3
operation order (OPORD), 3-5, 3-8, 3-10, 3-12
operational command, 4-1, D-1
operational control (OPCON), D-1
operational readiness float (ORF), 7-7
organic
  ADA capabilities of maneuver units, 1-2
  ADA units, 3-13, 4-1, 4-2, 5-4
  defined, D-1
  division support command to division base, 7-2
  fuel trucks to maneuver unit, 7-6
  medical platoons or sections to units, 7-13
  vehicles for Stinger, 5-2, 6-5, 6-8
overlapping fires, D-2 through D-4

passive air defense, 1-3, 3-14, C-1, C-2
Patriot, 3-3, 3-11, 4-2 through 4-4, E-8
personnel services, 7-1, 7-11, 7-12
plan (see also planning)
  A^2C^2, 1-3, 3-8, 3-10, F-2
  ADA, 3-5, 3-10, 3-12, 3-15, 6-2
  aviation, A-1
  base cluster, 1-3
  CAS, 1-3, F-2
  collection, A-2, E-6, E-7
  communications, 1-3
  decontamination, F-3
  deep battle, 3-15
  deployment, 3-2
  division maneuver, 3-12
  EW, 1-3, A-2, F-1
  fire support, 1-3, A-2, F-2
  friendly aviation, 1-3 G3, 3-6
  initial, 3-5, 3-6
  load, 3-3, 3-4
  logistics support, 3-8
  obstacle, 1-3
  operations, 3-15, E-8
  reconnaissance and surveillance, E-7
  reconstitution, 1-3
  recovery and evacuation, F-2
  scout, 3-13
  sensor, 1-1, 3-6, 3-10, 3-13, F-1
  supported maneuver unit, 3-3
  tactical, 7-8, 7-9
  weighted air defense coverage, 1-2
  weighted area air defense coverage, 1-2
planning (see also plan), 3-1 through 3-18
  1/3 to 2/3 rule, 3-11
  ADA process, 3-5 through 3-12
  battalion combat checklist, A-1
  combat service support, 7-1, 7-3, 7-6 through 7-8
  contingency deployment, 3-2
  DSM, 1-2, 3-10, E-9
  for airlift, 3-3
  for defense, 6-2
  for FAAD/SHORAD battalion, 3-5
  for reconstitution, 7-14
  integrated staff process, 3-6, 3-8
  liaison officer checklist, F-1 through F-3
  modified staff process, 3-5, 3-6
  predeployment, 3-1 through 3-4
  preparation checklist, A-2
  rehearsal, 3-10, 3-11
  reverse, 4-2
  staff actions, 1-2, 3-4, 3-5, 3-9, 5-4
  USAF consideration, 3-2 through 3-5, 4-2, A-1
  using AirLand Battle tenets, 1-1, 1-2, 3-2
  USN consideration, 3-2, 4-2
playbook, 3-5, 3-6
priority intelligence requirement (PIR), 3-6, 3-8, 6-2, A-1, E-1, E-2, F-1
prisoner of war, 7-11, 7-12
Product Improved Vulcan Air Defense System (PIVADS), 1-4
pursuit, 5-8, 5-10

rear area operations, 6-2
rear guard, 5-1 through 5-3, 5-5, 5-8, 6-6, 6-7
reconnaissance, intelligence, surveillance, and target acquisition (RISTA), 1-2
reconstitution, 1-3, 7-14
refuel, 2-2, 3-3, 3-4, 7-6, E-4
regeneration, 7-14
reinforcing, 3-1, 5-2, 5-4, 7-9, 7-14, D-1 through D-3
reorganization, 7-14
repair, 7-4, 7-8 through 7-11
required supply rate (RSR), 1-3, 7-6, 7-7
reserve(s)
  ADA battalion force structure, 1-5
  as threat target, 2-3, 2-4, 3-5, 5-2, 5-7
  mobility/countermobility, 1-3
  of class III products, 7-5
  operations, 6-2
  overwatched by Avenger, 5-7
  overwatched by Chaparral, 5-7
  role in deliberate attack, 5-6
  threat, 5-2, 5-7, 5-8
  with Stinger, 5-8, 6-3, 6-4
  with Vulcan, 6-2, 6-3
resupply, 3-13, 7-1, 7-5 through 7-9, F-2
retirement, 6-5 through 6-7
retrograde, 6-4 through 6-8
risk management, B-1
rules of engagement (ROE), 3-14, 4-1

safety, B-1, B-2
sealift, 3-2, 3-4, 4-2
security force operations, 6-1
self-defense, right of, 3-14, C-1
SHORAD
  as part of JTF, 3-2
  battalion commander, 3-14
  battalion heavy organization, 1-3
  battalion planning, 3-5
  battalion's role, 3-5, 4-1
  fighting vehicle, 5-4
  in lodgement expansion, 4-4
  in performing IPB and METT-T, 4-2
  maintenance section, 7-11
  medical support, 7-13
  missiles, 7-9
  NAI, E-8
  operational readiness float, 7-7
  repair parts, 7-8
  resupply, 7-9
  to FAAD transition, ii
  use of attack profile, E-4
signal officer, 3-15
standardization agreement, NATO (STANAG), ii
standing operating procedure (SOP), 3-6, 3-17, 4-2, 5-5, 7-6, 7-12, 7-14, B-1, C-1
Stinger
  battalion, 1-5, 5-2, 5-7, 6-3 through 6-5, 6-8
  battery, 1-2, 1-4, 5-4
  heavy, 5-2, 5-4, 5-8, 6-5, 6-8
  in defense, 6-2 through 6-4
  in delay and withdrawal operations, 6-4, 6-5
  in deliberate attack, 5-6, 5-7
  in exploiting force, 5-4, 5-8, 5-9

in hasty attack, 5-5, 5-7
in meeting engagement, 5-4
in movement to contact, 5-2
in organic vehicles, 5-2
in planning for threat, 3-3
in pursuit, 5-10
in retirement, 6-8
maintenance concept, 7-11
minimum for balance, 1-2
missiles, 7-7, 7-11
mutual support distance, 1-2, D-3
overlapping fires distance, D-3
platoon, 1-4, 1-5, 5-2, 6-8, 7-11
section, 6-3, 7-11
teams, 1-4, 1-5, 5-2, 5-4, 5-7, 6-4, 6-5, 6-8, 7-3
under armor, 6-4, 6-5

supplemental fire control measure (SFCM), 3-14, 3-15

swim operations, B-2

synchronization, 1-1, 1-2, 3-2, 3-5, 3-15

tactical air to surface missile (TASM), 2-2

tactical ballistic missile (TBM), 2-1 through 2-3, 3-2, 3-3, 3-11, 4-2, 4-4, E-1 through E-4, E-7, E-8

theater
mature, 1-1, 2-1, 3-1, 3-2, 3-5, 4-4
nonmature, 1-1, 2-1, 3-1, 3-2, 3-5, 4-4

threat, 2-1 through 2-4
as lodgement expands, 2-3
attack helicopter, 2-3, 3-4, 3-5
battalion commander's understanding of, 3-6
during lodgement, 2-3, 4-1
evaluation, 2-2, 3-6
in contingency theater, 2-1
in early warning plan, F-1
in exploitation, 5-8
in hasty and deliberate attacks, 5-7
in mature theater, 2-3, 2-4
in meeting engagement, 5-4
in movement to contact, 5-2
in withdrawal, 5-8
sabotage and terrorist, 2-3

USAF (see Air Force)

Vulcan
air transport load, 3-3
as a Class VII supply item, 7-7
battalion, 1-4
battery, 1-2
in defense, 6-2, 6-3
in deliberate attack, 5-6, 5-7
in exploiting force, 5-8, 5-9
in hasty attack, 5-5, 5-7
in meeting engagement, 5-4
in movement to contact, 5-2, 5-3
in planning for threat, 3-3
in pursuit, 5-10
in retirement, 5-7, 6-8
mutual support distance, D-3
platoon, 1-4
Product Improved (PIVADS), 1-4

war-gaming, 3-5, 3-6, 3-8 through 3-10, 3-12, 6-2, A-1

weapon control status (WCS), 3-14, 4-1, F-2

WEAPONS FREE, 3-14

weapons free zone (WFZ), 3-14

WEAPONS HOLD, 3-14

WEAPONS TIGHT, 3-14

weighted coverage, D-2, D-4

withdrawal operations, 3-2, 4-4, 5-7, 5-8, 6-4 through 6-6, 7-14