ARMY, MARINE CORPS, NAVY, AIR FORCE

JAOC/AAMDC Coordination

MULTISERVICE
PROCEDURES FOR
JOINT AIR OPERATIONS CENTER (JAOC)
AND
ARMY AIR AND MISSILE DEFENSE COMMAND (AAMDC)
COORDINATION

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MULTISERVICE TACTICS, TECHNIQUES, AND PROCEDURES

FOREWORD

This publication has been prepared under our direction for use by our respective commands and other commands as appropriate.

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PREFACE

1. Scope

This publication is the result of a 1997 Army-Air Force Warfighter Conference tasking. It documents the tactics, techniques, and procedures (TTP) that a Joint Air Operations Center (JAOC) and the Army Air and Missile Defense Command (AAMDC) use to counter air and missile threats. To more completely explore and refine these TTP, the functions and responsibilities of the US Army battlefield coordination detachment (BCD) were fully considered. However, because the contents are limited to AAMDC/BCD/JAOC relationships, the contributions of Naval forces were not.

2. Purpose

a. This publication will assist the joint force commander (JFC), the joint force air component commander (JFACC), and the JFACC's principal staff in developing a coherent approach to preparing for combat operations. It documents the methods used to coordinate AAMDC operations for the commander, Army Forces (COMARFOR) with JAOC operations for a commander, Air Force Forces (COMAFFOR) designated JFACC/AADC/ACA. It defines the command and control (C^2) relationships between AAMDC and JAOC and includes the BCD's role as the principal liaison between the ARFOR and the JFACC. It addresses AAMDC/BCD/JAOC coordination and integration procedures in the following areas: battle management (BM) command, control, communications, computers, and intelligence (C^4I); passive and active defense; and attack operations. The principles and some of the relationships and processes also apply in other circumstances, such as when the JFC designates the Navy or USMC as the JFACC/AADC/ACA.

3. Applicability

These TTP apply to all elements of a joint force and provide a common frame of reference for establishing effective working relationships. Using approved joint and service doctrine and terminology, this publication identifies methodologies applicable to national, theater, and component staffs and contributes to effective use of joint resources.

4. Implementation Plan

Participating Service command offices of primary responsibility (OPRs) will review this publication, validate the information, and, where appropriate, reference and incorporate it in Service and command manuals, regulations, and curricula as follows:

Army. The Army will incorporate the tactics, techniques, and procedures (TTP) in this publication in US Army training and doctrinal publications as directed by the Commander, US Army Training and Doctrine Command (TRADOC). Distribution is in accordance with DA Form 12-99-R.

Marine Corps. The Marine Corps will incorporate the TTP in this publication in US Marine Corps training and doctrinal publications as directed by the Commanding General, US Marine Corps Combat Development Command (MCCDC). Distribution is in accordance with MCPDS.

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5. User Information

a. TRADOC, MCCDC, NWDC, Headquarters Air Force Doctrine Center (HQ AFDC), and the Air Land Sea Application (ALSA) Center developed this publication with the joint participation of the approving Service commands. ALSA will review and update this publication as necessary.

b. This publication reflects current joint and Service doctrine, command and control (C2) organizations, facilities, personnel, responsibilities, and procedures. Changes in Service protocol, appropriately reflected in joint and Service publications, will likewise be incorporated in revisions of this document.

c. We encourage recommended changes for improving this publication. Key your comments to the specific page and paragraph and provide a rationale for each recommendation. Send comments and recommendations directly to—

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JAOC/AAMDC Coordination

Multiservice Procedures for Joint Air Operations Center (JAOC) and Army Air And Missile Defense Command (AAMDC) Coordination

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EXECUTIVE SUMMARY

Multiservice Procedures for Joint Air Operations Center (JAOC) and Army Air And Missile Defense Command (AAMDC) Coordination

This publication documents *one aspect* of air and missile defense operations: the TTP necessary to coordinate operations between a JAOC established by a COMAFFOR designated JFACC/AADC/ACA and the AAMDC. The AAMDC is a fully integrated, multifunctional air and missile defense organization whose primary purpose is to perform theater-level air defense (AD) and joint theater missile defense (JTMD) planning, integration, coordination, and execution (less attack operations) functions for the COMARFOR. The AAMDC commander serves as the TAAMDCOORD to the ARFOR and as deputy area air defense commander (DAADC) to the AADC for AD.

Countering air and missile threats is a challenge that becomes easier as the knowledge of other component forces and their contributions to the mission increases. This publication identifies key Air Force and Army organizations and their respective functions. It also addresses JAOC/AAMDC coordination and integration procedures for C^4I, passive and active defense, and support of joint attack operations against theater missiles (TMs).

By capturing methods used to coordinate JAOC and AAMDC operations, C^2 relationships are defined with regard to AD and JTMD. As the ARFOR's principal liaison to the JFACC, the US Army BCD's role is also addressed. All of the principles and some of the relationships and processes will apply in other circumstances, such as when the Navy or USMC is designated as the JFACC, AADC, or ACA. This publication provides a common frame of reference for establishing effective working relationships.

Chapters

Chapter I identifies the key Air Force and Army organizations involved and discusses their respective functions and operational methods.

Chapter II provides the reader an understanding of C^4I and how these systems are organized to support JTMD. It also outlines C^4I direct communications and liaison connectivity requirements for conducting JTMD.

Chapter III presents the key elements of the TBM early-warning architecture, including detection, communications nodes, and warning notifications for respective AFFOR/ARFOR units.

Chapter IV discusses the integration of AFFOR and ARFOR assets into the overall AD system as directed by the AADC.

Chapter V focuses exclusively on attack operations against TMs and the supporting role the AAMDC plays in facilitating these operations.

Appendixes

Appendix A describes the AAMDC LNO team responsibilities and requirements when deployed to the JAOC in support of the AADC and DAADC.

Appendix B offers a baseline coordination checklist to assist the JAOC, the BCD, and the AAMDC in integrating resources for effective AD, including JTMD.

Appendix C provides details on DOCC organization and responsibilities for planning, preparing, and executing deep operations in the ARFOR's AO.

Appendix D explains the joint interface control officer's (JICO's) responsibilities for managing the multidata link network from the JAOC.

Appendix E discusses the use of reports to issue orders and track the readiness of Patriot units, availability of missiles, and status of engagements.

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Chapter I

CONCEPT AND ORGANIZATION

1. Background

a. The Threat.

(1) As seen during the 1991 Persian Gulf War, United States (US) forces are not immune to air and missile threats. The growing diversity of these threats and the rapid and continuing proliferation of advanced weapons and technology exacerbate the complexity of attaining air superiority and protecting friendly forces and vital interests. Effectively countering these ever-increasing threats requires a more responsive, flexible, and integrated defense. To this end, all of the services have undertaken initiatives to improve their capabilities and interoperability with other components. This publication is a continuation of those efforts.

(2) Force protection and freedom of action are inherent objectives of all operations. Critical to achieving these objectives is the joint force's ability to defeat air and missile threats. Joint force commanders (JFCs) use offensive and defensive operations to destroy, neutralize, or minimize air and missile threats both before and after launch. To achieve military objectives, combatant commanders and subordinate JFCs integrate assigned forces' capabilities. The JFC apportions components' capabilities and/or forces and determines appropriate command relationships between designated subordinates such as the joint force air component commander (JFACC), the area air defense commander (AADC), and the airspace control authority (ACA).

(3) Operations in an established theater may employ large numbers of air, land, and naval forces whose commanders cooperate and coordinate to defeat air and missile threats. The level of cooperation and coordination will determine the efficiency of operations and their degree of success. This publication documents one aspect of air and missile defense: the tactics, techniques and procedures (TTP) necessary to coordinate operations between a joint air operations center (JAOC) established by a commander, Air Force forces (COMAFFOR) designated JFACC/ AADC/ACA, and the Army Air and Missile Defense Command (AAMDC).

b. Doctrine and Terminology. Each service's approach to countering air and missile threats includes associated and often unique doctrine and terminology. Also included is approved joint doctrine that affects employment of joint forces. The following terms are discussed here to clarify subsequent material in this publication.

(1) Joint force land component commander (JFLCC)/Army forces (ARFOR). The term JFLCC/ARFOR in this publication refers to the AAMDC commander's role as the theater army air and missile defense coordinator (TAAMDCOORD) to the ARFOR or an ARFOR-designated JFLCC. The AAMDC commander could work for a Marine forces (MARFOR) designated JFLCC if the situation warrants or the JFC directs such a relationship.

(2) COMAFFOR. For the purposes of this publication, the COMAFFOR is the JFACC, AADC, and ACA. Singular use, such as AADC, is to focus on aspects associated with that particular function and associated coordination efforts.

(3) JAOC. A JAOC is one that has been formed by a COMAFFOR designated JFACC/AADC/ACA.

(4) Counterair (CA). CA's objectives are to facilitate friendly forces' operations against the enemy and to protect these forces and vital assets by attaining air superiority. Air superiority is that degree of dominance that permits the conduct of operations at a given time and place without prohibitive interference from the opposing force. Air superiority limits interference with air, space, or surface forces' operations and helps assure freedom of actions and movement. Countering air and missile threats is inherent to achieving air superiority. The two components of CA are offensive counterair (OCA) operations and defensive counterair (DCA) operations.

(a) Offensive counterair. OCA consists of offensive measures to destroy, disrupt, or neutralize enemy aircraft, missiles, and launch platforms and their supporting structures and systems. Missions intended to disrupt or destroy selected targets on the ground are referred to as OCA attack operations. These operations are directed against enemy air and missile threats and their support infrastructure before launch to prevent enemy assets from being employed.

(b) Defensive counterair. DCA comprises all defensive measures designed to detect, identify, intercept, and destroy or negate enemy air and missile forces attempting to attack or penetrate the friendly air environment. Its objective, which is synonymous with air defense (AD), is to protect friendly forces and vital interests from enemy air and missile attacks. DCA employs both active and passive measures to protect US or multinational forces, assets, population centers, and interests.

(5) Air defense. AD comprises all defensive measures designed to destroy attacking enemy aircraft or missiles or to nullify or reduce the effectiveness of an attack. Air defense artillery (ADA) units and weapons used in an AD role are the Army's contribution to joint DCA operations (Joint Pub 1-02).

(6) Joint theater missile defense (JTMD). All operational forces use the term JTMD as described in Joint Publication (JP) 3.01-5, Joint Theater Missile Defense. JTMD is the integration of joint force capabilities to destroy enemy theater missiles prior to launch or in flight, or to otherwise disrupt the enemy's theater missile (TM) operations through an appropriate mix of mutually supportive operations. The four operational elements of JTMD are passive defense; active defense; attack operations; and command, control, communications, computers, and intelligence (C^4I).

(7) Theater missiles. A TM may be a ballistic missile, a cruise missile, or an air-to-surface missile whose target is within a given theater of operations. Not included are short-range, nonnuclear, direct-fire or wire-guided missiles, bombs, or rockets such as Maverick.

(8) JTMD command relationships. Applying a flexible range of command relationships identified in JP 0-2, Unified Action Armed Forces (UNAAF), enhances unity of effort in joint forces. The two most frequently used command relationships when addressing JTMD operations are tactical control (TACON) and direct support (DS).

(a) Tactical control. TACON, which is inherent in operational control (OPCON), is command authority over assigned or attached forces or commands, or military capability or forces made available for tasking. It is limited to the detailed and, usually, local direction and control of movements or maneuvers necessary to accomplish missions or assigned tasks. TACON may be delegated to, and exercised at any level at or below, the level of combatant command. Typically, air and naval force air sorties are provided TACON to a mission.

(b) Direct support. DS requires one force to support another, authorizing the DS force to answer directly to the supported force's request for assistance. Army units may be assigned DS missions in support of the JFACC or AADC.

c. Multinational Operations. Requirements, responsibilities, and organizational considerations for conducting multinational operations are similar to those for joint operations. However, special considerations and emphasis are needed to ensure unity of effort with other national forces. Even within formal alliances, varying national interests must be identified and considered. Differences in doctrine, training, equipment, and organization must also be considered when determining multinational interoperability requirements. Because each theater and each country is unique, this publication does not address multinational effects on JAOC-AAMDC coordination procedures.

d. Organizational Relationships. A necessary requisite for any discussion of coordination procedures is a fundamental understanding of the organizations involved and how they operate. The remainder of this chapter provides information on US Air Force (USAF), US Army (USA), and US Navy (USN) component forces and associated liaisons.

SECTION A - AIR FORCE FORCES (AFFOR)

2. Joint Force Air Component Commander

The JFC may designate the COMAFFOR as the JFACC responsible for integrating the capabilities and command and control (C^2) of joint air assets. The JFC defines the JFACC's authority and responsibilities, which may include, but are not limited to, planning, coordinating, allocating, and tasking for joint CA operations based on the JFC's concept of operations and air apportionment decisions. Other JFACC responsibilities relating to joint CA operations include:

a. Developing, coordinating, and integrating the joint CA plan with operations of other components for JFC approval.

b. Recommending air apportionment to the JFC after consulting with other component commanders.

c. Directing the allocation and the tasking of joint CA capabilities and forces made available by the JFC.

d. Performing the duties of the AADC and/or ACA when directed by the JFC.

e. Providing command and control warfare (C^2W) strategies to neutralize enemy air and missile threats and to protect friendly air and missile capabilities.

f. Developing the joint air and space operations plan (JASOP), which includes the broad concept for deploying, employing, and sustaining major air-capable joint forces.

3. Area Air Defense Commander

Within a unified command, subordinate unified command, or joint task force (JTF), the commander will assign overall responsibility for AD to a single AADC. Normally, the AADC is the component commander with the preponderance of AD and command, control, and communications (C^3) capability to plan and execute integrated AD operations (JP 1-02). Other components provide representation, as appropriate, to the AADC's headquarters. The JFC grants the AADC the necessary command authority to deconflict and control engagements and to exercise real-time battle management. Regardless of the command relationships established, all active defense forces made available for DCA are subject to the rules of engagement (ROE), airspace and weapons control measures, and fire control orders established by the AADC and approved by the JFC. The AADC's primary responsibilities include:

a. Integrating AD forces and operations to defend the joint force against enemy air and missile attack.

b. Developing, integrating, and distributing a JFC-approved joint air defense plan (ADP).

c. Developing and executing—in coordination with the JFC staff's operations directorate (J3) and command, control, communications, and computers (C^4) directorate (J6)—a detailed plan to disseminate timely air and missile warning and cueing information to component forces, allies, coalition partners, and civil authorities, as appropriate.

d. Developing and implementing identification and engagement procedures appropriate to the air and missile threat.

e. Ensuring timely and accurate track reporting among participating units to provide a consistently common operational picture.

f. Establishing sectors or regions, as appropriate, to enhance decentralized execution of DCA operations.

4. Airspace Control Authority

The ACA is the commander designated to assume overall responsibility for the operation of the airspace control system in the airspace control area (JP 1-02). The ACA develops policies and procedures for airspace control and incorporates them

into an airspace control plan (ACP). They are promulgated throughout the theater via the airspace control order (ACO), to which all CA forces are subject. The flow of air traffic that the JFACC requires to execute an effective air campaign significantly influences the ACP, as do the needs of the ground commander's scheme of maneuver. The AADC's ADP and the ACA's ACP are developed jointly to ensure their synchronization.

5. Joint Air Operations Center

When the JFC designates the COMAFFOR as the JFACC/AADC/ACA, the COMAFFOR exercises C^2 of air operations from a JAOC.

a. Organization.

(1) The JAOC is the JFC's focal point for joint air and space operations planning and execution. It is structured to operate as a fully integrated facility and is staffed to meet all of the JFACC's responsibilities. JFACC organizations may differ based on the specific requirements and operations of the area of responsibility (AOR) or joint operations area (JOA). Although equipped with organic communications and shelters, the JAOC will, in some situations, prefer the use of fixed facilities and/or supplemental communications.

(2) The JAOC staff should be organized and manned to reflect the composition of the joint force. While a JAOC must be jointly manned, the majority of the staff normally comes from the service designated as the JFACC and will normally reflect that service's basic organization.

b. Employment. The JAOC director assists the JFACC in exercising OPCON and TACON over assigned or attached forces and in planning and conducting all joint air operations. Mission requirements, scope of operations, level of integration required between theater-directed missions, and other theater operations determine the size of the JAOC. The air staff supports the JAOC director by supervising JAOC team personnel. The JAOC breaks down information barriers between traditional JAOC cells by placing various experts in integrated teams to accomplish strategy development, operational-level assessment, detailed planning, air-tasking-order (ATO) production, and execution functions. The number and size of teams vary according to the scope of the operation. A USAF-based air operations center (AOC) has four divisions with 10 integrated core teams and numerous specialty and support teams (Figure I-1). For more information on organization and employment of a JAOC, see JP 3-56.1, Command and Control of Joint Air Operations, 14 Nov 94.

(1) Divisions and core teams.

(a) Strategy division. The strategy division develops, refines, disseminates, and assesses the progress of the JFACC's air and space strategy. The two core teams associated with this division are the strategy plans team and the combat assessment team. Representatives from a range of functional areas, such as operations, intelligence (INTEL), communications, logistics, and space, are principal members of the division. Key functions of the strategy division that affect joint CA operations include:

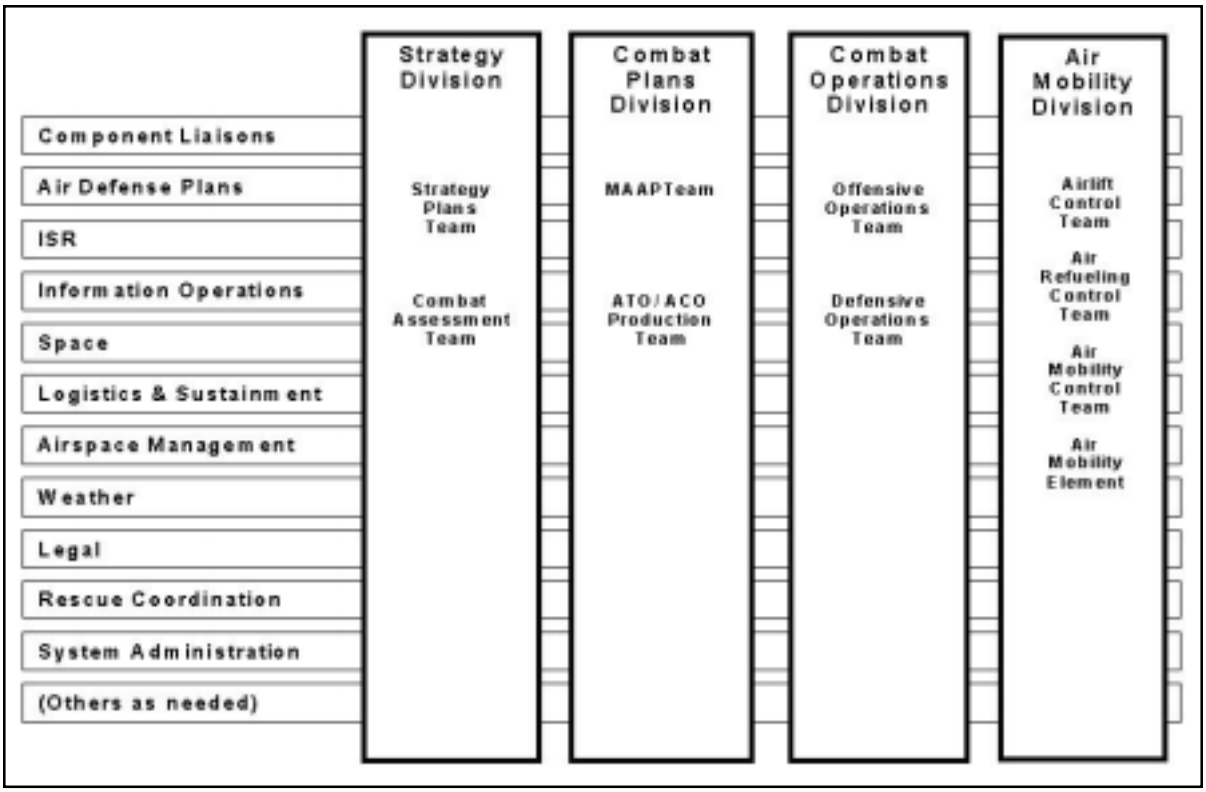

Figure I-1. Notional USAF-Based JAOC with Core, Specialty, and Support Teams

• Serving as the JFACC's focal point for overall development and coordination of the JASOP in support of the JFC's theater campaign.

• Translating National Command Authorities (NCA), JFC, and JFACC guidance into target sets for planning and executing the ATO.

• Generating a recommended apportionment decision for the JFC and determining target sets.

• Monitoring and assessing the JASOP's progress and providing overall operational-level combat assessment of the air and space objectives.

(b) Combat plans division. The combat plans division is responsible for the JAOC's near-term air and space operations planning function. The two core teams associated with this division are the master air attack plan (MAAP) team and the ATO/ACO production team. This division develops detailed plans for applying air and space resources based on JFACC-approved guidance from the strategy division. These plans include near-term guidance, allocation and apportionment, and tasking instructions for assigned and attached forces, which are accomplished through ATOs. The combat plans division transmits the ATO to the combat operations division and all other affected forces for execution. The director or chief of the combat plans division is directly responsible for all aspects of planning the employment of air assets, including CA assets. Planners develop and include specific CA operations in the ADP. Key functions of the combat plans division that affect joint CA operations include—

• Assessing combat operations to determine progress toward JFC and JFACC objectives.

• Determining the optimal combination of target, platform, weapon, and timing for missions included in the ATO.

• Ensuring air and space tasking supports the overall JTF campaign.

• Generating special instructions (SPINS) and the daily ACO or ACO updates.

(c) Combat operations division. The combat operations division executes the ATO. It analyzes, prioritizes, and, if necessary, recommends to the JFACC or designated representative the redirection of assets. The two associated core teams are the offensive and defensive operations teams. The director or chief of combat operations (CCO) is directly responsible for execution, to include coordinating and integrating all joint air operations and providing centralized control for assigned assets. Time-sensitive target (TST) and/or theater missile defense (TMD) cells, if constituted, work within the combat operations division. ACA and AADC representatives, along with component liaison officers (LNOs), are part of the combat operations division decision-making process. Key functions of the combat operations division that affect joint CA operations include—

• Executing the current ATO through constant monitoring of air missions.

• Changing and publishing changes to the ATO in response to battlespace dynamics, that is, eliminating targets that are no longer valid, designating higher priority targets, warning of threatening enemy action.

• Coordinating emergency and immediate air-support requests.

• Monitoring and recommending changes to defensive operations.

(d) Air mobility division (AMD). The AMD plans, coordinates, tasks, and executes the air mobility mission. Key functions that affect joint CA operations are planning, tasking, and scheduling aerial refueling in support of intratheater air operations.

(2) Specialty teams. Specialty teams provide the JAOC with diverse capabilities to help orchestrate theater aerospace power. Specialty team personnel are integrated throughout the JAOC to assist with air and space assessment, planning, and execution. Specialty teams that directly affect joint CA operations are discussed below.

(a) Intelligence, surveillance, and reconnaissance (ISR) team. The ISR team provides personnel to all JAOC divisions and to subordinate tactical air control system (TACS) agencies for the integration of INTEL operations. ISR personnel in the strategy division provide initial detailed research and analysis of

the operational environment, conduct continuous intelligence preparation of the battlespace (IPB), and ensure ISR assets are focused to support theater operations. ISR personnel in the combat plans division integrate intelligence into ATO planning and combat assessment, provide all-source threat analysis for targeting, and report current situation/threat activity for adjusting combat plans. ISR personnel in the combat operations division support execution of an ATO by monitoring ongoing intelligence operations and responding to the fluid battlespace situation by providing attack indsications and warnings and near-real-time (NRT) all-source intelligence.

(b) ADP team. The ADP team plans and coordinates the employment of air and ground air defense C^2 systems assigned to COMAFFOR or JFACC. The focal point for the effective integration of all C^3 systems into the combined/joint TACS, this team of fully qualified operators represents the C^2 systems assigned or available to JFACC. The size and composition of the team may be tailored to the operational environment. Air defense planning officers—

• Develop, coordinate, and promulgate the ADP, concept of operations (CONOPS), and air defense ROE upon approval of the AADC or JFC.

• Develop, coordinate, and negotiate agency-to-agency agreements and maintain liaison with host nations, allies, and service components on all matters relating to command, control, and employment of air defense forces and resources.

• In coordination with other planning teams, plan the employment of specific AD resources, including fighters, missiles, and C^2 systems and platforms.

• Develop, coordinate, and promulgate theater data-link tasking documents, including tactical operations data (TACOPDAT) and operations task link (OPTASKLINK).

• Incorporate host-nation, allied, and other service component inputs into the C^2 portions of the ATO, SPINS, and data-link tasking document.

• Monitor system and facility status, capabilities, and mission tasking and advise combat operations on best possible adjustments of AOR, sector boundaries, and resource allocations.

• Coordinate with JAOC systems control (SYSCON) and the TACS directorate to develop a comprehensive communications plan with the required frequency management and appropriate support to communications and information (C&I) systems. This plan must be coordinated through the JTF J6 staff to update and deconflict the theater communications architecture.

(c) Space support team (SST). An SST serves as a force enabler to the JAOC. In support of JTMD operations, the SST enhances the C^4I network and provides initial launch detection and warning dissemination for passive defense. Space forces can provide cueing against airborne targets for DCA and aid in-ground target detection, nomination, and prosecution of OCA operations.

c. Key Products. Two key JAOC products relevant to CA operations are the ATO with associated ACO and the ADP.

(1) Air tasking order. ATO development is an iterative process that begins with receipt of objectives and guidance from the strategy division. An ATO normally covers a 24-hour period; therefore, normally three or more ATOs are in some stage of development at any given time. The MAAP team is responsible for developing and weaponeering targets and integrating other component requirements and support operations into the ATO. The ATO/ACO production team is responsible for the technical production and dissemination of the ATO. The combat operations division is responsible for executing and changing the current ATO. The strategy division's combat assessment team monitors and assesses the effectiveness of current operations to influence the development of future ATOs. Tasks and targets identified, prioritized, and nominated for inclusion in the ATO must support the JFC's overall campaign priorities within the capabilities of available resources. Air operations complexity and the AD threat are two of the most significant problems in designing flexible CA operations. In addition, the elusive nature of enemy TM operations means incorporating late or higher priority requests into the ATO or, when necessary, publishing a change to the ATO. The CCO is responsible for changes required outside the ATO's effective period.

(2) Air defense plan. Starting with deliberate planning and continuing through execution, area air defense (AAD) planners at the JAOC assess the situation and identify assets required to accomplish the commander's DCA objectives. The AADC, with the support of service or functional component commanders and the JFC's approval, develops, integrates, and distributes the joint ADP. Based on the JFC's AD priorities, the AADC builds an ADP designed to optimize the joint force's AD capabilities. Factors affecting ADP development include available forces, support that units can provide one another, and the need to create a multilayered defense-in-depth, that is, the ability to engage the enemy as far from its target as possible and to continue to engage until the target is destroyed. Collaborative planning begins when the JTF or AADC staff planners develop and distribute a rough, first-order ADP to the components. Regional air defense commanders (RADCs) and component air defense coordinators—for example, AAMDC—collaboratively review the plan, develop exact positioning and defense design information, identify issues, and provide input and feedback to the AADC staff. The AD planners finalize, obtain JFC approval, and distribute the joint ADP. RADCs may refine details and, collaboratively with their components, supplement the plan. Because AD and airspace control and management are inherently related, the ADP and the ACP should be developed in tandem to avoid conflict. Furthermore, the appropriate command relationship with US Space Command (USSPACECOM) and its components must be established for JTMD operations so missile-warning functions are totally integrated. The ADP should address the following areas. This list is not exhaustive:

(a) Prioritized defended asset list (DAL).

(b) Sensor employment.

(c) Identification procedures.

(d) Engagement procedures.

(e) Airspace control measures (ACM).

(f) Weapons control measures.

(g) Weapons system employment.

(h) Tactical interface—for example, tactical digital information link (TADIL)— design.

(i) Dissemination of early warning.

6. Liaisons to the Joint Air Operations Center

Representing their respective commanders, senior component LNOs, perform duties throughout the JAOC to facilitate competent integration. Typical are the special operations liaison element (SOLE), the Marine LNO (MARLO), the Army battlefield coordination detachment (BCD), and the naval and amphibious liaison element (NALE). In addition, an AAMDC LNO team (see Appendix A) will deploy to the JAOC to support the AADC/deputy area air defense commander (DAADC).

a. SOLE. The SOLE coordinates all theater special operations forces (SOF) efforts and assets in support of the JASOP. SOF can provide critical and timely surveillance and reconnaissance information on deployed enemy operations, as well as the means to destroy targets. To prevent fratricide, all services must coordinate with the SOLE prior to engaging targets in current or known former SOF operating areas.

b. MARLO. The senior air combat element (ACE) representative in the JAOC, the MARLO is responsible for effective presentation and adjudication of MARFOR aviation and targeting issues that the JFACC controls or affects. The MARLO's liaison element to the JAOC may consist of an assistant combat operations officer, fighter duty officer, joint search and rescue liaison, electronic combat representative, airspace representative, air defense representative, Marine air-ground task force (MAGTF) BCD LNO, senior Marine planner, Marine aviation planner, strategy officer, Marine AD planner, and Marine airspace management planner. For a more detailed discussion of their duties in the JAOC, see US Marine Corps (USMC) Warfighting Publication (MCWP) 3-25.4, Marine Tactical Air Command and Control (TACC) Handbook.

c. BCD. The BCD is the Army component commander's liaison to the AOC and/ or the component—that is, the JFACC—the JFC designates to plan, coordinate, and

deconflict air operations. Responsible for exchanging detailed operation and intelligence information and coordinating operations, the BCD is staffed to support the JFACC/AADC/ACA. The ARFOR can tailor the BCD to support contingency operations as required.

(1) The BCD consists of 39 Army personnel organized into a headquarters element and six sections: operations, AD, plans, INTEL, airspace management, and airlift (Figure I-2).

(2) The BCD ensures that the JFACC is aware of the commander, Army force's (COMARFOR's) intent, scheme of maneuver, and concept of operations in the ARFOR area of operations (AO). The BCD monitors and interprets the land battle for the JAOC staff and integrates planning, coordination, and execution of the following functions: battle command; AD, to include JTMD; plans; INTEL; airspace management, airlift; C^2W; and fires.

(3) The BCD passes ARFOR operational and planning data and operational support requirements—including close air support (CAS), air interdiction (AI), ISR, and joint suppression of enemy air defenses (JSEAD)—from the COMARFOR to the JFACC/AADC/ACA and participating multinational forces. The BCD does not participate directly in the ARFOR command estimate or decision-making process, but does communicate COMARFOR's decisions and interests to the JFACC. To facilitate this process, the BCD provides ARFOR staff elements information on the JASOP and current operations concerning all battlefield operating systems and functions. The COMARFOR may delegate decision-making authority for specific events or situations to the BCD commander.

(4) The COMARFOR specifies that the BCD's role is to assist in coordinating JTMD, which may include—

(a) Assisting the strategy division in developing an attack strategy to meet the JFC's targeting guidance and objectives, including high-priority and politically sensitive JTMD targets.

(b) Maintaining coordination with component staffs to ensure compliance with JFC guidance.

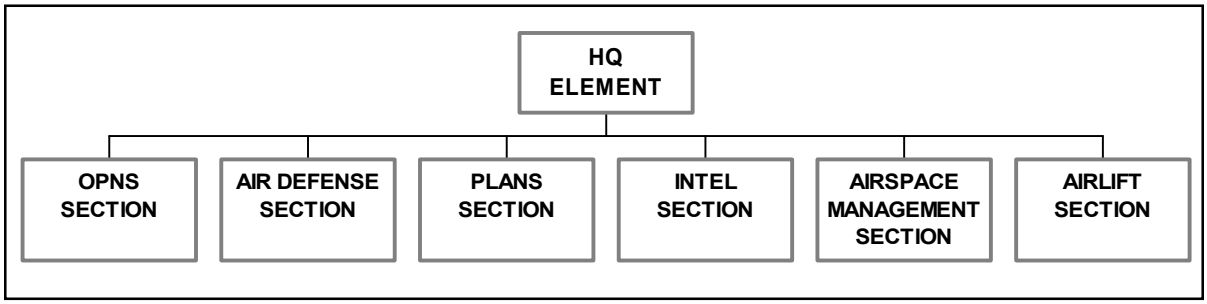

Figure I-2. BCD Organization

(c) Coordinating ARFOR intelligence requirements with the JAOC ISR team.

(d) Monitoring the quantity, operational status, and location of air defense and attack assets for CA operations.

(e) Processing JFACC-allocated Army Tactical Missile System (ATACMS) requests for use against TST, to include TMs.

(5) Through JAOC sources, the BCD may at times be the first ARFOR agency aware of a TM target. The BCD AD section normally collocates with the USAF TMD or TST cell, when established. BCD sections facilitate the rapid attack of targets, requiring coordination as follows:

(a) Operations section:

• Confirm targets.

• Assist the Army deep operations coordination cell (DOCC) fire support element (FSE) in target prosecution.

• Receive guidance from the ARFOR.

• Implement guidance from the chief of the combat operations division for integrating and synchronizing JTMD efforts.

• Coordinate with the senior offensive duty officer (SODO), senior air defense officer (SADO), SOLE, MARLO, NALE, AAMDC LNO, and others as required.

• Coordinate ATACMS and multiple-launch rocket system (MLRS) missions as authorized by the ARFOR DOCC.

(b) AD section.

• Maintain situational awareness of unit status, ARFOR AD, and JTMD priorities and engagement reports in coordination with the AAMDC LNO team.

• Coordinate ARFOR input to the ADP with the ARFOR air defense element (ADE) in the operations section when the AAMDC is not in theater.

• Assist the AAMDC LNO team and JAOC TMD cell as required.

• Maintain Army AD status on the floor of the JAOC; synchronize activities with AAMDC LNO team.

• Maintain operational and logistics data on corps ADA forces.

• Provide AAMDC LNO personnel information on theater-specific JAOC standing operating procedures (SOP).

(c) Plans section:

• Assist the strategy team in developing a TM attack strategy.

• Represent the COMARFOR during the MAAP team's guidance, apportionment, and targeting (GAT) meetings.

• Coordinate with the DOCC on all planned targets, including TMs.

(d) INTEL section:

• Facilitate exchange of TM IPB between component analysis elements.

• Confirm TM target locations with ARFOR INTEL agencies as required.

(e) Airspace management section:

• Coordinate airspace for preplanned and immediate ATACMS missions.

• Integrate and deconflict ARFOR airspace requirements with the AOC airspace management section.

(f) Airlift section: Maintain situational awareness of all airlift and airlift support requests that affect ARFOR operations.

d. NALE. The NALE consists of personnel from the maritime components—USN/USMC—who support the AOC in integrating navel air, naval fires, and amphibious operations into the theater air campaign. They are also points of contact within the AOC for the exchange of current INTEL/operational data with the maritime components.

e. AAMDC LNO. The AAMDC commander serves as the TAAMDCOORD to the ARFOR and, when tasked, serves as a DAADC (para 9b(2) discusses the AAMDC commander as the DAADC). As the DAADC, the AAMDC commander becomes the principal integrator of land-based air-land missile defense for the AADC and deploys a liaison element to assist in performing these duties. The AAMDC LNO team, as the senior Army ADE at the AADC's location, is the primary interface at the JAOC for all land-based active defense force operations. The BCD AD section coordinates its activities with the AAMDC LNO team and may augment the team as needed. Figure I-3 depicts major functions the BCD AD section and AAMDC LNO team perform at the JAOC. Chapter 4, Active Defense, and Appendix B, Coordination Checklist, detail the AAMDC LNO team/BCD AD section/JAOC synchronization and coordination procedures. Appendix A, AAMDC LNO Responsibilities and Requirements, includes detailed information on the AAMDC LNO team composition, workspace, and communications requirements.

AAMDC LNO Team Functions:

- Integrate land-based TMD active defense and ADA forces into the DCA plan.
- Advise the AADC regarding weapons control procedures and measures. Air Defense Warnings (ADW), Weapons Control Status (WCS), and Emissions Control (EMCON) measures.
- Assist the AADC in the ADP development.
- Advise the AADC on matters regarding active missile defense operations and ensure integration into the DCA plan.
- Advise the AADC on AD weapons capabilities.

BCD AD Section Functions:

- Coordinate with USSPACECOM elements, and the TMD cell regarding TBM warning.
- Coordinate active, passive, and attack operations for TMD mission.
- Coordinate with AAMDC for TBM alert dissemination procedures.
- Coordinate AD airspace needs with the JAOC airspace management and BCD airspace management sections.
- Monitor the status of TBM weapon systems.
- Coordinate the following with the AAMDC LNO team:
  - Location of ADA assets
  - Engagement reporting
  - ADA weapons engagement zones
  - Receipt of AD annexes to OPLANS/OPORDS

Figure I-3. AAMDC LNO Team and BCD AD Section Functions

SECTION B - ARMY FORCES

7. The COMARFOR

As the component commander responsible for all army forces in theater, the COMARFOR may serve as the JFLCC if so designated. A COMARFOR is normally a numbered army or corps commander depending on the theater and size of Army forces involved. Army-level commands and above are often referred to as echelons above corps (EAC). The COMARFOR establishes a tactical operations center (TOC) to control combat operations, deploys a BCD to the JAOC to effect coordination and liaison with the JAOC, and commands an AAMDC to coordinate and execute Army AD and JTMD operations within the designated AO (Figure I-4).

8. The ARFOR Staff

The ARFOR staff follows the general staff concept of G1 (Personnel), G2 (Intelligence), G3 (Operations/Plans) and G4 (Logistics). Key staff elements within the G2 and G3 directorates that affect AD and JTMD operations are the ADE, the ACE, and the DOCC.

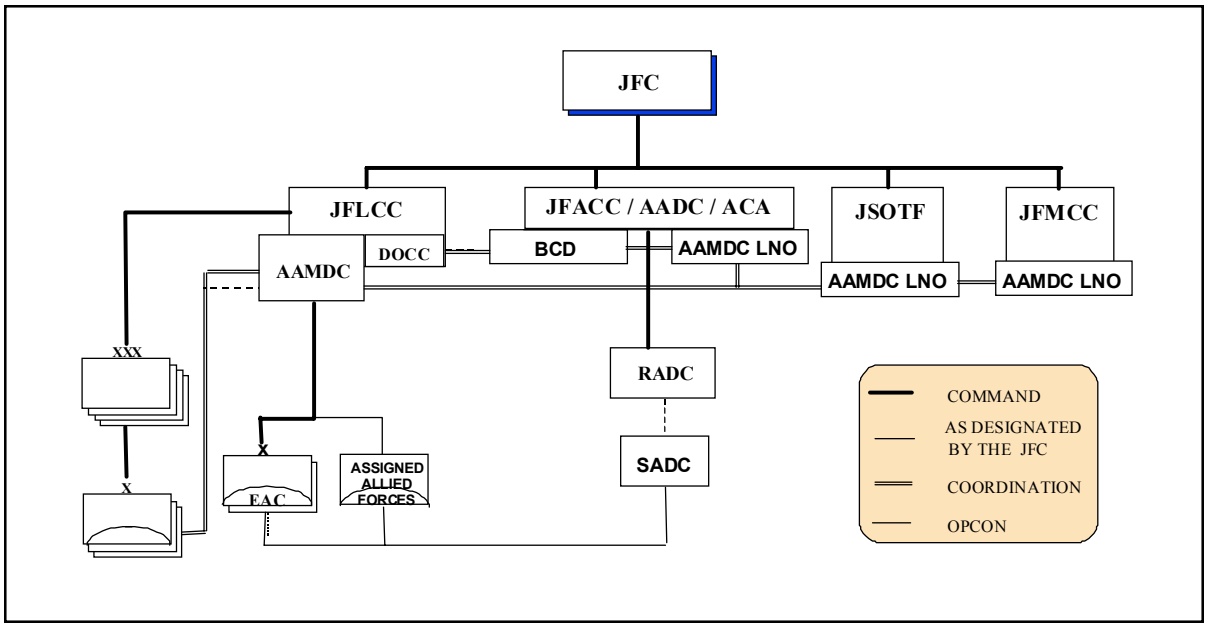

Figure 1-4. Command and Control Relationships

a. Air Defense Element. The ADE is a small permanent-party staff element within the ARFOR G3 responsible for daily planning and coordination of air and missile defense operations. During contingencies, the ADE facilitates integration of the AAMDC into ARFOR operations. The ADE, with AAMDC augmentation, then serves as the AAMDC LNO team to the ARFOR headquarters. If the AAMDC is not deployed, the ADE may function as a higher-level staff for Patriot forces in theater, providing direct early warning to ARFOR units as appropriate. In the absence of the AAMDC, the TAAMDCOORD, the BCD AD section, and the ADE work to integrate corps and EAC ADA assets into theater DCA operations. The AAMDC, ADE, and BCD AD section are typically linked through secure voice and automated data links.

b. Analysis and Control Element. The ACE manages the collection of intelligence, produces all-source intelligence, provides technical control of intelligence and electronic warfare (IEW), and disseminates intelligence and targeting data. An ACE supports the commander at each command echelon in executing battle command and planning future missions across the range of military operations. Centralizing analysis and collection management under OPCON of the G2, the ACE provides balance to all-source analysis products and synergy to the execution of counterintelligence (CI), human intelligence (HUMINT), imagery intelligence (IMINT), and signals intelligence (SIGINT) operations. At theater army level, the ACE works closely with the theater joint intelligence center (JIC) to support the intelligence requirements of the theater army commander and subordinates. Coordinating continuously with the ACE, AAMDC LNOs participate in the analysis and laydown of the TM threat.

c. Deep Operations Coordination Cell. The ARFOR conducts operations throughout the assigned AO and may establish a DOCC to facilitate integration of all operations against targets deep in the ARFOR's battlespace. Deep operations enable commanders at each level to shape their battlespace, set operational tempo,

set the conditions for success, and protect the force. The DOCC is responsible for integrating all operational-level fires in the AO and for coordinating JAOC-related activities through the BCD. Appendix C, Deep Operations Coordination Cell, discusses more completely the DOCC and its support of attack operations. An AAMDC LNO team works with the DOCC to help focus attack operations against TMs.

9. Army Air and Missile Defense Command

The AAMDC is a multifunctional organization whose primary purpose is to perform theater-level AD and JTMD planning, integration, coordination, and execution (less attack operations) functions for the COMARFOR or, when designated, the JFLCC. The AAMDC is a fully integrated air and missile defense organization that is entirely mobile, maintaining its own organic C^4I systems and shelters within the Air and Missile Defense Planning and Control System (AMDPCS). However, it requires external connectivity support as part of an integrated C^4 joint system to link combined/JTF (C/JTF), joint special operations task force (JSOTF), deployed service components, and the defense communications system. When deployed in theater, the AAMDC assumes primary responsibility for integrating land-based AD operations for the AADC. Key AAMDC players are the commander, who serves as the TAAMDCOORD to the ARFOR and as DAADC to the designated AADC for AD integration; the attack operations officer; the active defense officer; the passive defense officer; the C^4I systems integrator; the G2; the G3; and the battle captain (BC).

a. The AAMDC Staff.

(1) The AAMDC staff consists of active and reserve component personnel who assist in commanding the organization (Figure I-5) and assigned EAC ADA assets. The AAMDC executes Army AD and contributes to JTMD operations through its TOC, which includes all staff sections and the AMDPCS equipment. The TMD operational element (pillars) chiefs—attack operations officer, active defense officer,

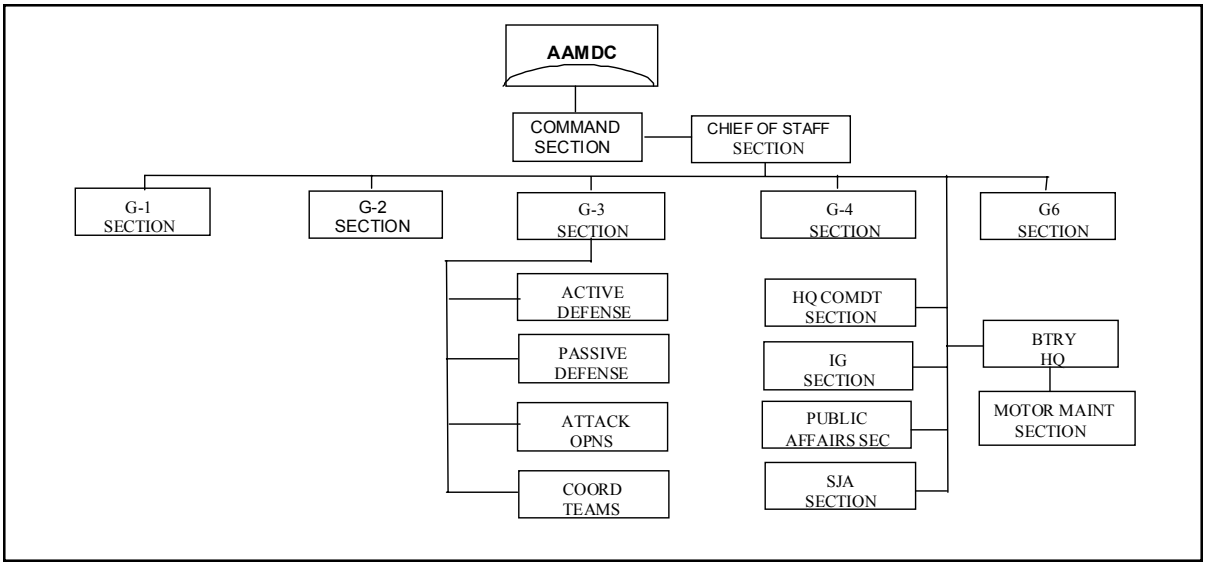

Figure I-5. AAMDC Organization

passive defense officer, and C^4I systems integrator—and the BC in the TOC perform the functions associated with the TAAMDCOORD's duties .

(2) The command section and its subordinate staff's major functions are summarized below:

(a) Command section. The command section exercises C^2 of the AAMDC and subordinate units and ensures that functions pertaining to the overall operation of the AAMDC are planned, coordinated, and executed. This section also performs battle management functions and oversees the planning, initial entry, and combat operations for air and missile defense functions.

(b) Chief of staff section. The chief of staff section directs and coordinates the activities of the subordinate staff—to include the special staff, public affairs (PA) section, chaplain, inspector general (IG), and staff judge advocate (SJA)—and ensures that assigned tasks are promptly and efficiently completed.

(c) Personnel section. The focal point for all personnel-related matters, the personnel section is responsible for personnel administration and manpower management. It advises and assists the commander in personnel services and replacements, records management and reports, discipline, morale, and welfare.

(d) INTEL section. The focal point for all military intelligence, counterintelligence, security operations, operational plans, and operations security (OPSEC) measures, the INTEL section monitors intelligence systems, determines intelligence communication requirements, assists in developing physical security plans and in identifying priority intelligence requirements (PIRs), and coordinates intelligence and security drills. It also participates in various intelligence production, dissemination, and support activities. These activities include analyzing intelligence reports and messages, refining and validating the IPB, developing and refining the intelligence estimate, processing requests for information, and apprising the commander of intelligence capabilities and limitations and their potential impact on operations.

(e) Operations section. The operations section coordinates, integrates, and synchronizes all AAMDC operations. It directs the emplacement of the AMDPCS and monitors the operational status, location, and engagement capabilities of land-based air and missile defense units. This section coordinates unit movements and maintains situational awareness of the theater AMD battle. To facilitate the conduct of air and missile defense operations, it establishes and maintains LNOs at major theater and ARFOR C^2 nodes. For example, in the event of a missile launch, the operations section receives launch and TBM impact points, disseminates early warning, and, after analysis, recommends targeting of the enemy's launch platforms and associated infrastructure to the DOCC. The operations section prepares the AMD annex to the ARFOR's operations plan (OPLAN)/operations order (OPORD) and develops plans to support future operations. It also assists in integrating TMD time-sensitive and planned ATO target missions and in developing the theater ADP.

(f) Logistics section. The logistics section coordinates supply, maintenance, transportation, and services for the command. It determines current and future ADA supply needs, recommends logistical allocations and priorities, and assists the operations section in preparingplanning for service support. It monitors equipment readiness and unique ADA classes of supply: Class V and IX. The logistics section prepares the movement annex to OPLANs/OPORDs, coordinates and schedules transportation operations, and advises units on current transport requirements and movement restrictions.

(g) Communications-electronics (C-E) section. The C-E section provides data and voice communications, information systems planning, coordination, and support to the AAMDC and to joint, multinational, and external organizations as required.

(h) Headquarters battery. The headquarters battery provides the full range of personnel management and administrative support for the battery. It is the administrative link for requesting replacements, reporting casualties, and conducting personnel actions.

(i) Maintenance section. The maintenance section performs maintenance and services on all assigned conventional equipment, such as vehicles and generators.

(j) Headquarters commandant section. This section exercises OPCON, providing security, food service, quartering, medical support, field sanitation, and supply for headquarters personnel. It also arranges for the reception and integration of augmentees to support the AAMDC mission.

(k) IG section. The IG section integrates the commander's organizational inspection program, conducts inspections and investigations, and assists the commander in determining the state of the discipline, efficiency, morale, training, readiness, and overall welfare of the command.

(l) PA section. The PA section plans and supervises the command's PA program and evaluates the effectiveness of PA plans and operations. It monitors media and public opinion, informs the commander of the implications of planned or implemented operations, and serves as the command's spokesperson for all communications with the external media.

(m) SJA section. The SJA section advises the commander on military, domestic, and foreign laws and laws relating to armed conflict. It also provides legal services for the command, supervises the administration of military justice, and ensures that individuals' rights are protected and the interests of justice are served.

b. The TOC. The TOC, which comprises the AMDPCS, is the AAMDC's initial-entry capability providing the TAAMDCOORD and staff the necessary equipment to

plan, coordinate, deconflict, and monitor the execution of ARFOR AD and JTMD operations through all phases of force projection. AAMDC TOC operations are divided into five principal cells responsible for managing operations related to the four operational elements of JTMD. Figure I-6 depicts the AAMDC TOC's current tactical layout, and Figure I-7 shows external information links to it.

(1) Operations. Air and missile defense functions are accomplished under one or a mix of the following operational elements:

(a) Active defense cell. The active defense cell supports development of the joint force ADP and is responsible for coordinating and executing Army active defense operations throughout the JOA according to that plan. This cell assists the AAMDC G3 plans in developing the air and missile defense annex to the ARFOR's plan and incorporating corps AD requirements into plans. During hostilities, the active defense cell passes enemy TBM launch information to the attack operations and passive defense cells and contributes an active defense perspective to TM IPB development. The active defense cell monitors friendly and threat airspace operations through a combined display of unit locations/AMD coverage and a joint integrated AD picture.

(b) Passive defense cell. The passive defense cell assesses TM vulnerability for the ARFOR or JFLCC, recommending design of the early-warning architecture and providing early warning to affected units and/or local populace within the ARFOR's AO. The passive defense cell supports the ARFOR's scheme of maneuver by using IPB, imagery, and displays to determine which friendly assets are fully protected, which are partially protected, and which are not protected at all. The cell also monitors and displays the friendly ground situation.

(c) Attack operations cell. In conjunction with AAMDC INTEL personnel, the attack operations cell supports ARFOR and the joint force OCA operation by analyzing TM NRT mobile targets. Included are developing TM information requirements (IRs), contributing to TM IPB development, building tracking profiles, identifying trigger events, and analyzing launch events and countermobility. Validated TM target nominations are forwarded to the DOCC for integration into plans or for immediate prosecution via the Advance Field Artillery Tactical Data System (AFATDS). This request for fire (RFF) is immediately available to the BCD operations section on their AFATDS terminal to assist in battlespace deconfliction or target handoff.

(d) G3 plans/communications cell. This cell performs various planning and communications support activities, which include assisting in developing OPLANs/OPORDs, determining communications and data link requirements, and maintaining communications equipment. It provides the C^4 required to integrate and monitor execution of Army AD and JTMD operations within a joint environment. Capabilities include the ability to record and display TBM track history; to reduce sensor-to-shooter timelines via direct data transfer; to rapidly assess inputs from national intelligence assets; to display selected enemy order-of-battle; and to display relevant INTEL, records, and TOC operational data.

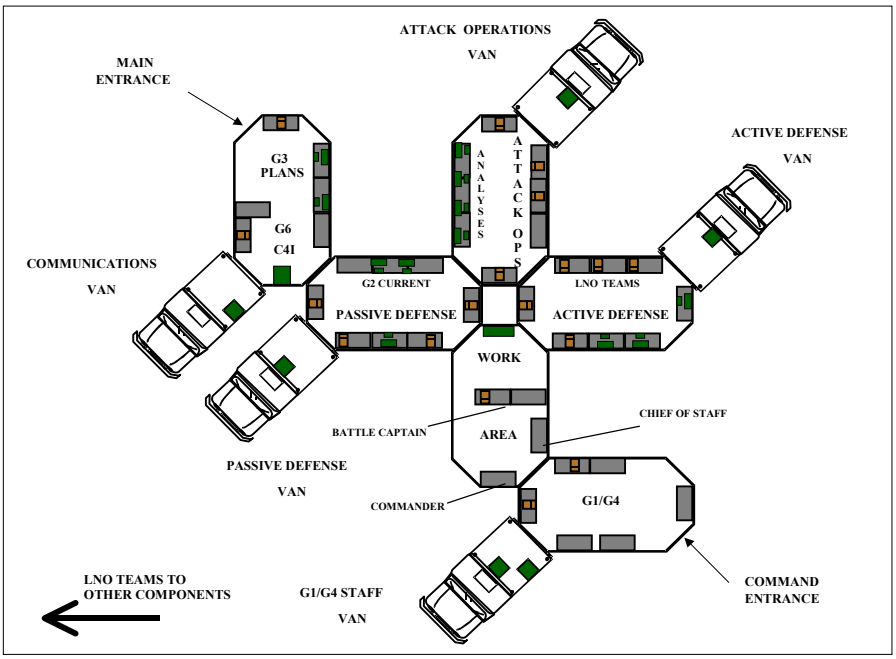

Figure I-6. AAMDC's TOC (AMDPCS Tactical Layout)

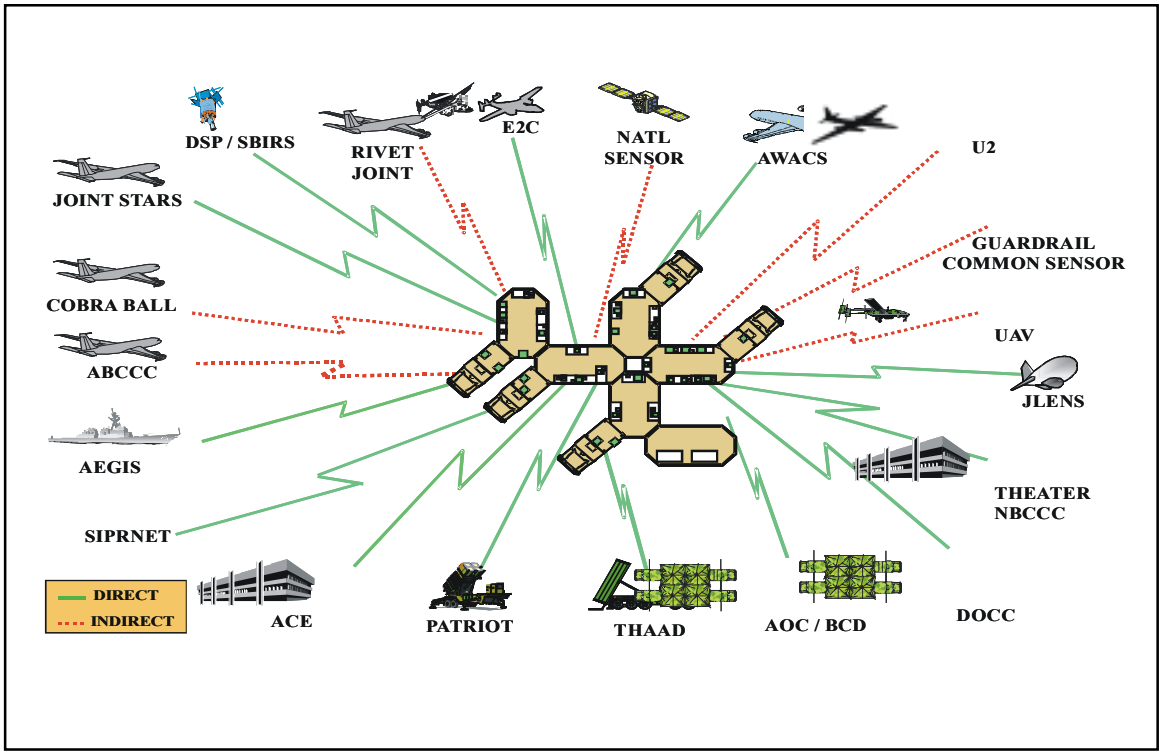

Figure I-7. External Information Links to the AAMDC TOC

(e) Administration/logistics (ADMIN/LOG) cell. This cell monitors and advises the commander on the status of AMD logistics functions.

(2) Coordination. Key to integration of AAMDC operations is the deployment of LNOs or coordination teams. The AAMDC deploys LNOs or coordination teams to all major theater elements and JTMD C^2 nodes, to include the joint force headquarters, the JFACC/AADC (JAOC), JFLCC or ARFOR headquarters, joint force maritime component commander (JFMCC), JSOTF, DOCC, ACE, and allies as necessary to coordinate and integrate Army AD, including JTMD operations.

c. AAMDC Support Function.

(1) Support to ARFOR. Three critical roles the AAMDC commander performs during AMD operations are to command the AAMDC and its subordinate EAC ADA brigades, to perform the functions of the TAAMDCOORD for the COMARFOR or JFLCC, and to perform the functions of the DAADC for the AADC. The AAMDC normally locates with the ARFOR headquarters, but may collocate with the JAOC depending on mission, enemy, terrain and weather, troops and support available, time available, and civil considerations (METT-TC). METT-TC also determines the commander's location and role.

(2) Support to AADC. The AAMDC commander may also be designated DAADC. Based on METT-TC, the JFC and AADC determine whether to designate a DAADC. Although the AAMDC commander may serve as a "deputy" AADC, the DAADC would not assume the role of the AADC if the AADC were incapacitated. Not a true deputy commander, the DAADC's primary responsibilities are to assist the AADC in planning, coordinating, integrating, and synchronizing land-based air and missile defense operations. Neither the AAMDC commander nor his staff has the tactical, technical, or procedural expertise and capability to perform all of the functions of an AADC in a joint environment. The DAADC—

(a) Integrates land-based active defense and ADA forces with the DCA plan.

(b) Advises the AADC regarding weapons control procedures and recommended or implemented airspace control and EMCON measures, ADWs, and WCS.

(c) Assists the AADC with ADP development.

(d) Advises the AADC regarding active missile defense operations and ensure effective integration of ARFOR assets into the ADP.

(e) Advises the AADC on Army AD weapons capabilities.

(3) Support of AD operations by force projection stage.

(a) Mobilization/predeployment. Mobilization/predeployment stages are initiated in response to a situation as required. The ARFOR uses the AAMDC to plan, coordinate, deconflict, and execute AD within the assigned AO according to the AADC's guidance. AAMDC establishes communications with and sends liaisons to the ARFOR staff and other units, organizations, and agencies as required. Although planning is an ongoing process, the AAMDC works in coordination with the COMARFOR and his staff to convert the command's contingency plan (CONPLAN) to an OPLAN. The AAMDC analyzes/assesses, participates in the decision-making process, and assists in developing the OPORD. The AAMDC uses automated planning capabilities to develop the air and missile defense annexes to the ARFOR's plan and to synchronize them with the combatant commander (CINC), AADC, and other components' OPLANs. Planning cells within the AAMDC conduct detailed planning and assessment for entry and follow-on operations. During the mobilization/predeployment stage, numerous concurrent planning and execution activities continue. The ARFOR uses the AAMDC to validate possible TM threat scenarios and OPLANs. The TM IPB serves as the basis for determining the most effective deployment strategy, developing the ARFOR's intelligence plan, and appropriately mixing weapons, sensors, and capabilities to counter the anticipated TM and air threat for each phase of the operation. During this stage, the AAMDC—

- Coordinates with the designated AADC.
- Conducts AD and TM IPB.
- Participates in theater AD and JTMD planning.
- Plans ARFOR AD and JTMD operations.
- Assesses AD architecture and recommends changes as needed.
- Develops force packages for subsequent force projection stages.
- Assesses unit readiness.
- Plans LNO team deployment as required.
- Plans communications and multi-TADIL network architecture.
- Assesses passive defense capabilities.
- Plans follow-on AD and JTMD operations.
- Plans for logistics support operations (sustainment requirements).
- Plans for movement.

(b) Deployment/entry. Rapid deployment of forces into the theater of operations characterizes deployment/entry operations. Three types of entry operations are unopposed, opposed, and forcible entry. As part of the Army's initial force-projection capability, the AAMDC deploys to the theater under OPCON of the ARFOR/JFLCC. This force includes the TOC, command group, LNO teams, and essential staff sections. Upon arrival in theater, the AAMDC establishes connectivity through the Army's C^4I architecture and joint interfaces as required and establishes linkages to joint, multinational, and national C^4I systems. The AAMDC represents the ARFOR or JFLCC during joint planning with the designated AADC on AD issues. Once in theater, the AAMDC monitors enemy activities using all available INTEL sources. The AAMDC continuously processes and reviews INTEL information, collects battle damage assessment (BDA), and assesses the enemy situation, deploying LNO teams as required. During this stage the AAMDC—

- Establishes liaison.
- Coordinates with the JFACC/AADC/ACA as required.
- Participates in JFLCC J3 or ARFOR G3 planning by providing AD and JTMD input to the air operations plan.
- Integrates INTEL from deployed sensors to provide the ARFOR/JFLCC situational awareness.
- Refines the TM IPB picture and requirements.
- Analyzes criticality, vulnerability, recuperability, and threat (CVRT).
- Recommends changes to improve passive defense.
- Monitors OPSEC.
- Monitors friendly and enemy air operations.
- Recommends AD architecture designs.
- Recommends AD priorities in coordination with maneuver plans.
- Executes logistics support functions.
- Coordinates and implements AD attack warning procedures.
- Assists in coordinating TM targets and targeting priorities.
- Provides theater AD and JTMD expertise.
- Monitors ADA unit locations and status.

(c) Operations. The AAMDC supports the ARFOR or JFLCC by providing effective ground-based defense to protect maneuver forces and the JFC's priority assets. The AAMDC assists in implementing passive defense measures throughout the AO and recommends TM attack strategy to the ARFOR and JFACC staff for planning and coordinating preplanned and immediate missions. The AAMDC plans, coordinates, monitors, deconflicts, and sustains Army AD operations and recommends adjustments to the DAL. During this stage the AAMDC—

• Serves as the TAAMDCOORD to the ARFOR or JFLCC.

• Serves as DAADC if designated.

• Integrates Army AD operations and contributes to JTMD.

• Provides LNO team to AADC.

• Monitors theaterwide combat service support (CSS) for ADA units, including allocation of missile and repair parts to corps and EAC ADA brigades according to the JFC's priorities.

• Warns of attacks according to warning release criteria.

• Supports the ARFOR/JFLCC by processing and disseminating AD and TM intelligence to EAC, corps, and division C^2 nodes. The AAMDC intelligence section—

•• Provides accurate air and ground situational awareness and the latest information on those activities and vulnerabilities.

•• Receives TM track updates throughout flight.

•• Cues active defense units for engagement of TMs.

•• Warns applicable units of possible TM impact.

•• Continuously assesses vulnerability.

•• Synchronizes countermeasures with attack operations.

•• Disseminates TM impact information for analysis and warning.

(d) Postconflict/redeployment. Postconflict/redeployment operations generally occur after the deployed force has accomplished its primary mission. Reconstitution activities support redeployment. Some forces capable of conducting AD operations maintain an alert or ready status during this stage and ARFOR AD elements may remain behind for stability operations. During this stage the AAMDC—

• Consolidates forces for redeployment and reconstitutes remaining air and missile defense forces to a full readiness capability.

• Requests theater sensors and INTEL resources in sufficient numbers to provide continuous—though possibly reduced—early warning and INTEL coverage during postconflict stability operations.

• Recommends to the COMARFOR/JFLCC and JFC the size, composition, and mission guidelines for stay-behind forces.

SECTION C - NAVY FORCES (NAVFOR)

10. The Commander, Navy Forces (COMNAVFOR)

If the COMNAVFOR is designated the JFACC, the JFACC and AADC functions could be performed from different ships, and AD functions would likely be conducted where workspace is at a premium. Therefore, Navy operations require special considerations under these conditions, the usual BCD and AAMDC liaison functions may have to split in order to provide support to the JFACC and AADC. Because the JFACC and AADC functions may transition ashore, joint planning is required to ensure that a smooth transition occurs between all elements, including liaisons.

11. Command and Control Structure

The basic warfighting structure within the NAVFOR and MARFOR afloat is spelled out in Navy Warfare Publication (NWP) 10-1, Composite Warfare Commander's Manual. The officer in tactical command (OTC) has overall responsibility for successfully accomplishing the force's mission. The OTC may delegate certain defensive aspects to the composite warfare commander (CWC), but retains responsibility for mission objectives—sea control, power projection, and so forth. The air warfare commander (AWC) within the Navy C^2 structure works for the CWC when assigned, or the OTC when not assigned. The AWC may be designated as the AADC or the JOA may be subdivided into several regions with corresponding regional air defense commanders (RADCs) responsible to the AADC for their regions. In a configuration employing RADCs, the AADC may serve as both the AADC and one of the RADCs.

12. Liaison

a. While automation and digitization are making battle management easier, combat operations still require LNOs to facilitate efficient integration of joint forces. Therefore, if sufficient personnel are available, the AADC has LNOs on the staffs of the CJTF, JFACC, JFMCC, JFLCC/ARFOR, and MARFOR. The JFACC, JFMCC, JFLCC/ARFOR, and MARFOR have LNOs on the AADC staff (see Figure I-8). The LNOs are responsible for coordinating details of the ADP with their respective staffs. Important to recognize is that LNOs work directly for their respective parent

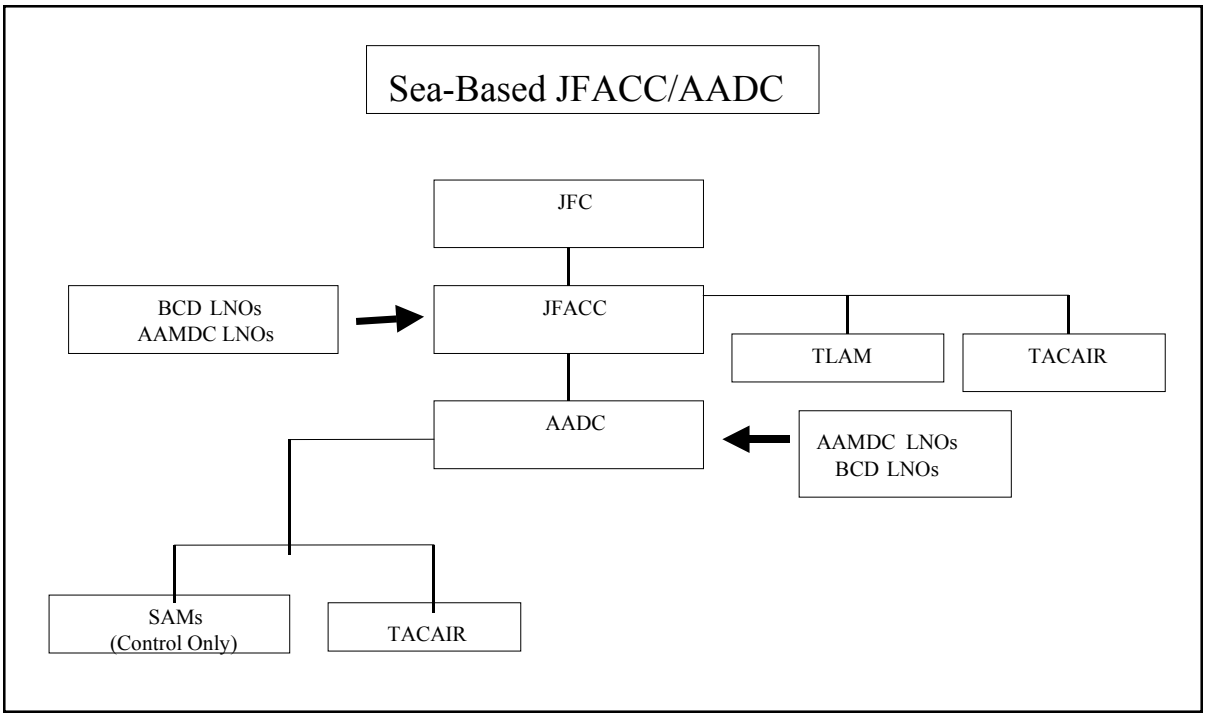

Figure I-8. Sea-Based JFACC/AADC

component or unit commander and represent that commander to the unit or commander to which they are temporarily assigned.

b. The BCD and AAMDC send LNO teams to the JFACC—probably embarked in the numbered fleet commander's command ship—to begin planning and coordinating OCA operations. These teams consist of approximately 10 BCD and 2 AAMDC personnel. In addition, they send teams of approximately 5 AAMDC and 2 BCD personnel to the AADC, likely embarked aboard an AEGIS, to plan and coordinate DCA operations. If the JFACC location has sufficient space, the BCD brings an air and missile defense workstation (AMDWS), which requires an air defense systems integrator (ADSI) with forward area air defense (FAAD) data link (FDL) capability. The BCD team also requires five Secret Internet Protocol Router Network (SIPRNET) lines for laptop computers and up to five secure telephones. The AAMDC team aboard the AEGIS also brings an AMDWS requiring FDL connectivity and up to three SIRPNET lines and two secure telephones.

c. If the battle group (BG) commander is designated as the JFACC, the BCD collocates with the BG/airwing staffs and ship's company departments as follows: air INTEL officer (AIO), air warfare officer, air operations officer, strike operations officer, combat systems officer, and others as required.

13. Transition to Ashore Operations

The BCD and AAMDC discharge their inherent responsibilities and integrate follow-on forces as they arrive in theater. Each command's remaining personnel link

up with their respective attached units: BCD with the JAOC ashore and AAMDC personnel with the JFLCC/ARFOR headquarters. As these elements assume their theater responsibilities, the teams afloat prepare to disembark and link up with their assigned units. Depending on the JFC's guidance, team members may shift functions to the land-based headquarters gradually or all at once. Maintaining LNOs with the Marine component commander (MCC) after command functions transition ashore may be advantageous for the AAMDC and the BCD.

14. Conclusion

Countering the air and missile threat is a challenge that becomes easier as knowledge increases about other component forces and their contributions to the mission. This chapter identifies key USAF and USA organizations involved and their respective structures and operational methods. It also discusses Navy operations should the COMNAVFOR be designated the JFACC. Because the role of EAC ADA assets has shifted to countering the ever-increasing TM threat, the remainder of this publication focuses on improving coordination of the four operational elements of JTMD: C^4I, passive defense, active defense, and attack operations.

Chapter II

COMMAND, CONTROL, COMMUNICATIONS, COMPUTERS, AND INTELLIGENCE

1. Background

a. C^4I is the integration of doctrine, procedures, organizational structures, personnel, equipment, facilities, communications, and intelligence to support a commander's ability to command and control across the range of military operations. Encompassing missile warning sensors, ground stations, reconnaissance elements, and analysis, C^4I provides command authorities at all levels with timely and accurate data and systems to plan, monitor, direct, control, and report operations. Efficient C4I—the foundation and the enabler for all other operations—provides interoperability, NRT collaborative planning, and the shared situational awareness necessary to effectively synchronize CA operations.

b. JTMD operations use existing joint and service C4 systems and resources to ensure integration with other operational functions and to optimize the use of scarce resources. Established C4 architecture links passive defense, active defense, and attack operations to provide timely assessment of the threat—to include IPB; rapid dissemination of tactical warnings; and mission assignment, targeting data, and poststrike assessments—to the appropriate JTMD element.

c. For purposes of this document, C4, Section A, is discussed separately from intelligence, Section B, and the following definitions apply:

(1) Coordination. Coordination refers to formal actions taken between agents to facilitate planning, execution, and, when necessary, approval of operations.

(2) Synchronization. Synchronization is to work in unison and to coexist in action.

(3) Collaboration. Collaboration is the intellectual cooperation between agencies, either apart or collocated.

(4) Information exchange. Information exchange is the act of providing additional information to assist in the decision decision-making process.

SECTION A - COMMAND, CONTROL, COMMUNICATIONS AND COMPUTERS

2. Connectivity Between JAOC and AAMDC

The JAOC and AAMDC are connected through various means, from direct hardware workstations to collaboration among liaison teams. A number of hardware/software systems function as conduits for the flow of information. Examples are the All-Source Analysis System (ASAS), the Generic Area Limitation Environment (GALE), the Multiple-Source Tactical System (MSTS), the Integrated

Battlespace Intelligence System (IBIS), the Time-Critical Targeting Aid (TCTA), the AFATDS, the AMDWS, the Air Defense System Integrator (ADSI), and the Contingency Theater Automated Planning System (CTAPS). However, while these systems aid the exchange of information on issues from joint ATO to airspace management, they generally do not interface with one another. Locating these systems in liaison elements makes this information available in other operations centers, but the information must be transferred manually. Therefore, effective liaison remains the best available means to work difficult issues that require detailed discussion and explanation.

3. Connectivity Between C^2 Nodes

Figures II-1 and II-2 depict the basic connectivity—in terms of coordination, synchronization, collaboration, or exchange of information—that exists between C^2 nodes. Because specific communications, automation, and collaborative techniques vary by theater and the composition of the joint force, they are neither prescriptive nor all-inclusive.

a. Active Defense.

(1) Coordination. The AAMDC commander serves as the TAAMDCOORD to the JFLCC/ARFOR and, when designated, as DAADC to the AADC for land-based AD operations. The AAMDC coordinates with the JFLCC/ARFOR staff to integrate all AD operations and corps ADA unit requirements into plans. The AAMDC LNO team in the JAOC assists the AADC and DAADC in integrating all Army AD assets into theater DCA operations.

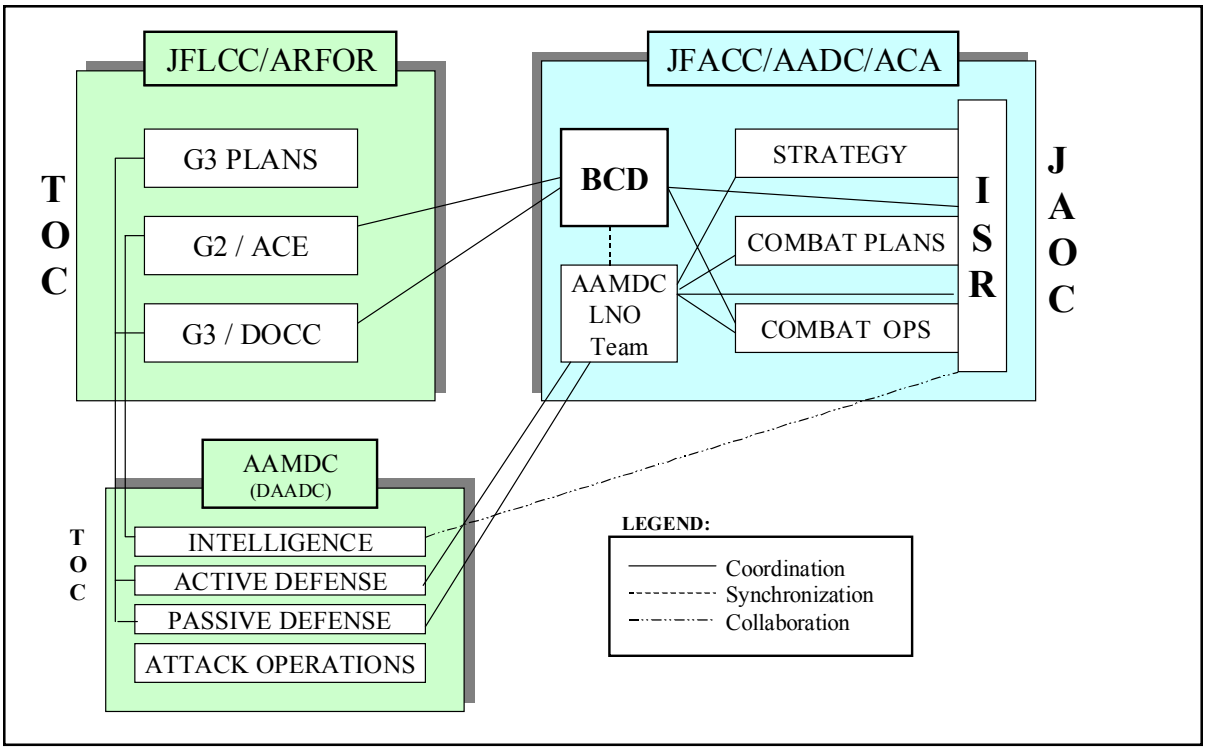

Figure II-1. Active and Passive Defense Connectivity

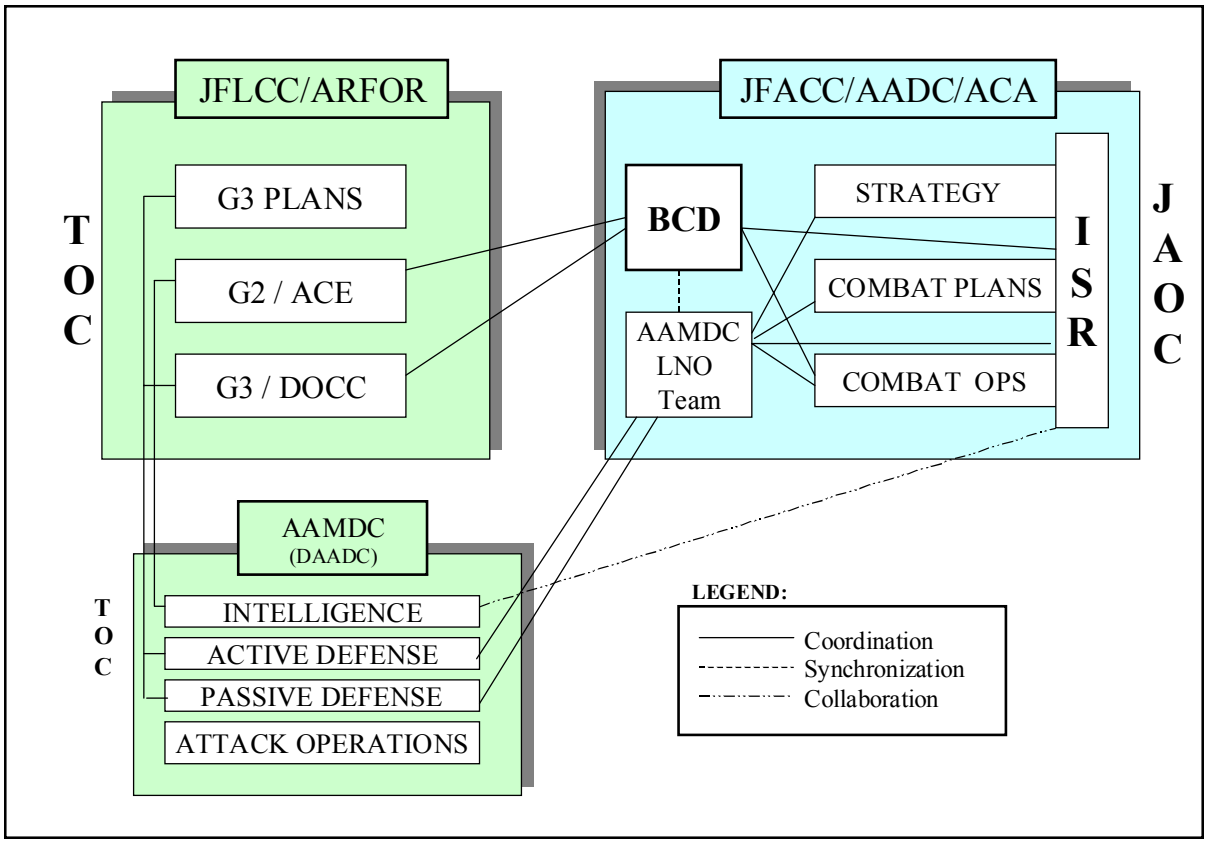

Figure II-2. Attack Operations Connectivity

(2) Synchronization. When the AAMDC LNO team deploys to the JAOC to support the DAADC, it must coexist with the BCD, which represents the JFLCC/ ARFOR. The BCD AD section and the AAMDC LNO team synchronize staffing and coordination processes with other JAOC sections to avoid duplication and to ensure unity of effort and information.

(3) Collaboration. Collaboration between TM analysts in the JAOC and the AAMDC's INTEL (G2) section aids the JFC and AADC staffs in developing the DAL and planning defensive coverage. Section B contains a more detailed discussion of collaborative INTEL methods.

b. Passive Defense.

(1) Coordination. The principal coordination activity for passive defense operations involves early warning architecture design, implementation, and testing. The AAMDC develops the JFLCC/ARFOR's early warning architecture and disseminates launch warnings to subordinate forces. The AAMDC LNO team coordinates these activities for the DAADC with the JAOC's AADC staff. The Defense Support Program's (DSP) satellites and other tactical event systems provide early warning information to appropriate ground stations for dissemination to all operations centers. When a launch warning occurs, each agency verifies that the other has the relevant information and then disseminates alert and warning messages to affected subordinate forces.

(2) Synchronization and collaboration. Synchronization and collaboration are the same for passive defense as they are for active defense.

c. Attack Operations.

(1) Coordination. The JAOC's combat operations division and the JFLCC/ARFOR's DOCC are responsible for coordinating attack operations. The BCD facilitates the exchange of target nominations—planned or immediate—between them. The BCD also coordinates airspace requirements to support preplanned or immediate target engagement. The G2 ACE coordinates collection requirements with the J2 and the JAOC ISR team as required to support NRT target intelligence requirements.

(2) Information exchange. The AAMDC is normally the JFLCC/ARFOR's subject-matter expert (SME) on enemy TM capabilities, limitations, doctrine, and TTP. As such, it can provide additional information to the JAOC as necessary to support decision making, planning, and strategy development.

(3) Collaboration. Intelligence collaboration in support of attack operations goes beyond TM IPB to sharing of NRT target intelligence between TM analysts in the JAOC and the AAMDC's INTEL section. NRT collaboration is essential to quickly identifying and classifying potential TM targets. It ensures that all available information is fused, that limited collection resources are used efficiently, and that operational decision makers have the best available analysis.

4. Activities and Exchanges

The C^4I architecture and systems available in theater determine the means available for exchanging and coordinating information. Table II-1 lists types of activities by operational element and the means of exchange.

5. Management of Exchange

The joint interface control officer (JICO) is responsible for managing the multidata link network from the JAOC. The JICO addresses deficiencies in the ability to properly plan, initiate, monitor, or manage information exchange requirements for joint operations. Appendix D contains additional details on the JICO's role.

SECTION B - INTELLIGENCE

6. Intelligence Preparation of the Battlespace

a. An analytical methodology that reduces uncertainties about the enemy, the environment, and the terrain for all types of operations, IPB builds an extensive database for each potential area in which a unit may operate. After analyzing the database, the INTEL representative presents the impact of the enemy, the environment, and the terrain on operations in graphic and text form. IPB is a continuous process whose four iterative and parallel steps are:

Table II-1. Information Exchange Matrix

OPERATIONAL ELEMENT	TYPE OF ACTIVITY	TYPE OF EXCHANGE	FROM	TO	PUSH PULL	FREQUENCY	FORMAT (S Series Messages)
ACTIVE	Patriot Unit Locations	Info Exchange	AAMDC Active Defense	AAMDC LNOs, BCD AD	PUSH	As needed	S507L or Microsoft (MS) Office
ACTIVE	Engagement Reports	Info Exchange	AAMDC Active Defense	AAMDC LNOs, BCD AD	PUSH	NLT 1 hour following missile event	S302 Freetext or MS Office
ACTIVE	Hostile, Friendly, Unknown ID Criteria	Coordination	BCD AD	AAMDC Active Defense	PUSH	Deployment, as required	S302 Freetext or MS Office
ACTIVE	AD Annexes to OPLANs and OPORDs	Info Exchange	AAMDC Active Defense	AAMDC LNOs, BCD AD	PUSH	Deployment, as required	S302 Freetext or MS Office
ACTIVE	AD Tactical Operations Data	Info Exchange	AAMDC Active Defense	AAMDC LNOs, BCD AD	PUSH	Deployment, as required	S302 Freetext or MS Office
ACTIVE	ADA Unit Status (SAMSTAT)	Info Exchange	AAMDC Active Defense	AAMDC LNOs, BCD AD	PUSH	Per SOP	S302 Freetext or MS Office
ACTIVE	AD Warning	Confirmation	BCD AD	AAMDC LNO Team	BOTH	During launch events	Voice
ACTIVE	Weapons Control Status	Coordination	AAMDC LNOs, BCD AD	AAMDC Active Defense	PUSH	Per SPIN, as required	S302 Freetext or MS Office
ACTIVE	ROE	Coordination	AAMDC LNOs, BCD AD	AAMDC Active Defense	PUSH	Per ATO	S302 Freetext or MS Office
ACTIVE	AD Battlefield Geometry	Info Exchange	AAMDC Active Defense	AAMDC LNOs, BCD AD	PUSH	Deployment, as required.	S201 Battlefield Geometry
ACTIVE	JAOC Tactical Operational Data	Info Exchange	BCD AD	AAMDC Active Defense & LNOs	PUSH	Deployment, as required	S302 Freetext or MS Office
ACTIVE	AADC Intent	Coordination	AAMDC LNO Team	AAMDC Active Defense, BCD AD	PUSH	Deployment, as required	S302 Freetext or MS Office
ACTIVE	Airspace Control Plan	Coordination	BCD AD	AAMDC LNO Team and Active Defense	PUSH	Deployment, as required	S302 Freetext or MS Office
PASSIVE	USAF Engagement Reports	Info Exchange	BCD AD	AAMDC LNO Team and Active Defense	PUSH	Per NAF SOP	PowerPoint /MS Office
PASSIVE	TMD Early-Warning Matrix	Info Exchange	BCD AD	AAMDC LNO Team and Passive Defense	BOTH	Deployment, as required	S302 Freetext or MS Office
PASSIVE	JAOC Air Defense Plan	Info Exchange	AAMDC LNO Team	AAMDC Active and Passive Defense, BCD AD	PUSH	Deployment, as required	S302 Freetext or MS Office
PASSIVE	JAOC TMD SOP	Info Exchange	BCD AD	AAMDC LNO Team and Passive Defense	PUSH	Deployment, as required	S302 Freetext or MS Office

Table II-1. Information Exchange Matrix (continued)

OPERATIONAL ELEMENT	TYPE OF ACTIVITY	TYPE OF EXCHANGE	FROM	TO	PUSH PULL	FREQUENCY	FORMAT (S Series Messages)
PASSIVE	ARMY TMD SOP	Info Exchange	AAMDC Passive Defense	AAMDC LNO Team and BCD AD	PUSH	Deployment, as required	S302 Freetext or MS Office
ATTACK OPS	Initial IPB	Collaboration	JAOC ISR	AAMDC G2	BOTH	As required	
ATTACK OPS	NRT INTEL Analysis	Collaboration	JAOC ISR	AAMDC G2	BOTH	As required	
ATTACK OPS	Target Nomination	Coordination	DOCC	BCD	BOTH	As required	
ATTACK OPS	Target Coordination	Info Exchange	AAMDC LNO Team	BCD	BOTH	As required	

Step 1: To define the battlespace.

Step 2: To describe its effects.

Step 3: To evaluate the adversary.

Step 4: To determine adversarial courses of action (COAs).

b. IPB is categorized as joint, component, and TM.

(1) Joint intelligence preparation of the battlespace (JIPB). JIPB is the analytical process used to produce INTEL assessments, estimates, and other support products that enable the JFC and the JTF staff to visualize the full spectrum of threat capabilities and COA across all dimensions of the battlespace. Draft JP 2-01.3, Joint Intelligence Preparation of the Battlespace, delineates the principles for conducting JIPB.

(2) Component IPB. Functional and service components conduct IPB to support the planning and execution of their assigned missions. Each tailors IPB to provide the intelligence required to support operations. Ideally, these efforts contribute to the overall JIPB.

(3) TM IPB. TM IPB is the continuous application of IPB methodology against each specific missile threat in a specific geographical area. It must integrate with all joint and component INTEL operations.

(a) A well-developed TM IPB provides the intelligence necessary to determine likely TM COA and associated COA branches and sequels. It also describes the environment in which friendly operations and planning must occur. TM IPB efforts support all of the TMD operational elements.

(b) TM IPB differs from other air-, land-, or sea-focused IPB. For example, while an operational-level ground IPB generally concentrates on maneuver forces in defensive positions or moving forward, TM IPB focuses on dispersed ground activities in the enemy's rear area—most likely moving away from the front. Likewise, an air-focused IPB would center on intelligence required to achieve air superiority and to conduct air interdiction and strategic attack. TM IPB can be an integral part of that effort, focusing on breaking down and correlating the who—

units, what—equipment, when—timing, where— infrastructure, why—objectives, and how—operations of an enemy TM force.

(c) TM IPB must begin before hostilities commence to determine the enemy's ability and willingness to employ specific TMs and weapons of mass destruction (WMD). A thorough understanding of the enemy's tactics, targeting priorities, and technical data greatly facilitates operational planning. All INTEL organizations, from component to theater and national, should collaborate on the prehostilities IPB effort. Figure II-3 illustrates how various IPB efforts contribute to the TM IPB process. FM/MCWP/NWP 3-01.13 AFTTP(l), Multiservice Tactics, Techniques, and Procedures (MTTP) for Joint Theater Missile Target Development, provides a more in-depth discussion of the relationship between TM IPB, collection operations, and target development.

7. Intelligence Support

INTEL support of the JTF, the JOAC, and ARFOR is described below.

a. JTF. The JIC supports the JTF by establishing INTEL collection priorities and integrating theater and national collection assets to support the overall campaign. The JIC conducts JIPB to support the development of strategic and operational campaign plans in the joint operations center (JOC). The CINC's TMD cell assists the JIC with TM-related IPB issues. The JFC's overall theater-targeting

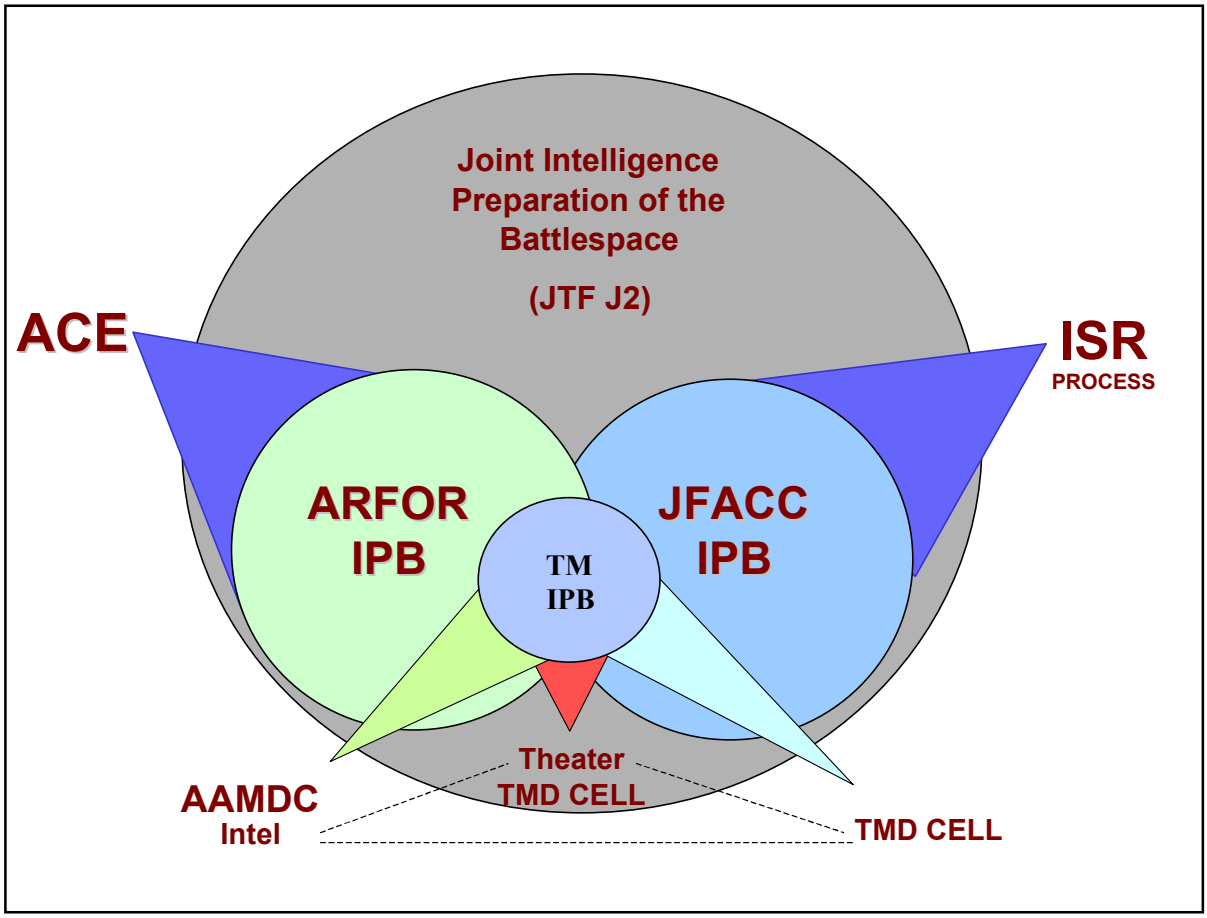

Figure II-3. Categories of IPB

guidance guides TM IPB in part. Figure II-4 diagrams the key INTEL agencies involved in TM IPB discussed in this publication. Other involved INTEL agencies are not included in this discussion.

b. JAOC. INTEL personnel are placed throughout the JAOC to ensure timely analysis of data and tailoring of intelligence. Collectively, this ISR team provides fused INTEL products and analysis to the JAOC as a whole, using tools such as the TCTA to analyze and provide information to other JAOC INTEL teams.

(1) A terminal within the JAOC TMD cell receives the theater event system (TES), and theater-asset missile launch information, and early-warning information from the theater TMD cell and CONUS-controlled assets. INTEL functions performed by or in support of the TMD cell include TM target nominations, threat missile warnings, and coordination of INTEL collection requirements. Because NAFs function differently, the TMD cell is synonymous with TST or reflow cells that may conduct these same functions

(2) Preplanned TM-related targeting is generally limited to fixed sites such as weapons storage depots and lines of communications (LOCs). Therefore, implementing the approved TM attack strategy revolves largely around current INTEL operations to acquire, classify, identify, and nominate targets for attack. The JTF INTEL directorate (J2) and subordinate INTEL agencies work together to construct a comprehensive collection strategy in support of the overall campaign and to establish collection priorities. To ensure that the highest priorities are met first, the collection plan is adjusted as the INTEL picture matures. To synchronize analysis efforts, the ISR team collaborates and coordinates TM INTEL actions with the AAMDC INTEL section, the ACE, and the J2.

(3) Initial collection plans based on TM IPB analysis include monitoring named areas of interest (NAIs) and target areas of interest (TAIs) for enemy TM activity associated with designated high-payoff targets (HPTs). Reports of TM activity may come from any number of sources, to include the Tactical Data Dissemination System (TDDS); the Tactical Information Broadcast Service (TIBS); HUMINT; electronic intelligence (ELINT); the Joint Surveillance Target Attack Radar System (JSTARS); unmanned aerial vehicles (UAV); TPS-75 expert missile trackers; U-2 aircraft; SOF teams; national sensors; or other INTEL agencies. To

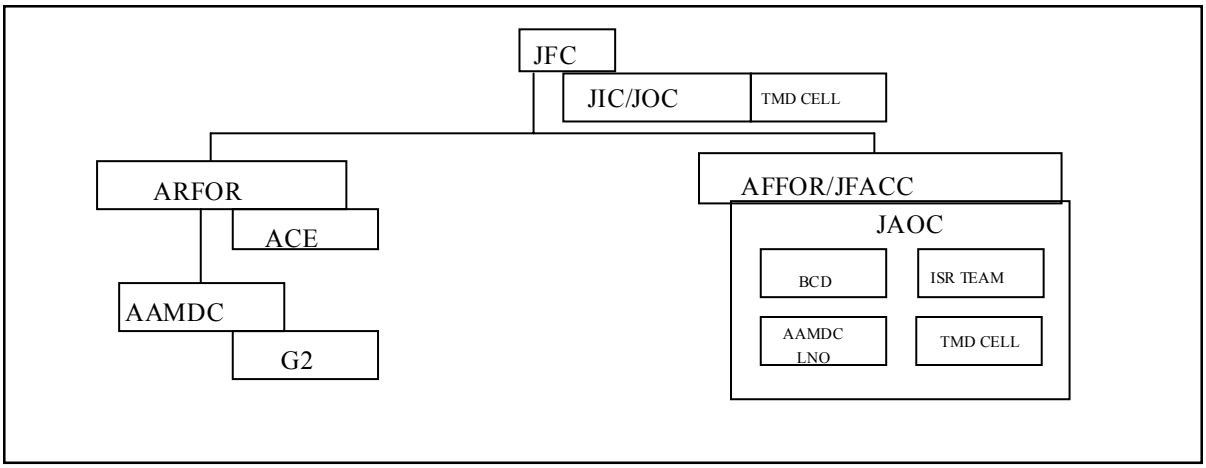

Figure II-4. INTEL Agencies and Cells Involved in TM IPB

conduct NRT analysis, the JAOC TMD cell uses these reports and known and/or probable missile operating areas provided by the ISR team or other national, theater, or component INTEL inputs. Based upon known enemy TTP, the TMD cell uses area limitation tools, such as GALE, to analyze possible launch, hide, or transload location and other infrastructure targets. Analysts can also use GALE or similar systems to determine the most likely evasion and escape (E&E routes for transporter-erector launchers (TELs)—information that is helpful in orienting attack assets or redirecting collection assets.

(4) The TMD cell integrates incoming intelligence into the IPB order of battle (OB), doctrinal templates, C^2 nodes, missile transload operations, and so forth. Analysts collaborate with other INTEL agencies to provide the best TM INTEL picture possible. All available intelligence is processed, fused, and analyzed to positively identify the target. If necessary, ISR assets, such as U-2, JSTARS, or UAV, may be redirected or dynamically retasked to gain better target information based on J2-established priorities. If dynamic retasking occurs, other INTEL agencies are informed to maintain the overall collection effort's viability. The goal of dynamic retasking is quick classification and identification of the targets before the window of observation disappears.

(5) When possible and if tactically desirable, TM activity is monitored to determine how and where it interacts with other TM components. If the CCO decides to attack a target, analysts will provide information on en-route threats and defenses protecting the target to aid in determining which assets to commit.

c. ARFOR.

(1) As the focal point of all ARFOR INTEL operations, the ACE participates with the DOCC in developing the target, coordinates with other INTEL elements, and disseminates INTEL products to subordinate Army organizations. The ACE collection manager is responsible for forwarding to the J2 collection manager all IR that cannot be internally satisfied.

(2) The AAMDC G2 section assists the ACE in the TM portion of the IPB effort by providing dedicated analysts and SMEs. To establish connectivity to INTEL resources, this section normally deploys a liaison team, equipped with an ASAS terminal, to the ACE. Inside the ACE, the LNO team collects information for the AAMDC G2 section and feeds IRs to the ACE collection manager. The ACE cell manager forwards recommendations for collection support to the ACE for incorporation in the joint force collection strategy. The AAMDC G2 section leverages all INTEL sources to develop a comprehensive TM INTEL picture.

(3) The AAMDC's attack operations and G2 sections continuously monitor enemy operations for TM activity. The target development process begins with the identification of suspect TM activity from any INTEL source. The AAMDC sections analyze intelligence, similar and parallel to functions of the JAOC TMD cell and collaborate with the JAOC and JTF TMD cells to classify and identify elements of the TM target system. This early and continuous collaboration helps expedite the entire attack operation's process. Targets that meet the approved TM attack criteria are nominated to the DOCC for attack. For target prosecution and execution activities, see Chapter 5, Attack Operations.

8. Collaboration and Integration

a. Collaboration.

(1) Rationale. Collaboration improves the quality of analysis and the perspective and is efficient.

(a) While the AAMDC and JAOC receive common INTEL data, the analysts' different training, experience, focus, and procedures affect the analysis product. Therefore, collaboration enhances the overall quality of the TM INTEL picture.

(b) Separate IPB analyses may produce divergent TM INTEL estimates, which, in turn may complicate development of an effective joint TM attack strategy. A collaborative TM IPB provides a common, agreed-to perspective of the enemy situation from which to create strategies and plans.

(c) Unnecessary competition for limited ISR collection assets is a primary danger of a noncollaborative process. Collaborative intelligence makes the best use of ISR assets, ensuring a cohesive collection strategy in support of TM IPB. Collaboration facilitates redirecting sensors to confirm TM targets and avoids unnecessary request duplications.

(2) Requirements. Collaboration requires OB/doctrine templates, exchange of INTEL liaisons, daily meetings, attack criteria, and battle drills.

(a) Templates. Collaborative IPB establishes a common framework for strategic and operational planning prior to deploying forces into the theater. Therefore, TM analysts should agree on the OB and doctrinal templates based on known enemy TTP and operating patterns.

(b) LNOs. INTEL connectivity via video teleconference (VTC), whiteboard, or chat mechanisms is ideal; however, when not available, a viable alternative is exchange of INTEL liaisons. One option might be to exchange GALE operators to provide effective cross talk without limiting the analytical capability of the parent organization.

(c) Meetings. TM analysts should conduct daily TM INTEL meetings to—

• Review, share, and synchronize TM intelligence.

• Coherently present requirements to the collection management process.

• Identify common coverage requirements and INTEL needs in order to reduce redundancy, increase efficiency, and enhance the probability of collection.

(d) Attack criteria. To expedite the decision-making process when targets are acquired and confirmed, each element within the TM target system should be identified and its relative priority and criteria for attack established. This process should also specify indications and warnings (trigger criteria) for initiating

targeting battle drills. This criterion must correspond to the approved TM attack strategy developed in support of the overall campaign.

(e) Battle drills. A battle drill is a set of steps or standard procedures performed in response to suspected enemy activity. Army staffs commonly use them to respond to high-payoff targets of opportunity. Established trigger criteria serve as the catalyst for initiating battle drills against TM targets. Analysts in theater should establish battle drill procedures that include collaboration with other INTEL agencies, specifying when collaboration should occur and what information is exchanged. Battle drills should also address dissemination of intelligence derived from dynamic retasking. Collaboration during targeting battle drills builds situational awareness and quickens the analytical process and its quality.

b. Integration. National surveillance and reconnaissance systems are fed into the theater surveillance network via special communications links. However, because national systems are limited, they require NCA and CINC approval. Effective operations require the closest possible interface between collection managers and ISR assets, communications interoperability, and streamlined tasking procedures. Delegating authority for dynamic retasking may be included.

9. Exchange and Coordination

In most cases, the exchange and coordination of intelligence occur through direct communications or via an established liaison. The C^4I architecture and systems available in theater determine the number of means available for coordinating and exchanging intelligence. Table II-2 is a consolidated listing of the types of exchanges and the key players.

10. Challenges

Collaborating effectively presents many challenges. Though not insurmountable, those addressed below require thoughtful consideration in the development of joint/component plans and training programs.

a. Technological Connectivity. Currently, not all systems are technologically capable of connecting. The ASAS used by the ACE, AAMDC, and BCD, for example, is not interoperable with the Combat Intelligence System (CIS) used by a USAF-led JAOC, which precludes the rapid transfer of INTEL databases. However, the future fielding of a Joint Deployable Intelligence Support System (JDISS) to the AAMDC will provide interoperability with all other components.

b. Habitual Relationships. Although all components participate in joint exercises, effective collaboration requires time to develop, to build confidence, and to realize the benefits of mutual support endeavors. Therefore, unless deployed forces engage in habitual relationships, collaborative procedures must be established as contingencies develop.

c. Collaborative Mentality. Becoming self-absorbed during combat operations is only natural. Therefore, a collaborative mentality must become the norm rather than the exception. Analysts must share component-exclusive intelligence by pushing the information in NRT fashion; simply reporting it to higher echelons is not sufficient.

Table II-2. Intelligence Exchange Matrix

TYPE OF ACTIVITY	TYPE EXCHANGE	FROM	TO	PUSH PULL	FREQUENCY	FORMAT
JTMD/AD INTEL Summary (INTSUM)	Info Exchange	AAMDC INTEL	ISR Team, BCD INTEL, AAMDC LNO Team	PUSH	12 Hours	PowerPoint Slides
JTMD/AD INTEL Summary (INTSUM)	Info Exchange	ISR Team	AAMDC INTEL	PUSH	12 Hours	PowerPoint Slides
IPB Database	Info Exchange	AAMDC INTEL	ISR Team, BCD INTEL	PUSH/ PULL	Deployment, As Required	IPB Database
IRs	Info Exchange	AAMDC INTEL	ACE, BCD INTEL	PUSH	When Generated	S302 Freetext
IRs	Info Exchange	ISR Team	ACE, AAMDC INTEL	PUSH	When Generated	S302 Freetext
Collection Requests	Info Exchange	AAMDC INTEL	ISR Team, BCD INTEL	PUSH	Daily (Scheduled), When Generated	S302 Freetext or MS Office
Collection Requests	Info Exchange	ISR Team	AAMDC INTEL	PUSH	Daily (Scheduled), When Generated	S302 Freetext
Imagery Analysis Report	COORD	ISR Team	AAMDC INTEL	PULL	When Requested	S302 Freetext
Countermobility Mission Requests	COORD	AAMDC Attack Ops	BCD, ISR Team	PUSH	When Requested	AFATDS
Countermobility Mission Requests	COORD	BCD, ISR Team	AAMDC Attack Ops	PUSH	When Requested	
Countermobility Mission Results	Info Exchange	BCD, ISR Team	AAMDC Attack Ops	PUSH	When Requested	S302 Freetext
INTEL Reports (INTREP/SALUTE)	Info Exchange	AAMDC Plans	ISR Team, BCD Intel, AAMDC LNO Team	PUSH	When Produced	
INTREP/SALUTE	Info Exchange	ISR	AAMDC Plans, BCD INTEL	PUSH	When Produced	
Target Development Coordination	COORD	AAMDC Attack Ops	ISR Team, BCD INTEL, AAMDC LNO Team	BOTH	As Needed	
Combat Assessments	Info Exchange	ISR	AAMDC Plans	BOTH	As Needed	S302 Freetext

d. Dedicated Analysts. Resource- and manpower-intensive TM IPB must begin in peacetime if it is to effectively produce preemptive TM target nominations during combat. It requires analysts who know enemy OB and capabilities as well as geopolitical influences.

11. Conclusion

C^4I provides the foundation for the execution of all operations. The C^4I architecture and the procedures embedded in component operations and training programs will determine the degree of synergy derived from the collective strength of joint forces. How systems are organized to support JTMD must be carefully considered. Without consideration of requirements to support JTMD, C^4I deficiencies can greatly increase the complexity of joint operations and undermine the ability to defeat the enemy's TM operational plans.

Chapter III

PASSIVE DEFENSE

1. Background

a. Commanders at all levels are responsible for passive defense, which is undertaken to reduce the probability of hostile action and to minimize its effects. Passive defense reduces the potential effects of air and missile attack by providing maximum protection while complicating the enemy's targeting process. It does not involve the employment of lethal weapons.

b. Depending on the situation and time available in theater, various actions will improve the joint forces' passive defense posture. Included are:

(1) Hardening and dispersing equipment and facilities.

(2) Rapidly recovering/repairing, facilities and equipment.

(3) Efficiently/effectively removing mines and unexploded ordnance.

(4) Using counter-nuclear, -biological, and -chemical equipment and facilities.

(5) Ensuring sufficient assets are available to provide redundant systems/ equipment capabilities.

(6) Establishing systems to alert, warn, and provide all-clear notifications.

(7) Using camouflage, concealment, and deception.

(8) Implementing effective OPSEC, comunications security (COMSEC), and EMCON security.

c. Component commanders ensure timely attack warnings, which complement many passive defense measures. General warnings indicate that attacks are imminent or have occurred; specific warnings indicate which units or areas are in danger of attack.

2. Planning And Development

US forces plan passive defense measures for potential hostile air and missile threats. This chapter focuses on planning and developing a passive defense system against a TBM threat.

a. In coordination with the JTF and AADC staffs, the COMAFFOR and AAMDC develop a TBM early-warning architecture for their respective units, which includes detection measures, communications nodes, and warning notifications. Integral to passive defense, C^4I systems provide coordination and confirmation of detected TBM threats, threat reporting, theater warning, and warning to theater units.

b. INTEL assets and personnel are critical to passive defense operations. The JAOC and AAMDC coordinate their TM IPB and use imagery and situational displays to assess vulnerability for the joint force. JAOC disaster preparedness and JAOC/AAMDC INTEL personnel assess the vulnerability of friendly areas, identifying those that have adequate protection, those that have limited protection, and those that have no protection. Passive defense measures (para 1b) are implemented to improve survivability.

(1) Once space systems detect a launch, the data is sent simultaneously to a DSP ground station and to a TES element for processing. The TES is designed to provide theater warning of space-detected TBM launches as quickly as possible (Figure III-1).

(a) Two TES elements providing theater warning are the joint tactical ground station (JTAGS), which is a deployable system, and attack and launch early reporting to theater (ALERT), located at Schriever Air Force Base (AFB), Colorado. US Navy (USN) and USA personnel staff JTAGS; USAF personnel staff ALERT 24 hours a day.

(b) Once a TES element detects a TBM launch, the data is immediately transmitted globally using TDDS and TIBS. Any organization/unit—including the JAOC and AAMDC—in any theater with the correct receivers can receive TDDS/ TIBS broadcasts. Since space systems detect launches and INTEL events on a global basis, theaters can enhance the performance of their receive and display equipment by restricting TDDS/TIBS data to events applicable to their theater.

(c) Once the TES element transmits the TBM data, a verbal notification immediately follows. TES works on a "first detect, first report" basis, meaning the TES unit to first detect the TBM launch will activate a satellite communication (SATCOM) verbal reporting net and report the launch. The Cheyenne Mountain Operations Center (CMOC) controls the verbal reporting net and coordinates with theaters for reporting content and protocol. Theaters also coordinate with CMOC for access to the verbal reporting net, which confirms and amplifies the TDDS/TIBS message.

(d) Once the JAOC and AAMDC receive the TBM warning—verbal and/or TDDS/TIBS—they implement passive/active defense and attack operations procedures.

(2) A TMD cell specifically dedicated to JTMD, including all operational elements—C^4I, passive defense, active defense, and attack operations—is commonly established within the JAOC. The TMD cell ensures the TES architecture is set up within the JAOC to provide timely warning, which is key to rapidly passing launch data to personnel involved in TST operations.

(3) The JAOC and AAMDC are responsible for reviewing and assessing the TBM warning architecture described above to ensure that it is completely operational and effective throughout the JOA. The JAOC and AAMDC ensure that all applicable agencies/units involved in the TBM warning system coordinate passive defense measures with USSPACECOM.

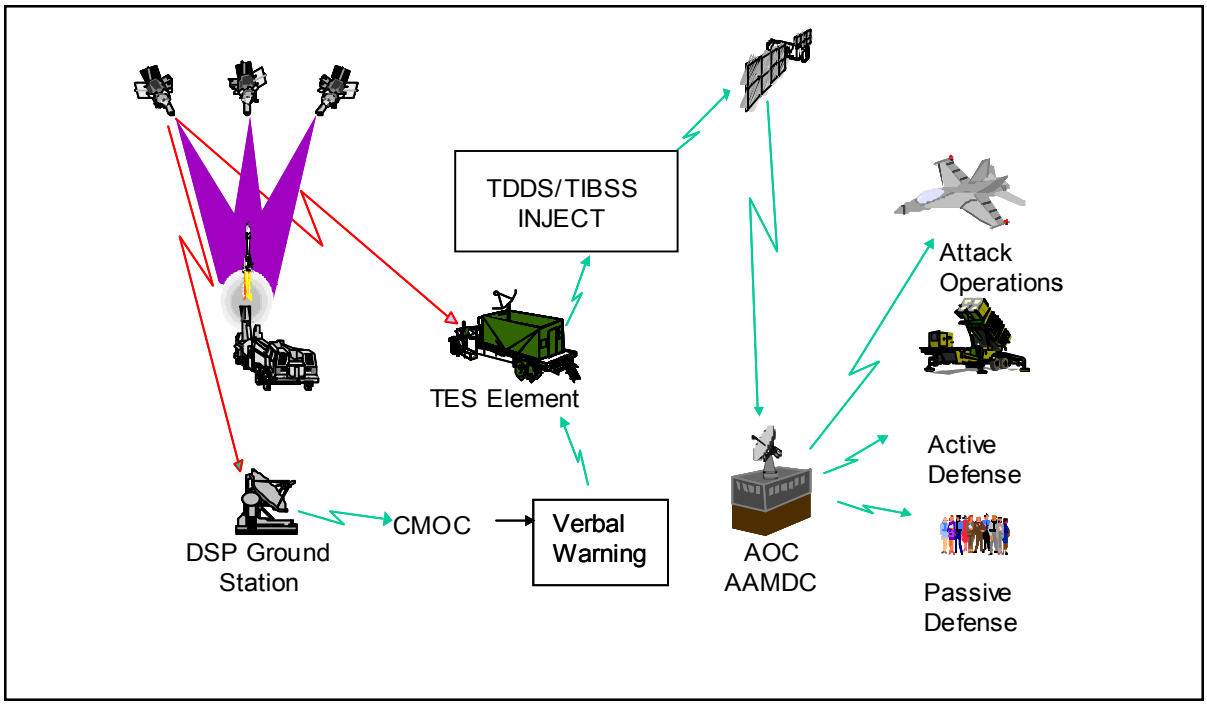

Figure III-1. TBM Warning Architecture

3. Operations

Passive defense operations need to ensure the timely detection and reporting of theater air and missile threats to all affected units. The following TTP will ensure effective operations:

a. Routine testing and verification of the passive defense architecture for the theater ensure it is operating as planned. JAOC/AAMDC coordinates TBM early-warning architecture and dissemination procedures with USSPACECOM through the JTF staff.

b. JTF, MCC LNOs, AAMDC LNOs, and JAOC personnel develop a JOA early-warning SOP and disseminate it to the theater. These SOPs are evaluated to ensure that they are compatible and that they address all applicable areas. AAMDC forwards the Army SOP to its LNOs, the BCD, and the JAOC.

c. TDDS/TIBS transmit space-based TBM detection data to the JOA. All theater assets with TDDS/TIBS receivers—including the JAOC, AAMDC, and ARFOR TOC—must receive this data. Tactical receive equipment (TRE), which varies in size, capability, and compatibility, is commonly used to receive TDDS/TIBS data. JAOC/AAMDC equipment—ADSI, AMDWS, and Global Command and Control System (GCCS)—also depend upon TRE data. The availability of TRE throughout the JOA is assessed for compatibility and sufficiency.

d. TBM-specific data is commonly processed and displayed in the JAOC/AAMDC on a GCCS common operations picture (COP) and/or Worldwide Origin-of-Threat System (WOTS). The GCCS COP can provide a theater picture to all users with accounts on the COP, regardless of geographic location. GCCS must include the

TBM module to ensure that it can receive and process TBM data. The WOTS helps correlate multiple TDDS/TIBS reports associated with a single TBM launch.

e. Detection of space-based TBM within the JOA and adjacent geopolitical areas of interest are passed immediately via a SATCOM verbal reporting net using the "first detect, first report" protocol explained above. Participants in the SATCOM verbal reporting net are coordinated among CMOC, JOC, JAOC, and AAMDC.

f. Voice warning formats, procedures, terminology, and reference system employment that accompany voice warning formats in the theater must be standardized among all services and joint C^2 nodes. These standards must be incorporated into the theater's early-warning SOP. At a minimum, TBM voice early-warning format and procedures should include:

(1) Launch time.

(2) Launch point in latitude/longitude and/or geographic reference (GEOREF).

(3) Impact point in latitude/longitude and/or GEOREF.

(4) Azimuth.

(5) In the vicinity of [city, base, complex...., if available].

(6) Impact time.

g. Once a TBM early-warning notification has reached the theater—via TDDS/TIBS and/or SATCOM verbal reporting net—theater units are notified over multiple communications paths. A formalized TBM warning communications net is established with active participants. Other theater components—including C^2 nodes, major command headquarters, and active defense units—may also monitor this net. AADC/AAMDC will establish TBM early-warning notification procedures for respective component units. TBM warning notification communications paths to subordinate units follow:

(1) Warning for air-breathing threats is normally disseminated over the theater's TADIL architecture: TADIL A, B, and J.

(2) The AAMDC monitors and displays the friendly ground situation and warns affected ARFOR units of TBM activity. The AAMDC provides early warning of projected TBM impact areas to units in the JFLCC's AO in a timely, automated, selective, and standardized format that is releasable to foreign nationals.

(3) The JAOC relays TBM warning via CTAPS message alerts to ensure that units with CTAPS terminals throughout the theater receive the data. The JAOC notifies units without CTAPS terminals via alternate means, for example, telephone or radio. The JAOC also relays data via the public address system to ensure that JAOC personnel, component LNOs, and fighter duty officers (FDOs) advise subordinate units to confirm their receipt of the TBM warning. LNOs and FDOs coordinate with JAOC personnel to ensure that notifications are timely and to minimize duplication.

(4) In addition to voice warning systems, the AAMDC establishes a Pager Alert Warning System (PAWS) architecture, a pager distribution plan, and pager coverage areas. The PAWS augments the TBM voice early-warning system.

h. Depending on time available prior to hostile activities, the theaterwide early-warning system is tested/rehearsed to ensure that all theater units receive the warning data, to verify and troubleshoot the architecture, and to confirm units' readiness to react to warnings.

4. Conclusion

Commanders at all levels are responsible for passive defense, which reduces the probability and the effects of damage caused by hostile action. Early warning is the key element of passive defense. In coordination with the JTF staff, AADC/AAMDC develops a TBM early-warning architecture that includes detection, communications nodes, and warning notifications for respective AFFOR/ARFOR units.

Chapter IV

ACTIVE DEFENSE

1. Background

a. Active defense is direct action taken to nullify or reduce the effectiveness of hostile air or missile attack. It includes such measures as the use of aircraft, AD weapons, weapons not used primarily in an AD role, and electronic warfare. Integrated employment of air-to-air and surface-to-air defense systems through coordinated detection, identification, assessment, interception, and engagement of enemy forces is necessary to blunt enemy attacks and to protect friendly forces.

b. Controlling airspace in an active defense environment is extremely difficult. Not only is rapid, reliable, and secure identification critical to the survival of friendly aircraft, but it also facilitates effective defense against enemy air and missile attacks. Because no AD system is guaranteed to be 100 percent effective, active defense is conducted in close coordination with passive defense operations to minimize the effectiveness of enemy systems that penetrate US air defenses.

c. DCA operations, which defend friendly LOCs and protect friendly forces and assets while denying the enemy the freedom to carry out offensive air and missile operations, are synonymous with AD operations. Encompassing both active and passive AD, DCA provides a secure area from which all elements of the joint force can operate effectively.

2. Active Defense Systems

A key principle of active AD is the use of layered defense-in-depth for multiple-engagement opportunities. Working in unison, components provide a mix of dedicated weapons systems to maximize the effectiveness of AD operations. The AADC integrates low-, medium-, and high-altitude ground AD systems with airborne AD assets to achieve effective and efficient control and exchange of real-time information between forces and resources. Assets used in conducting active AD may include fixed- and rotary-wing aircraft, surface-to-air weapons, and C^4I systems. Some surveillance, control, and weapons system limitations may be balanced by the advantages of other systems.

3. Defended Asset List

Active defense operations are designed to protect selected assets and forces from attack based upon the CINC's DAL. These assets are covered by differing types of defense design (area or point) and are subject to AADC-established weapons control procedures. The JFC, in coordination with functional and service components and coalition forces, develops a DAL and issues guidance for protecting assets by phase. Components and coalition forces submit prioritized DAL nominations to the JFC, including detailed requirements and justifications for the defense of each asset. Together, the JFC and AADC staff and component LNOs arbitrate competing demands to coalesce all priorities into the JFC-approved DAL. Factors involved in developing a prioritized DAL by phases of the operation are:

a. Anticipated enemy capabilities.

b. Friendly concept of operations/decision points.

c. Anticipated degree of air superiority/supremacy.

d. Political considerations provided by NCA/CINC.

e. Degree of protection required.

f. A specific asset's CVRT.

(1) Criticality is the degree to which an asset or force is essential to mission accomplishment. It is determined by assessing whether the damage to an asset or force would prevent, seriously interfere with, or cause only limited interference with executing an operation.

(2) Vulnerability is the degree to which an asset or force is susceptible to surveillance and attack or to damage if attacked. Vulnerability is determined by considering the asset or force's hardness, its specific mission in the overall operation, its ability to disperse or displace to another position, its capability to provide for its own air defense, and the amount of protection afforded by its passive defense measures.

(3) Recuperability, or reconstitution, is the degree to which an asset or force can recover from inflicted damage to continue its mission. To determine recuperability, the commander considers the time to replace personnel, equipment, or entire units, as well as whether a different element can perform the mission. The appropriate civilian authority assesses geopolitical assets.

(4) Threat is the probability of an asset or force being targeted for surveillance or attack by enemy air or missile forces. IPB answers the question, "What will the enemy attempt to do against us?" Targeting information provided in INTEL estimates, prior enemy surveillance and attack methods, enemy doctrine, and geopolitical considerations are useful in evaluating AD priorities. To determine the relative importance of assets and forces, the commander considers characteristics that make them lucrative targets for the enemy.

4. Air Defense Operations

The depth and breadth of AD and the inherent ability for AD targets to cross component AOs make AD operations a joint endeavor. Each service brings unique systems and capabilities to the AD fight. The effective use of all forces requires the establishment and understanding of the published ROE and ACO. The AADC assists the JFC in establishing and implementing these rules; the component and supporting commanders ensure compliance with them.

a. Types of Operations. Types of AD operations are area defense, point defense, and self-defense.

(1) Area defense operations defend a broad area using a combination of weapons systems, for example, aircraft and surface-to-air missiles (SAMs).

(2) Point defense operations protect a limited area, normally in defense of the vital elements of forces and installations based on priority. For example, a SAM unit positioned to protect an airfield is considered point defense.

(3) Self-defense operations allow friendly units to defend themselves against direct attacks or threats of attack through the use of organic weapons and systems. The right to self-defense is inherent to all ROE and weapons control procedures.

b. Organization. The AADC/RADC executes AD operations through subordinate C^2 nodes, such as the control and reporting center (CRC) or the Airborne Warning and Control System (AWACS)/Hawkeye AWACS (E-2C). The AADC, in coordination with component commanders, normally decentralizes execution of the AD plan to RADCs. The number of regions and respective RADCs vary depending upon geographical, political, and operational factors such as friendly forces, geography, threat, and the concept of operations. For example, the AADC may recommend that an Aegis cruiser perform RADC duties for the maritime region of the JOA. AD regions may be further subdivided into sectors, with sector air defense commanders (SADCs) coordinating activities within their sectors.

c. Responsibilities. The JFC's designated AADC is responsible for integrating all AD efforts in the theater of operations. The AADC develops engagement procedures for AD weapons based on the JFC's objectives and guidance. As appropriate, component commanders provide the AADC with surface, air, and sea-based active AD capabilities and forces to implement the ADP. Functional and service component commanders generally retain OPCON of assigned forces and capabilities and employ them according to the ADP, the ACP, and AADC/ACA-established measures and procedures for controlling weapons. Table IV-1 lists the C^2 nodes responsible for each critical action required to support AD operations.

d. Resource Allocation. The JFACC allocates a percentage of aircraft to perform the DCA mission based on the JFC's apportionment decision. The AADC typically allocates missions to each RADC to perform DCA functions. RADCs in turn distribute missions to subordinate SADCs, depending on expected threat actions within their sectors. SADCs may further distribute missions to AD control agencies within their sectors. The controlling agency is responsible for executing the AD mission through the coordination, control, and integration of aircraft and surface-to-air weapons systems under their direction.

e. Coordination. RADCs and SADCs coordinate AD actions between regions and sectors, evaluate the results of engagements within their sectors or regions, and forward observations and results of engagements to the SADO. They request or, when authorized, direct changes to AD warning and weapons control status commensurate to the threat. When required, they request additional AD assets from the SADO, who provides them with guidance and direction for AD warning, weapons control status, changes to the ROE, additional resources, and additional JFACC AD coverage.

Table IV-1. Critical AD Operations Responsibilities

C^2 Node	Operations For Which Responsible	Legend
NCA	a	a. Approve/disseminate all ROE. b. Approve/disseminate all ROE (if delegated by NCA). c. Disseminate selected ROE. d. Request changes to ROE. e. Establish AD warning conditions. f. Disseminate AD warning conditions. g. Declare/disseminate weapons control orders (WCOs)/WCS. h. Declare/disseminate WCS/WCO (if delegated). i. Disseminate WCS/WCO. j. Establish/disseminate airspace control methods/measures. k. Disseminate airspace control methods/measures. l. Disseminate fire control orders. m. Develop/disseminate ACP. n. Approve ACP. o. Develop/disseminate ADP. p. Approve ADP. q. Develop/disseminate ATO and ACO. r. Disseminate ATO and ACO. s. Implement changes to ATO and ACO.
JFC/Staff	b, d, n, r	
JFACC/AADC/ ACA	b, d, e, f, g, j, m, q	
ARFOR	c, d, f, i, k, o, r	
NAVFOR	c, d, f, i, k, o, r	
MARFOR	c, d, f, i, k, o, r	
BCD	c, d, f, i, k, m, o (will not develop the ADP), r	
RADC/SADC	c, d, e, h, i, k, l, r, s	
AAMDC	c, d, f, i, k, l, o, r, s	
ADA Brigade Headquarters	c, d, f, i, k, l, r, s	
AWACS	c, d, f, i, k, l, s	
E2C Hawkeye	c, d, f, i, k, l, s	
Patriot Battalion	c, d, f, i, k, l, r, s	
Navy Area/Point Defense Ships	d, s	

f. Execution. The AADC/ACA executes AD operations through a mix of positive and procedural controls.

(1) Positive control utilizes sensors; identification, friend or foe (IFF); computers; digital data links; and communications equipment to track and identify friendly, hostile, and unknown air assets. The AADC is able to coordinate AD operations at the lowest level necessary. The concept of centralized control (from AADC) and decentralized execution (by RADC/SADC) promotes coordinated engagement operations and economy of force while allowing decisions to be made at the lowest level possible, thereby reducing the reaction time to threats and the likelihood of friendly losses. AD weapons systems are normally capable of autonomous operations if all communications with higher echelons are lost. In such cases, the commander assumes full responsibility for control of weapons and engagement of hostile targets. In the absence of positive control, procedural means permit the safe passage of friendly aircraft and enable the effective use of AD weapons.

(2) Procedural control overcomes positive control and identification shortcomings. The AADC/ACAs implement procedural airspace control, which relies upon techniques such as segmenting airspace by volume and time. Controls include airspace control measures (ACMs) that facilitate the integration and synchronization of AD assets into air operations to optimize airspace use, protect

friendly units, and prevent fratricide. These ACMs are disseminated and updated via the ACO, which may be published in conjunction with the ATO.

(a) Engagement zones. In AD, a weapons engagement zone (WEZ), is defined airspace within which a particular weapons system is normally responsible for engaging air threats. A WEZ can be activated to delegate identification and engagement authority or it can be used for a specific threat. The AADC/ACA may direct a variety of fire control measures, including fighter engagement zones (FEZs) and missile engagement zones (MEZs). Depending on the tactical situation, the AADC may find it necessary to activate a joint engagement zone (JEZ) where all air and ground defense systems operate simultaneously in the same airspace. Coordinated with the ACA, engagement zones are included in the ACO and SPINS portions of the ATO.

(b) Surface-to-air missiles (SAMs). ROE and weapons control procedures determine SAM engagements. The air defense artillery fire coordination officer (ADAFCO) at the CRC monitors digital engagement activity for compliance with existing guidance. Normally, TBM engagement authority is decentralized to the shooter while air breathing threat (ABT) engagement authority is centralized at the RADC/SADC.

(c) Tactical operational data. To supplement information in the ADP, the AADC periodically publishes a TACOPDAT message to establish AD responsibilities in a tactical area or to provide supplementary AD orders to an AOR, including AD procedures. Information in the TACOPDAT includes units designated as RADCs and SADCs; methods of control; identification procedures and authority; and updates to fighter, missile, and/or JEZs.

5. Army Air Defense Operations

Army AD contributes to joint theater counterair operations, including JTMD. Its theater objectives are to preserve combat power, to gain the initiative, and to support offensive operations.

a. Organization. Normally under the CRC for fire control, the EAC and corps ADA brigades and their respective Patriot units are all data-linked. If the link is inoperable, units revert to established lost-data communications procedures. Short-range air defense (SHORAD) units normally operate under procedural controls for AD engagements and provide AD coverage for the division commander's AD priorities.

b. Responsibilities.

(1) JFLCC/ARFOR. Within the assigned AO, the JFLCC/ARFOR prioritizes assets requiring protection according to the JFC's objectives and guidance for inclusion in the joint DAL. The AAMDC protects DAL assets by commanding and employing the EAC ADA brigades and integrating corps ADA brigades into the theater ADP. While planning for air and missile defense operations within the assigned AO, the JFLCC/ARFOR, through the AAMDC, ensures integration with the joint and/or combined force. In support of the overall campaign and within

capabilities, the AAMDC provides expertise and necessary ADA forces to protect theater assets, such as airbases, logistics facilities, seaports, geopolitical assets, and maneuver forces in assembly areas, as directed by the JFC. Overall, the AAMDC coordinates, integrates, and synchronizes all Army air and missile defense operations in support of the AADC's theater ADP.

(2) TAAMDCOORD. When deployed, the commander of the AAMDC becomes the TAAMDCOORD for the JFLCC/ARFOR and is responsible to the commander for integrating ARFOR assets into joint counterair operations. As a special staff officer to the JFLCC/ARFOR, the TAAMDCOORD participates in operational staff planning and, with staff assistance (J2/G2 and J3/G3), develops an air and missile defense annex as JFLCC/ARFOR input to the ADP.

(3) DAADC. The AAMDC commander may also be designated as the deputy AADC for integration of all JFLCC/ARFOR AD assets into counterair operations. This designation formalizes the relationship between ground-based AD assets dedicated to theater-level missions and the AADCs. It also ensures fully integrated and synchronized CA operations.

c. Coordination.

(1) The AAMDC coordinates air and missile defense with the AADC through the AAMDC LNO team at the JAOC. The AAMDC LNO team assists the AADC in integrating Army active defense operations with other operations and in developing and executing plans for disseminating cueing information for engagement operations.

(2) The BCD is the primary agency responsible to the JFLCC/ARFOR for coordinating operations inside the JAOC, except for land-based AD operations when the AAMDC is deployed. The AAMDC LNO team synchronizes its activities with the BCD AD section and keeps them accurately apprised of the status of Army active defense system locations, engagement capabilities, task organization, mission and priorities, operational status, planned movement, missile availability, and engagements.

(3) AAMDC, AADC, and BCD synchronization consists of the following exchange of information (see also Table II-1, *Information Exchange Matrix*).

(a) The AAMDC LNO team passes ADA asset locations, engagement reports, ADA SAMSTAT reports, and AD OPORDs and OPLANs to the AADC and BCD AD section and ADA airspace needs to the AADC and BCD airspace management section.

(b) The BCD AD section passes changes in the AD warning status and the WCS to the AAMDC LNO team.

(c) Appendix A contains additional information on AAMDC LNO responsibilities. Appendix B provides a checklist for JAOC/BCD/AAMDC coordination; applicable reporting requirements are in Appendix E.

6. Conclusion

The AADC is responsible for integrating all AD efforts in theater. Serving as DAADC, the commander of the AAMDC facilitates the integration of ARFOR ADA assets into the overall AD system through direct coordination with the AADC. Formalizing this relationship improves integration and synchronization of AD resources and the joint force's effectiveness in countering air and missile threats.

Chapter V

JTMD ATTACK OPERATIONS

1. Background

a. This chapter focuses exclusively on attack operations against TMs and the coordination that occurs among the JAOC, the BCD, and the AAMDC. CA consists of both DCA, discussed in Chapter 4, and OCA. OCA attack operations are operations intended to prevent enemy assets from being employed by destroying, disrupting, or neutralizing selected enemy targets on the ground. Fixed- or rotary-wing aircraft, surface-to-surface fires, SOF, or ground forces may perform attack operations.

b. TMD is inherently a joint mission. Therefore, joint force components supporting combatant commanders and multinational force TMD capabilities must integrate toward the common objective of neutralizing and destroying the enemy's TM capability. This counter-TM effort must also integrate into and in support of the JFC's overall concept of the operation and campaign objectives. Although attack operations against TMs represent only one of many target sets, it has proven to be a most challenging one

c. As a subset of OCA, JTMD attack operations are offensive actions against TMs. A JTMD attack operation is not a mission in itself, but a way of characterizing offensive operations against elements of the TM target system.

2. Objectives

a. One of four operational elements of JTMD, attack operations are offensive actions taken by joint forces to destroy and disrupt enemy TM capabilities before, during, or after launch. Joint forces simultaneously and continuously conduct these operations against elements of the TM target system—such as C^2 nodes, forward operating bases, transload operations, launchers, missile stocks, and transportation infrastructure—to defeat the enemy's ability to mount or sustain launch operations.

b. JTMD attack operations can be preemptive or reactive. According to JP 3-01.5, Doctrine for Joint Theater Missile Defense, "the preferred method for countering enemy TM operations is to attack and destroy or disrupt TMs prior to launch." To succeed, preemptive operations require a robust IPB effort with dedicated collection resources. Reactive attack operations are difficult to achieve because of the mobility of launchers.

c. Figure V-1 illustrates the myriad tasks involved in conducting JTMD attack operations.

3. Organization

The JFC determines how to best organize forces to achieve the desired objectives. Key C^2 nodes involved in attack operations are the JAOC, the ARFOR

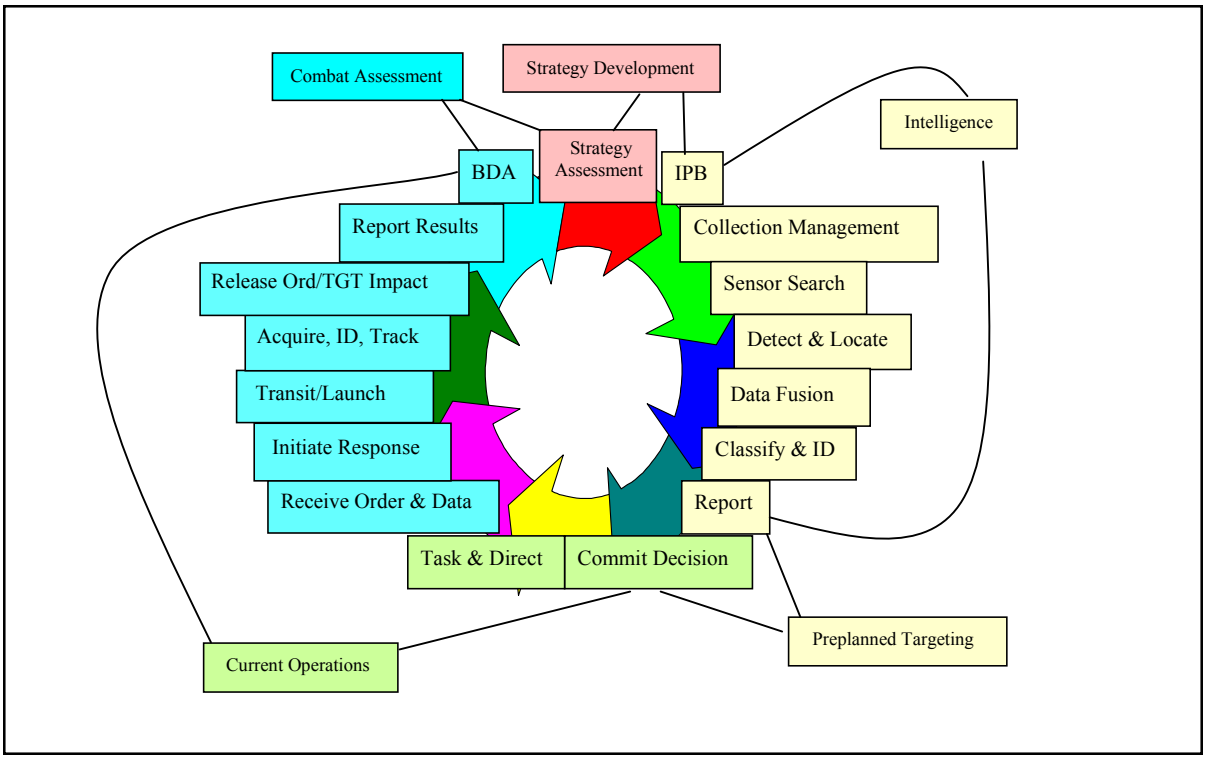

Figure V-1. Attack Operations Subtasks

TOC, the BCD, the AAMDC, and the Joint Targeting Coordination Board (JTCB). For detailed discussion of roles and missions, see JP 3-01, Countering Air and Missile Threats; JP 3-56.1, Command and Control of Joint Air Operations; and JP 3-01.5, Doctrine for Joint Theater Missile Defense. Figure II-2 illustrates the connectivity involved in attack operations

a. JAOC. Within the JAOC, the key organizations involved in attack operations for the JFACC beyond the three principal divisions—strategy, combat plans, combat operations—may vary, but usually include one or more of the following: the reflow or TST cell, the TMD cell, and the ISR team. Core teams within the divisions use TM target intelligence to formulate the TM attack strategy, the component targeting list, and the joint integrated prioritized target list (JIPTL) and to produce ATOs. The JFACC normally delegates execution authority to the CCO, who relies on the SODO and/or TST cell chief, TMD cell chief, SADO, and ISR coordinator for functional area expertise. They assist the CCO in deciding whether to prosecute nominated targets. In certain scenarios, execution authority may be further delegated to the CRC; however, the CRC's ability to conduct and coordinate TM target analysis is limited.

b. ARFOR TOC. Within the TOC, the key organizations involved in attack operations for the JFLCC/ARFOR are the DOCC, G3 plans or JFLCC J5, and G2 ACE. The DOCC is responsible to the ARFOR commander and G3 for planning, preparing, integrating, and coordinating all operations in the ARFOR's deep battlespace, including attack operations against elements of the TM target system. The DOCC FSE is normally the responsible execution authority for all ATACMS and deep MLRS fire missions. G3 Plans is responsible for developing ARFOR input to the joint TM attack strategy and, through the DOCC, for integrating associated attack operations into the overall ARFOR plan. The G2/ACE provides INTEL

support to all TOC operations and is responsible for planning employment of ARFOR collection assets and submitting PIR beyond organic capabilities into the joint force collection management system.

c. BCD. As the COMARFOR's liaison element within the JAOC, the BCD is responsible for synchronizing and coordinating attack operations between the JFLCC/ARFOR and the JFACC/ACA. The BCD coordinates all TM-related targets prosecuted by the JAOC TMD cell chief or the ARFOR DOCC. The COMARFOR specifies the BCD's role in coordinating attack operations. Normally included are expediting target conformation, deconflicting airspace requirements, coordinating through the DOCC for JFACC-requested ATACMS or MLRS missions, passing target nominations from the DOCC for air assets, conducting target handoff, and facilitating other deep operations. Chapter 1 contains additional information on the BCD; Appendix C on the DOCC.

d. AAMDC. The AAMDC is not directly involved in prosecuting and executing attack operations for the ARFOR; however, it supports these operations by performing critical planning, analysis, tracking, and TM target development and by having LNOs at key C^2 nodes—ACE, DOCC, JSOTF, JAOC, and so forth—who can provide additional TM expertise. To achieve preemptive attacks, the AAMDC INTEL section and the JAOC ISR team must continuously share targeting intelligence. Although both organizations perform many of the same IPB functions, differences in analysis, methodologies, sensors, and perspectives can create synergies and a better overall picture of enemy TM activity. Exchanging target intelligence early in the planning and execution process is essential to achieving effective joint attack operations. The AAMDC attack operations section submits all TM target nominations to the DOCC. Assisted by ACE and AAMDC INTEL personnel, it provides detailed target intelligence to the DOCC or the JAOC ISR team and provides advice in developing TM attack strategy and plans.

e. JTCB. The JTCB constitutes a significant part of the coordination effort between the components, allowing for visibility of targeting lists and overall coordination of theater-level targeting efforts. A jointly produced TM attack strategy and associated target priorities help reduce confusion and conflict for the JTCB and speed JIPTL development. The JFACC, in coordination with other component commanders, develops apportionment recommendations and forwards them to the JFC for approval, often through the JTCB. The JFACC establishes a planning cycle that includes development of the daily JIPTL.

4. Key Activities

Since JTMD attack operations are not limited to current operations, planners must integrate them into all aspects of campaign planning and execution. Therefore, all ROE, collection plans, fire plans, ATOs, ACPs, ACOs, and ACMs must be designed with adequate flexibility to respond to near-real-time target detection, identification, and prosecution. Table V-1 identifies five key activities that support attack operations and the principal agencies involved. As indicated, the AAMDC is not the principal agency responsible for any of the activities involved with conducting attack operations. However, because of its resident expertise and sole focus on TMs, the AAMDC has a strong supporting role in the TM IPB development, attack strategy, and target development processes.

Table V-1. Key Activities Supporting Attack Operations

ACTIVITY	JAOC	ARFOR TOC
IPB	ISR team	ACE
Strategy development	Strategy plans team	G3 plans
Target Development	MAAP team	DOCC/FSE
Execution	Offensive operations team	DOCC
Combat assessment	Combat assessment team	ACE

a. IPB. IPB provides the foundation for all attack operations activities, from development of a strategy and associated targets for the conduct of operations through near-real-time INTEL support and combat assessment of those operations. Because JTMD is a joint responsibility, TM IPB requires that a robust interoperable C^4I architecture exist among the joint, functional, and service component INTEL organizations. It also requires that they consistently collaborate on not only IPB development but also current INTEL analysis and assessments. For the purpose of this publication, this collaboration requirement applies to the JAOC ISR team, the ARFOR ACE, the AAMDC attack operations and INTEL sections, and the AAMDC LNO team in the JAOC. Chapter II discusses these coordination activities in detail. For a more detailed discussion of TM IPB, collection management, and targeting in support of TM attack operations, see MTTP, Joint Theater Missile Target Development (FM 90-43, MCRP 3-42-14, NWP 3-01.13, AFTTP(I) 3-2.24).

b. Strategy Development. Developing strategy for the attack of TMs requires a joint effort between operations and INTEL personnel at the JTF and component levels, and it must be an integral part of the JFC's overall campaign strategy. Planners develop a TM attack strategy based on the JFC's objectives and guidance and known intelligence. In turn, the approved strategy drives IPB, collection management, and target development. While reactive attack operations may be part of the overall strategy, the strategy must focus on preemptive attack operations that will disrupt and, if possible, defeat the enemy's ability to conduct and sustain TM launch operations

(1) Guidelines. An effective TM attack strategy should employ the following guidelines:

(a) Plan for continuous engagement of the entire TM target system. Continuous engagement of TMs is necessary to deprive the adversary of the initiative. Attacking the entire target system simultaneously prevents enemy TM forces from conducting unimpeded operations and forces them to change their operating patterns to regain the initiative. Potentially, this creates further opportunities for exploitation by exposing TM vulnerabilities.

(b) Orient on the TM vulnerabilities and decisive points. Usually geographical in nature, a decisive point is one that, when retained, provides the commander an advantage over his opponent. Decisive points may also be physical elements such as critical equipment, command posts, and communications nodes. Determining TM vulnerabilities and decisive points requires a thorough understanding of the adversary's operational capabilities, CONOPS, and intentions. Once identified, these elements or specific aspects of the target system become high-value targets (HVTs) for further analysis and possible designation as HPTs.

(c) Be supported by predictive and developed intelligence. The key to developing a successful preemptive-oriented TM attack strategy is the fusing of all

relevant TM activity information into predictive intelligence. Predictive intelligence implies that understanding of the enemy's plan is sufficient to predict what is likely to occur. To be predictive, the TM IPB must be conscious of the geopolitical situation and how the enemy is responding to friendly operations. Because TM information is highly perishable, the collection strategy and sensor distribution plan must support these requirements and be considered part of the overall strategy.

(d) Synchronize with all phases of the campaign. The TM attack strategy must also define the phasing, timing, and desired effects consistent with the overall campaign objective for each phase of operations. For example, the initial phase may focus on immediately reducing TM launches, while later phases concentrate on destroying the enemy's ability to reconstitute TMs in the future. The strategy must also define what "success" means for each phase, based on combat assessment results. Maintaining pressure on the entire TM target system during transition between and throughout each phase of the operation is essential.

(e) Make maximum use of all available resources. An effective strategy must employ all collection and attack assets in a manner that maximizes that strategy. Fixating on one particular platform over another is counterproductive. Consider the merit of each available asset on how, given the circumstances, it can best contribute to the strategy. Define how the strategy will prosecute or track time-sensitive TM targets and discuss optimal use of assets. [Note: Planners must keep in mind that attacking TMs is one of many missions the joint force must address. They must balance allocated ISR and attack resources supporting TM attack operations with all other resources required to achieve the JFC's overall campaign objectives.]

(f) Continuously assess and adjust. Just as the commander assesses and adjusts the overall campaign based on current campaign assessment, so must TM strategies be assessed and adjusted. Based on feedback from operational assessments of friendly operations, weapons system availability, and the enemy's response, current operations planners, and INTEL personnel reassess collection and attack strategies. These assessments help determine when a particular phase has been completed, whether the next phase should be implemented, and how to adjust plans to better meet the JFC's overall TM objectives. An effects-based approach to strategy is the most appropriate for assessing TMs (that is, what TM capabilities have the enemy displayed and what are we trying to achieve vice an attrition approach—how many targets have been destroyed).

(2) Responsibilities. Strategy development begins with the JFC's guidance. Component commanders augment the guidance with details and instructions and disseminate it to their respective staffs, agencies, and subordinate commands. Development of an effective TM attack strategy requires collaboration among all components' strategic and operational planners and joint and coalition forces. Planners of resources from outside the theater of operations, such as space and national assets, must also participate.

(a) JAOC. The JAOC strategy plans team is responsible for developing the air strategy in support of JFACC/AADC guidance and the JFC's overall campaign plan. The team articulates this strategy as part of the JASOP. OCA attack operations against elements of the TM target system are an integral part of

the overall air strategy. The TMD cell and ISR personnel advise on the enemy TM situation and potential options for countering that threat. The BCD serves as the conduit between the DOCC and team, communicating the JFLCC/ARFOR's guidance, strategy, plans, and intent. Other component liaisons, for example the MARLO, do likewise. When the AAMDC's LNO team deploys to the JAOC to support the DAADC, it becomes an additional source of knowledge on enemy activities, doctrine, capabilities, and limitations.

(b) ARFOR TOC. The ARFOR G3 plans section, or JFLCC J5, orchestrates the total JFLCC/ARFOR strategy effort. The DOCC assists with strategy development and plans deep operations in support. The BCD coordinates proposed deep operations with the JAOC. The AAMDC LNOs to the ARFOR—TOC, ACE, DOCC—provide input to strategy development in the form of a thorough TM IPB and knowledge of enemy activities, doctrine, capabilities and limitations. Figure V-2 illustrates the flow of information and guidance provided to overall strategy and target development.

c. Target Development. Once a strategy is conceived, component planners must determine what combination of operations and targets will achieve the desired end state. Planning focuses on building ATOs, fire plans, ACMs, and details for other operations. Countering TMs means engaging known targets—normally fixed sites, LOCs, and so forth—and building flexibility into collection and attack plans to respond to anticipated or unexpected targets of opportunity. Preplanned TM targets are selected, nominated, and approved no differently than any other target; however the source of nominations may vary.

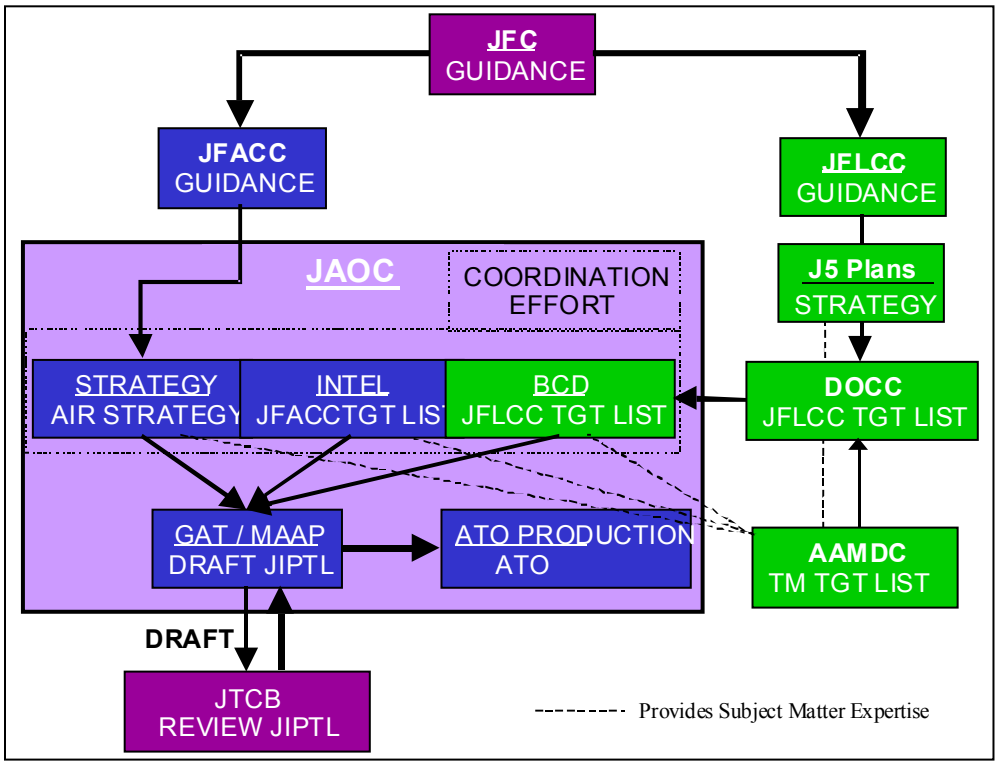

Figure V-2. Attack Operations Process Flow

(1) Process.

(a) Within the JAOC, the MAAP team is responsible for turning the overall air strategy into "shell" ATOs. An ATO generally covers a 24-hour period; therefore, the team normally works two or more ATOs at any given time, 48 to 72 hours ahead of planned implementation. The JFAAC tasks the team with integrating targets supporting the JASOP with target nominations from other components and joint and coalition forces. When established, the JTCB may assist the JFC by setting overall targeting priorities for the campaign. Using these priorities, all component liaison elements to the JAOC assist the MAAP team in producing a JIPTL. The BCD provides ARFOR input for development of the JIPTL and coordinates the use of ARFOR assets apportioned to the JFACC and vice versa. The MARLO, SOLE, and NALE provide similar input and coordination. The JIPTL serves as the basis for developing an ATO "shell." The ATO production team completes the details required in the ATO and publishes and disseminates it. The combat operations division executes each published ATO.

(b) The DOCC is responsible for coordinating all JFLCC/ARFOR deep operations and targets within the assigned AO that might affect JFLCC/ARFOR operations. Based on strategy and plans developed with G3 plans section, or JFLCC J5, and major subordinate commands' (MSCs') targeting requirements, the DOCC produces a candidate target list (CTL). According to the JFC's overall campaign plan, the CTL represents targets recommended for attack in support of the JFLCC/ARFOR's plan. Because of its dedicated focus on TMs, the AAMDC attack operations section develops TM target nominations and submits them to the DOCC for prioritization in the CTL according to campaign guidance. The DOCC forwards the CTL to the BCD for inclusion in the JIPTL development process.

(2) Collaboration.

(a) During the target development process, INTEL analysts at the JAOC and AAMDC must collaborate. Collaborating before actual target nominations are submitted—

- Improves the quality of analysis.
- Prevents unnecessary target duplication.
- Provides the opportunity to discuss priorities in support of the strategy.
- Coordinates surveillance area requests.
- Minimizes redundancies.
- Creates synergy in TM target development.

(b) Early and continuous TM IPB collaboration can expedite the JIPTL process by establishing a common TM INTEL picture to support and justify target nominations. The AAMDC LNO team in the JAOC can facilitate this collaboration and provide additional information on TM-related targets as required.

d. Execution. Vigilance is the key to successfully executing TM attack operations. How well current operations adapt to NRT observation of TM activity will determine their success. While preplanned targets are integral to an overall TM attack strategy, all plans must change to meet the circumstances presented by combat. Their degree of flexibility will determine how quickly and effectively joint forces can respond to and exploit opportunities. Operators must immediately recognize and acquire TM activity indicators. Implied is that system operators and key decision makers must thoroughly understand the enemy. Once recognized, suspect TM activity must be analyzed and a targeting decision made before the window of observation closes and the track is lost. Because survival is one of the enemy force's primary goals, it will always opt for the shortest possible window of observation. To facilitate timely targeting decisions, pre-established procedures between the JAOC, AAMDC and the DOCC are essential. When necessary, collection assets may need to be rapidly redirected to confirm the target or track movements until attack assets are within range. Neither of these actions is possible without a robust, vigilant, continuous IPB effort, NRT information feeds, collection situational awareness, and a responsive cross-cueing or dynamic retasking process. See Chapter 2 for details of INTEL agency processes.

(1) Combat operations division. Execution of attack operations outside the JFLCC/ARFOR AO is the responsibility of the JAOC's combat operations division. Within the division, the TMD cell, or TST reflow cell, works closely with ISR personnel to develop TM target nominations. Confirmed TST nominations are presented to the CCO for approval. The CCO determines if target prosecution should continue and whether internal or external assets are more appropriate (The JFC may have apportioned external assets to the JFACC). The components' LNOs apprise the CCO of external asset availability. If the CCO selects internal, the attack order is forwarded to the appropriate C^2 node and the affected components, and the latest target intelligence to the attacking weapons system. If the CCO recommends use of ARFOR external assets, the BCD begins coordinating with the DOCC and airspace management personnel in the JAOC and JFLCC/ARFOR TOC. If the JFLCC/ARFOR is unable to prosecute the target or the attack asset is unavailable; the nomination goes back to the JAOC via the BCD with an explanation.

(2) Deep operations coordination center. The DOCC is responsible for deep operations within the JFLCC/ARFOR's AO. The AAMDC INTEL and attack operations sections continuously monitor the battlespace to locate and identify TM targets for nomination to the DOCC. Collaboration with other INTEL agencies may be necessary to confirm the target. Confirmed TM targets are nominated to the DOCC/FSE via AFATDS terminal. Appendix C discusses prosecution of immediate targets and target handoff to the JAOC. If the DOCC forwards the target nomination to the BCD for JFACC prosecution, the AAMDC LNO team may serve as the conduit for additional target intelligence.

e. Combat Assessment. Combat assessment is determining the overall effectiveness of force employment during military operations. Consisting of three major components—battle damage, munitions effects, and reattack potential—its objective is to recommend the course of military operations. Effective combat assessment, which must be planned for and integrated into all operations, is key to retaining operational dominance over the adversary. The impact of friendly operations on the enemy's TM capability and the enemy's reaction to friendly attacks

are key factors of assessments regarding TMs. That combat operations will affect enemy TM operations is assumed; to what degree is gauged by the volume, timing, and accuracy of the launches. Like strategy, combat assessment must focus on effect rather than OB attrition. It is used to update the TM IPB and adjust attack strategies to compensate for changes to enemy operating patterns or take advantage of vulnerabilities created by the loss of critical systems. Without effective combat assessment, TM intelligence and the associated attack strategy become obsolete.

(1) Responsibilities.

(a) JAOC. The J3 is normally the single point of contact for combat assessment at the joint force level. The strategy division's combat assessment team is responsible for integrating combat assessment requirements into plans and providing assessment results to the strategy plans team, combat plans division, and combat operations division.

(b) ARFOR TOC. In the JFLCC/ARFOR TOC, the ACE is responsible for assessing battle damage. The G3 is responsible for assessing munitions effectiveness, and the G2 and G3 develop the reattack recommendation together. The AAMDC INTEL section may perform or assist the ACE with the TM target system's combat assessment.

(2) Collaboration. Like other INTEL activities, assessments must be shared with other INTEL organizations involved with TM IPB to ensure the integrity of the overall process and its products.

5. Conclusion

Although not a separate mission area, attack operations against enemy TM forces are a challenge to the joint force as a whole. The complexity of joint operations when combined with the elusive nature of the TM target system requires trained and knowledgeable operators and analysts at all levels. Preemptive JTMD attack operations cannot be achieved without a robust, vigilant, continuous, and collaborative TM IPB effort. Joint forces must work diligently to break down barriers to communication and understanding between components. They must structure procedures that streamline decision-making operations beyond the standard practices documented in this chapter.

Appendix A

AAMDC LNO RESPONSIBILITIES AND REQUIREMENTS

1. Responsibilities

The AAMDC deploys an LNO team to the AADC's headquarters/JAOC to support the AADC and DAADC. AAMDC LNOs also deploy to other major C^2 nodes such as the JFLCC, JFMCC, JSOTF, DOCC, ACE, and coalition headquarters. LNOs provide a direct link to the AAMDC to expedite time-critical operations.

a. AAMDC LNOs are responsible for—

(1) Providing air and missile defense information to the AAMDC and supported headquarters.

(2) Coordinating and integrating AAMDC operations.

(3) Focusing resources.

(4) Deconflicting and resolving air and missile defense issues among headquarters.

(5) Advising supported headquarters on Army air and missile defense.

b. Upon entering the supported headquarters, they are responsible for—

(1) Briefing the AAMDC's capabilities and their LNO responsibilities to the chain of command.

(2) Establishing required communications connectivity.

(3) Learning the headquarters' battle rhythm and passing that information to the AAMDC.

(4) Coordinating a seat at meetings that require AAMDC LNO representation.

(5) Maintaining the latest information on AAMDC operations and disseminating that information when required.

2. Requirements

a. Personnel. Depending on the nature of the contingency operation, the AAMDC tailors the LNO team assigned to support the AADC/JAOC and the DAADC. The LNO team will—

(1) Ideally consist of at least 8 and no more than 12 personnel.

(2) Integrate and coordinate with the JAOC BCD, strategy division, combat plans division, and combat operations division.

(3) Require work space in the JAOC or in close proximity to it, billeting, and food support from the JAOC.

b. Equipment. The AAMDC LNO team deploys with an AMDWS, classified and unclassified laptop computers, secure telephone unit III (STU III) phones, KY-68 phones, and printer.

c. Communications. The AAMDC LNO team requires the following minimum communications support from the AADC/JAOC:

(1) SIPRNET access: five connections with Internet protocol (IP) addresses.

(2) Unclassified but Sensitive Internet Protocol Router Network (NIPRNET) access: two connections with IP addresses.

(3) Two Defense Switched Network (DSN) drops.

(4) Two tactical phone (KY-68) hardwire connections.

(5) TIBS, TDDS, and FAAD data link (FDL) feeds for the AMDWS.

(6) Access to secure fax.

(7) Access on local area network (LAN) to secure color printer.

Appendix B

COORDINATION CHECKLIST

This checklist is for use by the JAOC, BCD, and the AAMDC to assist in integrating resources for effective AD, including JTMD. A baseline for coordination activities, it should be expanded depending on the situation and METT-TC.

AREA	ACTION REQUIRED	JAOC	BCD	AAMDC
C^4	Establish predeployment contact with counterparts.			
C^4	Establish contact with counterparts when in theater); deploy LNOs.			
C^4	Confirm hardware/software systems and versions for compatibility (configuration management).			
C^4	Establish integrated space, surface, and airborne early-warning data reception in AAMDC/JAOC.			
C^4	Coordinate data link/communications connectivity among components and coalition forces.			
C^4	Ensure C^2 agencies have theater OPTASKLINK, TACOPDAT, satellite access request, plain-language addresses, and COMSEC-callout message prior to deployment.			
C^4	JAOC JICO cell develop coordination mechanisms and procedures with component operations centers.			
C^4	Develop TADIL procedures and theater network/architecture.			
C^4	Develop theater ADP.			
C^4	Develop and update IFF plan			
C^4	Establish voice and data connectivity with counterpart.			
INTEL	Develop and share JTMD INTSUM.			
INTEL	Coordinate/share requests for information (RFIs) among components.			
INTEL	Share initial and recurring IPB products.			
INTEL	Reconcile imagery reports between JAOC and AAMDC to create common database.			
INTEL	Share countermobility target sets.			
INTEL	Share no-strike information.			
INTEL	Collaborate INTEL effort as indicators and warnings appear; discuss potential targets with counterpart.			
INTEL	JFLCC and JFACC planners build a coherent and integrated TM collection plan that balances resource allocation in consonance with CINC's guidance and objectives.			
INTEL	JFLCC and JFACC planners coordinate with J2 on procedures for integrating national ISR assets into the collection plan.			
INTEL	Focus poststrike combat assessment on enemy TM force capability and predictive COA analysis vice BDA tallies.			
INTEL	Share combat assessment/BDA information.			
Passive Defense	Coordinate TMD early-warning architecture (data and voice) with USSPACECOM.			
Passive Defense	Develop/update theater passive defense SOPs; share component/coalition passive defense SOPs.			
Passive Defense	AAMDC LNO team distributes Army TMD SOP to AADC and BCD AD section.			

AREA	ACTION REQUIRED	JAOC	BCD	AAMDC
Passive Defense	Verify TRE access and compatibility for ADSI, AMDWS, GCCS, and/or WOTS.			
Passive Defense	Verify TBM modules loaded into GCCS.			
Passive Defense	Establish accounts/users of GCCS COP picture.			
Passive Defense	Modify/restrict TDDS/TIBS data for theater.			
Passive Defense	Establish SATCOM voice connectivity for voice reporting net.			
Passive Defense	Develop/coordinate/distribute voice reporting templates.			
Passive Defense	Establish/coordinate areas of interest for ALERT/JTAGS.			
Passive Defense	Conduct theaterwide test/rehearsal of early-warning system.			
Passive Defense	Develop/modify secondary notification procedures to theater units using CTAPS, public address systems, radio, pagers, and so forth.			
Active Defense	Publish AADC intentions and priorities.			
Active Defense	Develop and update ROE.			
Active Defense	CRC passes AD warning and weapons control status to ADAFCO at CRC.			
Active Defense	AAMDC LNO team updates and shares AD battlefield geometry with AADC and BCD AD section.			
Active Defense	JAOC develops and disseminates TACOPDAT and OPTASKLINK.			
Active Defense	JAOC/CRC in coordination with the AAMDC develops and issues SAM/SHORAD tactical order (SSTO) to Patriot forces; ADAFCO at the CRC has authority to issue real-time SSTO changes based on the tactical situation.			
Active Defense	BCD AD section distributes SHORAD engagement report to AADC and AAMDC.			
Active Defense	AAMDC LNO team distributes Patriot engagement reports to AADC and BCD AD section.			
Active Defense	JAOC relays engagement reports to BCD AD section/AAMDC LNO.			
Active Defense	AAMDC LNO team distributes Patriot unit laydown to AADC and BCD AD section.			
Active Defense	Develop, update, and disseminate high-value airborne assets (HVAA) plan			
Active Defense	Distribute changes to ACP/ ADP/ACO.			
Attack OPS	Review CINC/JFC guidance on how JTMD coordination, deconfliction, and synchronization will occur between components.			
Attack OPS	Component commanders coordinate and publish clear and precise JTMD guidance.			
Attack OPS	CINC/JFC/component staffs develop an effects-based TM targeting strategy that includes objectives, tasks, and measures of merit.			
Attack OPS	JFLCC and JFACC planners build a coherent and integrated JTMD attack operations plan that balances resource allocation in consonance with the CINC's guidance and objectives.			

AREA	ACTION REQUIRED	JAOC	BCD	AAMDC
Attack OPS	Prior to hostilities, AAMDC/JAOC team—strategists, analysts, targeteers, TMD/TST cell, ISR experts, and so forth— establish and execute procedures for rapidly communicating and sharing NRT information.			
Attack OPS	BCD deconflicts airspace requirements between JAOC and DOCC.			
Attack OPS	BCD coordinates between components for TST prosecution.			
Attack OPS	Develop TM TST criteria according to CINC's guidance.			
Attack OPS	BCD coordinates collection assets rerole/retaskings from ACE.			
Attack OPS	Identify assets available for TM/TST execution.			

Note: BCD and AAMDC LNOs are the COMARFOR's representatives at the JAOC.

Appendix C

DEEP OPERATIONS COORDINATION CELL

1. Overview

a. Deep operations support the JFC's mission, intent, and overall campaign plan. They are operations that all echelons—using fires, maneuver, and leadership—direct against enemy forces and functions beyond the close battle. Effective deep operations facilitate overall mission success and enhance force protection.

b. Affecting the enemy through attack or threat of attack, deep operations expand the battlefield in space and time to the full extent of friendly capabilities. They allow commanders the freedom of action to exploit speed, range, lethality, and versatility of modern land-based systems to accomplish the mission. They also enable commanders at each level to shape the battlespace, set the operational tempo, set the conditions for success, and protect the force. Synchronizing deep operations with other land battle activities is imperative to ensure effective employment of combat power at the decisive point in the battle.

c. The G3, who is responsible to COMARFOR for executing deep operations, normally establishes a DOCC to facilitate integration and coordination. The DOCC is a centralized cell responsible for planning, coordinating, synchronizing, and executing deep operations, including airspace coordination, target acquisition and deconfliction, and establishment of fire support coordination measures (FSCMs) within the ARFOR's assigned AO. These functions are performed simultaneously and continuously using the decide, detect, deliver, and assess (D3A) targeting methodology (Figure C-1). A DOCC may exist at each echelon of command—Army, corps, division—as necessary to effectively coordinate operations. The DOCC does not create a separate command post; rather it brings together within the TOC staff elements that are involved with deep operations. The senior ARFOR DOCC effects coordination with the JAOC through the BCD.

2. Organization and Function

Currently, the DOCC has no standard modified table of organization and equipment (MTOE). If a continuous need for coordination exists and the complexity of the contingency requires, the commander may establish a permanent DOCC or assemble members on a case-by-case basis. The DOCC consists of an officer-in-charge (OIC) and other staff members as indicated.

a. OIC. The ARFOR commander designates the DOCC OIC, who is normally the chief of staff or senior artillery commander. Responsible to the commander for implementing all plans, the OIC's primary functions also include—

(1) Overseeing the planning, coordination, synchronization, and execution of deep operations.

(2) Recommending deep targeting priorities, HPT lists developed during the planning cycle, and means of achieving the commander's intent for fires.

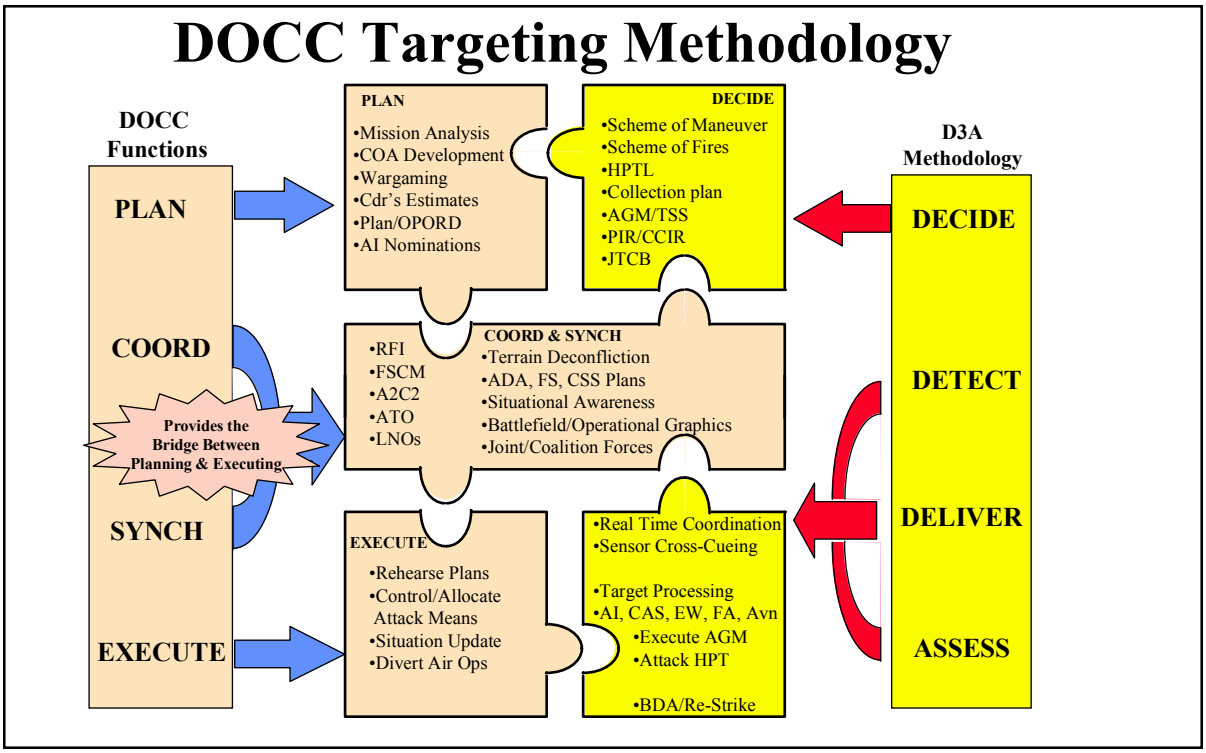

Figure C-1. DOCC Targeting Methodology

(3) Maintaining a continuous dialogue and situational awareness of integrated operations and coordinating the use of deep attack assets within the assigned AO, including USA aviation, artillery, electronic warfare (EW), long-range surveillance units (LRSUs), SOF, USAF, USN, US Marine Corps, and other attached/ available attack assets.

(4) Approving the deep lethal attack guidance and monitoring execution of the plan.

(5) Tracking and executing approved immediate ATACMS fire missions and fire plans and suppression of enemy air defense (SEAD) fire plans.

(6) Coordinating with all fire support LNOs to facilitate timely fire mission processing.

(7) Coordinating target attacks with MSCs.

b. DOCC Staff Members. As required, the DOCC OIC will organize permanent and temporary staff members from the following sections or staff elements to ensure 24-hour coverage of operations and future planning requirements:

(1) Targeting team.

(2) FSE.

(3) Intelligence.

(4) ADE or AAMDC LNO team.

(5) Army airspace command and control (A^2C^2) cell.

(6) EW.

(7) Fire control element (FCE).

(8) Air liaison officer (ALO).

(9) Army aviation element.

(10) NALE.

(11) Special operations command and control element (SOCCE).

3. Attack Operations

The DOCC develops and submits a CTL—listing all targets the ARFOR wants struck in support of operations within the assigned AO—for integration into the JIPTL used to develop the ATO. The DOCC incorporates targets intended to defeat the enemy's ability to conduct and sustain TM launch operations and prioritizes them according to the commander's guidance. Figure C-2 depicts the AAMDC-DOCC relationship and the attack operations decision-making process.

a. Preplanned Target Development. While the ACE and DOCC are responsible, respectively, for intelligence and deep operations for the entire AO, the AAMDC's INTEL and targeting personnel focus solely on enemy TM operations. The AAMDC's attack operations section works with the ACE and DOCC to develop targets to support the TM attack strategy. The DOCC receives nominated preplanned targets for incorporation into the CTL and submits them through the BCD to the JAOC. When the AAMDC is not in theater, ACE and DOCC targeting personnel develop TM-related targets along with all other targets.

b. Immediate Target Nomination. The TM target system consists of many elements, some fixed and many mobile. Mobile targets may present themselves for only short periods of time that limit preplanned targeting operations. Immediate targets may be anticipated or unanticipated.

(1) Anticipated targets may be included in preplanned target development or placed "on-call" for response when the target appears and the location is fixed. Unanticipated targets normally require an attack decision. When the window of opportunity to attack is relatively short, anticipated or unanticipated targets may be referred to as TSTs. TSTs require an immediate response because they pose a clear and present danger to friendly forces or are highly lucrative fleeting targets of opportunity.

(2) The AAMDC's attack operations and INTEL personnel continuously monitor enemy TM activity. Confirmed immediate targets—anticipated, unanticipated, or TSTs—that meet the established attack guidance are nominated for attack by submission of an RFF to or by the DOCC FSE via the AFATDS terminal. The RFF is immediately available at the BCD AFATDS display and can be used to expedite coordination and inform the JAOC of enemy TM activity.

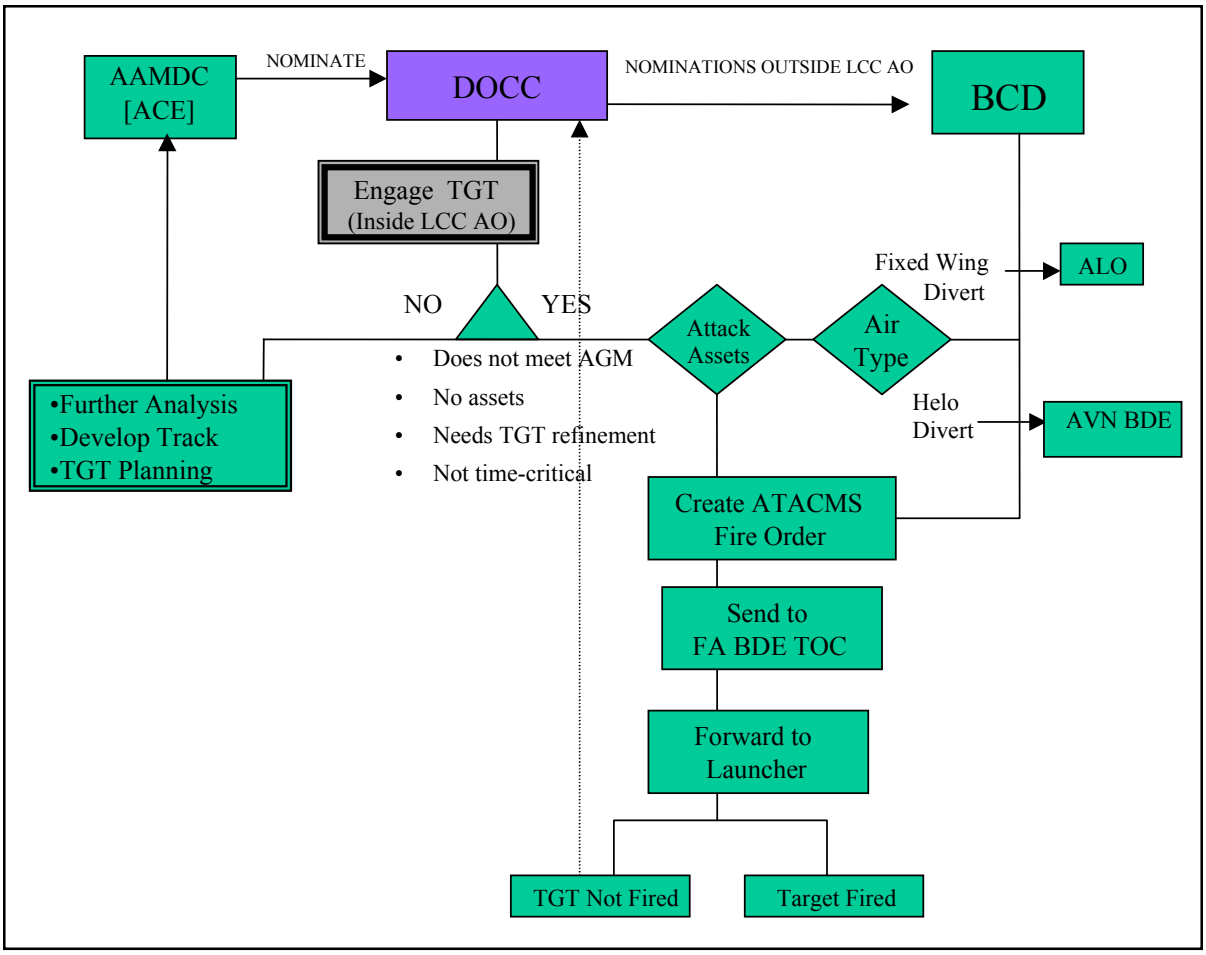

Figure C-2. ARFOR Attack Operations Decision-Making Process

c. Immediate Target Prosecution. The DOCC, in consultation with the commander or G3, if required, prosecutes immediate target nominations. If the target meets established criteria—timeliness of target intelligence, the accuracy of the reporting source and target location, range to the targets, and so forth—and assets are available to strike, the DOCC will approve the RFF and coordinate as necessary to execute the mission. Coordination will depend on the attack asset being employed, but normally includes notifying other components and deconflicting airspace. JAOC coordination is accomplished through the BCD. AAMDC LNOs are available to articulate the TM targets. If an ATACMS is selected as the appropriate attack asset, the DOCC will coordinate the activation of restrictive operations zones (ROZs) around the launch and target areas. See MTTP, Targeting (FM 90-36, MCRP 3-16/1F, NWP 2-10.11, or AFJPAM 10-225), for specific ROZ dimensions and procedures for deconflicting airspace requirements.

d. Target Handoff. If the DOCC determines that it cannot strike an immediate target—anticipated, unanticipated or TST—it will notify the requestor and the BCD. If the target is an ARFOR priority, the DOCC will request the BCD submit the target nomination to the JAOC operations division for immediate attack. The DOCC then coordinates battlespace deconfliction. The AAMDC provides additional target information, such as imagery.

Appendix D

JOINT INTERFACE CONTROL OFFICER

1. Overview

The JICO is responsible for managing the multi-data-link network from the JAOC. The JICO addresses deficiencies in the ability to properly plan, initiate, monitor, and manage information exchange requirements of the multi-data-link network for joint operations.

2. Planning Tasks

The JICO's planning tasks are to compile information, develop and validate the multi-data-link architecture in coordination with service component and coalition partners, develop the OPTASKLINK, and provide inputs to the TACOPDAT.

a. Based on the information available, the JICO will develop primary and contingency TADIL architectures. Using estimates of track loading within the AO, data forwarding requirements and data filter plans, the JICO will evaluate the proposed architecture's ability to meet information exchange requirements including track update rate/net cycle time goals. The JICO will advise the AADC regarding cases where requirements cannot be met. The JICO will prepare and submit a Joint Tactical Information Distribution System (JTIDS) network design request, if required.

b. Prior to and during an operation, the JICO will evaluate factors that influence the ability of the multi-data-link architecture to support current and planned information exchange requirements. Working with the AADC, the JICO will develop recommended changes to meet those requirements.

3. Execution Tasks

The JICO will establish the multi-data-link network, conduct data registration, conduct fidelity checks, and resolve connectivity and interoperability problems.

a. Once the network is established, the JICO ensures that units comply with direction in the OPTASKLINK and TACOPDAT, monitors TADIL and interface unit (IU) status, and resolves connectivity and interoperability issues. In conjunction with planned events or in response to changes associated with the dynamic nature of operations, the JICO will direct changes to the network to support warfare requirements.

b. The JICO cell must be able to support continuous operations. Each service normally contributes personnel or expertise to the JICO cell and the mix of multiservice knowledge and experience is a key factor in the ability of the cell to successfully plan and execute joint operations. When regions are established, the regional interface control officer (RICO) cell composition requirements may be the same as the JICO cell composition, depending upon the scope of operations.

4. Location

a. A key factor determining JICO cell location within a JOA is the ability of the host unit to support JICO personnel and equipment requirements. The facility must be capable of billeting/berthing and feeding cell members, as well as having data network connectivity and associated voice communications capability for the JICO to monitor and direct data exchange requirements. Potential JICO cell locations in a JTF are:

(1) USAF - AOC, CRC.

(2) USN - Command ship land component commander (LCCs), general-purpose amphibious assault ships (LHA), general-purpose amphibious assault ships with internal docks (LHDs), aircraft carriers (CVs)/aircraft carriers, nuclear (CVNs), cruisers (carrier group [CG]).

(3) USMC - TACC, tactical air operations center (TAOC).

b. In an evolving crisis, the JICO, working for the JFACC/AADC, functions with support from component units until augmented as additional forces flow into theater. As joint forces continue to flow into theater, the JFC will likely assign or direct the transition of JFACC, AADC, and JICO functions to the most advantageous position, such as a JAOC. The seamless transition of JICO functions between units requires control and coordination. Prior planning for this transition would include the identification of qualified personnel and equipment from either the theater components or CONUS-based forces to augment or stand up a new cell and prepare for the shift of responsibilities.

Appendix E

REPORTS

1. Overview

Army ADA units use the reports in this appendix to issue orders and track the readiness of Patriot units, the availability of missiles, and the status of engagements. When the AAMDC is deployed in theater, AAMDC LNOs brief Patriot status to the AADC daily or as required. The BCD maintains current copies of the reports, which are readily available to the JAOC. Standard reports are:

a. SSTOs.

b. High-to-medium air defense (HIMAD) surface-to-air missile status reports (SAMSTATREPs).

c. TBM engagement reports.

d. HIMAD engagement roll-up reports.

e. TBM data roll-up reports.

2. SAM/SHORAD Tactical Orders

SSTOs consolidate tactical orders and information received from higher headquarters. The senior ADA element in theater generates the SSTO in coordination with the JAOC/CRC/CRE. Derived from the ATO and tactical situation, this report is issued at 0001 Zulu (Z) hours daily or immediately following any change to the SSTO. When completed, the report is classified "SECRET." Guidance for completing the SSTO follows:

a. Preceding Line 1, insert the originating organization; the exercise name, if applicable; the sequential SSTO number; and the applicable unit.

b. Line 1 - Enter the date-time group (DTG) Z when the SSTO becomes effective.

c. Lines 2a-2c:

(1) Line 2a - Enter information relating to MEZ activation/deactivation.

(2) Line 2b - Enter information relating to JEZ activation/deactivation.

(3) Line 2c - Enter information relating to FEZ activation/deactivation.

d. Lines 3a-3c.

(1) Line 3a - Enter engagement area (EA) for Patriot units (Patriot units may fire at TBMs without permission from the engagement authority).

SECRET WHEN FILLED IN

THIS IS:						
SSTO #		FOR:				
LINE 1 (DTG)						
LINE 2	None	ID#	Modifications	Act/Deact times		
LINE 2a						
LINE 2b						
LINE 2c						
LINE 3	**AOC**	TACC	ECS	AWACS	FDC	BTRY
LINE 3a						
LINE 3b						
LINE 3c	ABT: WH TBM: WH SHORAD: WH		WT WT WT	WF WF		
LINE 4	**SOR / SOE**		(CIRCLE ONE)			

	1	2	3	4	5	6	7	0	Remarks
LINE 4a									
LINE 4b									
LINE 4c									
LINE 4d									
LINE 4e									
LINE 4f									
LINE 4g									

LINE 5a	ADE	1	2	3	4	5
LINE 5b	WHITE		YELLOW		RED	

REMARKS:

UNIT											
INITIALS											

SECRET WHEN FILLED IN

Figure E-1. Example of a SAM/SHORAD Tactical Order

(2) Line 3b - Enter EA for Hawk units.

(3) Line 3c - Enter WCS for ABT and TBM threats and, if necessary, for SHORAD units.

e. Lines 4a-4g - When higher headquarters retransmits the SSTO to subordinate units, specify the directed status of readiness (SOR)/status of emissions (SOE) for each unit.

f. Lines 5a and b:

(1) Line 5a - Enter the defense readiness condition (DEFCON).

(2) Line 5b - Enter the ADW.

3. HIMAD SAMSTATREP

a. The HIMAD SAMSTATREP provides higher headquarters with the status of a unit, the availability of missiles, and an assessment of mission accomplishment. Classified "SECRET" when completed, the report gives the commander a snapshot of a unit's ability to execute current and future AD operations while alerting logistics personnel to the status of ammunition. Subordinate brigades send SAMSTATREPs at the following times:

(1) 0800Z and 1700Z with as-of times of 0600Z and 1500Z respectively.

(2) At any change in reportable information.

(3) After expending four or more missiles.

b. Guidance for completing the HIMAD SAMSTATREP follows:

(1) Unit - Self-explanatory.

(2) SOR/SOE - Enter the level of AD readiness/emissions the unit is maintaining.

(3) Missiles - Enter the number of missiles remaining at each battery/ battalion by type indicated.

(4) Current location - Self-explanatory.

(5) Primary target line (PTL) - Enter the azimuth, in degrees, the radar station is oriented on to acquire, track, and engage hostile targets.

(6) System data - Annotate whether weapon systems are operational or non-mission-capable (NMC).

(7) Estimated time of return to operation (ETRO) - Use the codes below to provide information on degraded (DEG) and NMC equipment. Enter a letter code followed by DEG or NMC. For example, enter E-NMC when an EPP is non-mission-capable.

(a) Following is an explanation of codes:

• A - ICC

• B - ECS

• C - RS

• D - AMG

• E - EPP

• F - LS

• G - GMT

• H - No missiles

• I - CRG

(b) Definitions follow:

• ICC - information and coordination central

• ECS - engagement control station

• RS - radar station

• AMG - antenna mast group

• EPP - electronic power plant

• LS - launcher station

• GMT - guided missile transporter

• CRG - communications relay group

(8) Proposed location - Self-explanatory.

(9) PTL - Enter the azimuth (in degrees) to which the radar station will be oriented.

(10) Defended priorities - Enter assets the unit is defending/protecting.

4. TBM Engagement Report

The TBM engagement report provides the number of TBMs engaged, missiles fired, and breakdown of TBM engagements by reporting unit. Submitted

HIMAD SAMSTATREP

SECRET
(WHEN FILLED IN)

EFFECTIVE DTG:_____ DUTY LOG#_____

UNIT	SOR/ SOE	MISSILES				CURRENT LOCATION	PTL	SYSTEM DATA	ETRO	PROPOSED LOCATION	PTL	DEFENDED PRIORITIES
		GEM	PAC-2	PAC-3	OPER							
TOTAL												

ROUTING

UNIT					
INITIALS					

Figure E-2. Example of a HIMAD SAMSTATREP

immediately after engagement, the report is classified "'SECRET" when filled in. Following is guidance for completing the report:

a. Preamble - Self-explanatory.

b. Unit - Self-explanatory.

c. Defended Asset - Annotate asset attacked and its DAL.

d. #TBMs engaged - Annotate number of missiles engaged by type:

(1) SCUD.

(2) "Al Hussein" (AH).

(3) "No-Dong" (ND).

d. Patriot missiles fired - Enter the number of missiles fired during engagement.

e. #TBMs destroyed - Enter the actual number of TBMs killed by type.

f. Leakers - Enter the number of TBMs by type that penetrated the AD system's coverage but were missed by the Patriot fire unit.

g. Warhead - Enter the type of warhead—chemical (CHEM) or high explosive (HE)—in TBM destroyed, if known.

(SECRET WHEN FILLED)

EFF DTG_____
VOLLEY#_____
NO. TEMs FIRED_____

UNIT	DEFENDED ASSET		#TEMs ENGAGED			PATRIOT MSLs	#TEMs DESTROYED			LEAKERS			WARHEAD	
	ASSET	PRIORITY	SCUD	AH	ND	FIRED	SCUD	AH	ND	SCUD	AH	ND	CHEM	HE

(SECRET WHEN FILLED)

Figure E-3. Example of a TBM Engagement Report

5. HIMAD Engagement Roll-Up Report

The HIMAD engagement roll-up report provides the number of engagements and missiles the reporting unit fired in a 24-hours period. The report, which is submitted daily NLT 1700 local (L) hours, with an as-of time of 1500L, is classified "SECRET" when filled in. Following is guidance for completing the report:

a. Column 1 - Self-explanatory.

b. Column 2 - Enter the asset the unit is protecting.

c. Column 3 - Enter the number of rotary-wing (RW) aircraft engagements.

d. Column 4 - Enter the number of fixed-wing (FW) aircraft engagements.

e. Column 5 - Enter the number of TBM engagements.

f. Column 6 - Enter the number of UAV engagements.

g. Column 7 - Enter the number of CM[??? Not identified.] engagements.

h. Missiles Fired/Total - Enter the number of missiles fired since last report.

i. Column 8 - Enter the number of RW aircraft killed.

j. Column 9 - Enter the number of FW aircraft killed.

k. Column 10 - Enter the number of TBMs destroyed.

l. Column 11 - Enter the number of UAVs destroyed.

m. Column 12 - Enter the number of CMs destroyed.

n. Total - Enter the total number of targets destroyed since last report.

o. Sending Unit - Self-explanatory.

p. Receiving Unit - Self-explanatory.

q. Initials - Enter the initials of the persons sending and receiving the report.

6. TBM Data Roll-Up Report

The TBM data roll-up report tracks missile launches and attrition while confirming or denying the enemy's OB, tactics, and techniques. The report, which is submitted daily NLT 1700Z, with an as-of time of 1500Z, is classified "SECRET" when filled in. Following is guidance for completing the report:

a. Volley # - Enter the TBM launch track designator.

b. Unit - Self-explanatory.

HIMAD ENGAGEMENT ROLL-UP REPORT
(SECRET WHEN FILLED)

EFFECTIVE DATE:_____ **DUTY LOG #**_____

# ENGAGEMENT BY TYPE								# KILLS BY TYPE					
1	2	3	4	5	6	7	MISSILES	8	9	10	11	12	
UNIT	DEFENDED ASSET	RW	FW	TBM	UAV	CM	FIRED/ TOTAL	RW	FW	TBM	UAV	CM	TOTAL

(SECRET WHEN FILLED)

ROUTING

SENDING UNIT						RECEIVING UNIT					
INITIALS						INITIALS					

Example E-4. Example of a HIMAD Engagement Roll-up Report

c. Time of launch - Enter DTG in Zulu time.

d. Defended asset - Enter asset unit is protecting.

e. Location of launch - Enter the current 6-digit grid location, including the unit's grid zone designator.

f. #TBMs launched - Self-explanatory.

g. Impact point - Enter the 6-digit grid location, including the impact point's grid zone designator.

h. Patriots fired - Enter the number of Patriot missiles fired at TBM missiles.

i. #TBMs/Type - Enter the type of missile launched.

j. #TBMs/Engagement - Enter the number of TBMs engaged.

k. #TBMs/Destroyed - Enter the number of TBMs destroyed.

l. Unit - Self-explanatory.

m. Initials - Enter the initials of the individual completing the form.

TBM DATA ROLL-UP REPORT										
(SECRET WHEN FILLED)										
VOLLEY #	UNIT	TIME OF LAUNCH	DEFENDED ASSET	LOC OF LAUNCH	# TBMs LAUNCHED	IMPACT POINT	PATRIOTS FIRED	# ITEMS		
								Type	ENG	DEST
(SECRET WHEN FILLED)										
ROUTING										
UNIT										
INITIALS										

Figure E-5. Example of a TBM Data Roll-up Report

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Glossary

A

A^2C^2	Army airspace command and control
AADC	area air defense commander
AAMDC	Army Air and Missile Defense Command
ABT	air breathing threat
ACA	airspace control authority
ACE (Army)	analysis and control element
ACM	airspace control measures
ACO	airspace control order
ACP	airspace control plan
AD	air defense
ADA	air defense artillery
ADAFCO	ADA fire coordination officer
ADE	air defense element
ADMIN/LOG	administration/logistics
ADOCS	Advanced Deep Operations Coordination System
ADP	air defense plan
ADSI	air defense systems integrator
ADW	air defense warning
AFATDS	Advanced Field Artillery Tactical Data System
AFB	Air Force base
AFDC	Air Force Doctrine Center
AFFOR	Air Force forces
AH	"Al Hussein"
AI	air interdiction
AIO	air intelligence officer
ALERT	attack and launch early reporting to theater
ALO	air liaison officer
AMD	air mobility division
AMDPCS	Air and Missile Defense Planning and Control System
AMDWS	air and missile defense workstation
AMG	antenna mast group
AO	area of operations
AOC	air operations center
AOR	area of responsibility
AOS	air operations squadron
ARFOR	Army forces
ASAS	all-source analysis system
ATACMS	Army Tactical Missile System
ATMD	army theater missile defense
ATO	air tasking order
AWACS	Airborne Warning and Control System
AWC	air warfare commander

B

BC	battle captain
BCD	battlefield coordination detachment

BDA	battle damage assessment
BFSV	Bradley fire support vehicle
BG	battle group
BM	battle management
BN	battalion
BTRY	battery

C

C^2	command and control
C^2W	command and control warfare
C^3	command, control, and communications
C^4	command, control, communications, and computers
C^4I	command, control, communications, computers, and intelligence
CA	counterair
CAOC	combined air operations center
CAPS	Commander's Analysis and Planning System
CAS	close air support
CCO	chief, combat operations
C/E	communications/electronics
CG	carrier group
CHEM	chemical
C&I	communications and information
CI	counterintelligence
CINC	commander-in-chief; commander of a combatant command
CIS	Combat Intelligence System
CJCSI	Chairman of the Joint Chiefs of Staff Instruction
C/JTF	combined/joint task force
CJTF-SWA	commander, Joint Task Force-Southwest Asia
CM	cruise missile
CMOC	Cheyenne Mountain Operations Center
COA	course of action
COMAFFOR	commander, Air Force forces
COMARFOR	commander, Army forces
COMMS	communications
COMNAVFOR	commander, Navy forces
COMSEC	communications security
CONOPS	concept of operations
CONPLAN	contingency plan
CONUS	continental United States
COORD	coordination
COP	common operations picture
CRC	control and reporting center
CRE	control reporting element
CRG	communications relay group
CSS	combat service support
CTAPS	Contingency Theater Automated Planning System
CTL	candidate target list
CTT3	commander's tactical terminal, 3 channel
CV	aircraft carrier
CVN	aircraft carrier, nuclear

CVRT	criticality, vulnerability, recuperability, threat
CWC	composite warfare commander

D

D3A	decide, detect, deliver, assess
DAADC	deputy area air defense commander
DAL	defended asset list
DCA	defensive counterair
DDO	defensive duty officer
DEFCON	defense readiness condition
DEG	degraded
DIRMOBFOR	director of mobility forces
DOCC	deep operations coordination cell
DS	direct support
DSN	Defense Switched Network
DSP	Defense Support Program
DSS1	Digital Satellite System 1
DTG	date-time group

E

E-2C (Navy)	Hawkeye AWACS
E&E	evasion and escape
EA	engagement area
EAC	echelons above corps
ECS	engagement control station
ELINT	electronic intelligence
EMCON	emissions control
ENG	engagement
EPP	electric power plant
ETRO	estimated time of return to operation
EW	electronic warfare

F

FA	field artillery
FAAD	forward area air defense
FCE	fire control element
FCO	fire control officer
FDC	fire direction center
FDL	FAAD data link
FDO	fighter duty officer
FEZ	fighter engagement zone
FM	field manual
FORSCOM	Forces Command
FSCM	fire support coordination measure
FSE	fire support element
FW	fixed wing

G

G1	Army personnel
G2	Army intelligence
G3	Army operations
G4	Army logistics
G6	Army communications
GALE	Generic Area Limitation Environment
GAT	guidance, apportionment, and targeting
GCCS	Global Command And Control System
GEM	guidance-enhanced missile
GEOREF	geographic reference
GMT	guided missile transporter

H

HE	high explosive
HELO	helicopter
HIMAD	highto medium air defense
HPT	high-payoff target
HQ	headquarters
HUMINT	human intelligence
HVAA	high-value airborne assets
HVT	high-value target

I

IBIS	Integrated Battlespace Intelligence System
ICC	information and coordination central
ID	identification
IEW	intelligence and electronic warfare
IFF	identification, friend or foe
IG	inspector general
IMINT	imagery intelligence
INFO	information
INTEL	intelligence
INTREP	intelligence report
INTSUM	intelligence summary
IP	internet protocol
IPB	intelligence preparation of the battlefield
IR	information requirements
ISR	intelligence, surveillance, and reconnaissance
IU	interface units

J

J2	joint staff intelligence directorate
J3	joint staff operations directorate
J5	joint staff plans directorate
J6	joint staff command, control, communications, and computer systems directorate

JAOC	Joint Air Operations Center
JASOP	joint air and space operations plan
JDISS	Joint Deployable Intelligence Support System
JEZ	joint engagement zone
JFACC	joint force air component commander
JFC	joint force commander
JFLCC	joint force land component commander
JFMCC	joint force maritime component commander
JIC	joint intelligence center
JICO	joint interface control officer
JIPB	joint intelligence preparation of the battlespace
JIPTL	joint integrated prioritized target list
JOA	joint operations area
JOC	joint operations center
JP	joint publication
JSEAD	joint suppression of enemy air defenses
JSOTF	joint special operations task force
JSTARS	Joint Surveillance, Target Attack Radar System
JTAGS	joint tactical ground station
JTCB	Joint Targeting Coordination Board
JTF	joint task force
JTIDS	Joint Tactical Information Distribution System
JTMD	joint theater missile defense

K

KY-68	tactical phone

L

L	local
LAN	local area network
LCC	land component commander
LHA	general-purpose amphibious assault ship
LHD	general-purpose amphibious assault ship with internal dock
LNO	liaison officer
LOC	line of communication
LRSU	long-range surveillance unit
LS	launcher station

M

MAAP	master air attack plan
MAGTF	Marine air ground task force
MAINT	maintenance
MARFOR	Marine forces
MARLO	Marine liaison officer
MCC	maritime component commander
MCS/P	maneuver control system/phoenix
MCWP	Marine Corps warfighting publication
METT-TC (Army)	mission, enemy, terrain and weather, troops and support available, time available, civil considerations

MEZ	missile engagement zone
MGMT	management
MLRS	Multiple-Launch Rocket System
MS	Microsoft
MSC	major subordinate command
MSTS	Multiple-Source Tactical System
MTOE	modified table of organization and equipment
MTR	motor
MTTP	multiservice tactics, techniques and procedures

N

NAF	numbered air force
NAI	named area of interest
NALE	naval and amphibious liaison element
NAVFOR	Navy forces
NBCCC	nuclear, biological, chemical coordination cell
NCA	National Command Authorities
ND	"No Dong"
NIPRNET	unclassified but sensitive internet protocol router network
NLT	no later than
NMC	non-mission-capable
NRT	near-real time
NWP	Navy warfare publication

O

OB	order of battle
OCA	offensive counterair
OIC	officer-in-charge
OPCON	operational control
OPLAN	operations plan
OPORD	operations order
OPS	operations
OPSEC	operations security
OPS/INTEL	operations/intelligence
OPTASKLINK	operations task link
OTC	officer in tactical command

P

PA	public affairs
PAC	Patriot advanced capability
PAWS	pager alert warning system
PIR	priority intelligence requirements
Pk	probability of kill
POL	petroleum, oils, and lubricants
PTL	primary target line

R

RADC	regional air defense commander
RFF	request for fire
RFI	request for information
RICO	regional interface control officer
ROE	rules of engagement
ROZ	restrictive operations zone
RS	radar station
RW	rotary wing

S

SADC	sector air defense commander
SADO	senior air defense officer
SALUTE	size, activity, location, uniform, time, equipment (report)
SAM	surface-to-air missile
SAMSTAT	surface-to-air missile status
SAMSTATRPT	surface-to-air missile status report
SATCOM	satellite communications
SCIF	sensitive, compartmented information facility
SEAD	suppression of enemy air defenses
SHORAD	short-range air defense
SIF	selective identification feature
SIGINT	signals intelligence
SIPRNET	Secret Internet Protocol Router Network
SJA	staff judge advocate
SMA	system message alerts
SME	subject matter expert
SOCCE	special operations command and control element
SODO	senior offensive duty officer
SOE	status of emissions
SOF	special operations forces
SOLE	special operations liaison element
SOP	standing operating procedure
SOR	status of readiness
SPINS	special instructions
SST	space support team
SSTO	SAM/SHORAD tactical order
STU III	secure telephone unit III
SYNCH	synchronize
SYSCON	systems control

T

TAADE	theater army air defense element
TAAMDCOORD	theater army air and missile defense coordinator
TACAIR	tactical air
TACC	tactical air command and control
TACON	tactical control
TACOPDAT	tactical operations data

TACS	tactical air control system
TADIL	tactical digital information link
TAI	target area of interest
TAOC (USMC)	tactical air operations center
TBM	tactical ballistic missile
TCTA	time critical targeting aid
TDDS	Tactical Data Dissemination System
TEL	transporter-erector-launcher
TES	theater event system
TGT	target
THAAD	theater high-altitude air defense
TIBS	Tactical Information Broadcast Service
TLAM	Tomahawk land-attack missile
TM	theater missile
TMD	theater missile defense
TOC	tactical operations center
TPFDL	time-phased force deployment list
TRAP	tactical related applications
TRE	tactical receive equipment
TSS	target selection standards
TST	time-sensitive targets
TTP	tactics, techniques, and procedures

U

UAV	unmanned aerial vehicle
UNAAF	unified action armed forces
US	United States
USA	United States Army
USAF	United States Air Force
USMC	United States Marine Corps
USN	United States Navy
USSPACECOM	US Space Command

V

VTC	video teleconference

W

WCO	weapons control order
WCS	weapons control status
WEZ	weapons engagement zone
WF	weapons free
WH	weapons hold
WMD	weapons of mass destruction
WOTS	worldwide origin of threat system
WT	weapons tight

Z

Z	Zulu

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