FM 4-30.1
(FM 9-6)

MUNITIONS DISTRIBUTION IN THE THEATER OF OPERATIONS

DECEMBER 2003

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***FM 4-30.1** (FM 9-6)

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Department of the Army
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Munitions Distribution in the Theater of Operations

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Preface

This manual prescribes doctrine for munitions support. It explains in general terms how munitions units operate and interact to provide munitions to the user. It is the basis for munitions doctrine, materiel, training, and organizational development. This manual addresses munitions unit missions, operations, and interactions between the various levels of munitions support.

This manual explains to combat arms (CA), combat support (CS), and combat service support (CSS) commanders and their staffs how and where they receive munitions support. It establishes guidelines and procedures for munitions unit commanders and their staffs while operating the munitions support structure.

This manual also discusses the modular ammunition platoon concept. There are two types of modular platoons: heavy lift and medium lift. The heavy lift platoon (HLP) is best suited for port, theater storage area (TSA), and corps storage area (CSA) operations. The medium lift platoons (MLPs) operate in TSAs and CSAs when needed, and are designed to operate ammunition supply points (ASPs). These platoons are capable of deploying and operating independently from their company headquarters, but require external support for sustainment. They allow the Army to effectively take advantage of technology such as the palletized loading system (PLS), configured loads (CLs), and containerized roll-on/-off platforms (CROPs). These palletized loads can be shipped to TSAs, CSAs, and ASPs. The type and number of platoons deployed is based on mission, enemy, terrain and weather, troops and support available, time available, civil considerations (METT-TC) and the commander's intent. Modular units provide a flexible design tailorable to the theater commander's intent. They allow the theater commander to expand and contract the ammunition supply capability when and where needed to meet operational requirements.

This publication implements the following standardization agreements (STANAGs):

- STANAG 2034 – Land Forces Procedures for Allied Supply Transactions, Edition 4, 20 December 1982.
- STANAG 2135 – Procedures for Emergency Logistics Assistance, Edition 3, 12 February 1982.
- STANAG 2827 – Materials Handling in the Field, Edition 2, 12 February 1980.
- STANAG 2829 – Materials Handling Equipment, Edition 2, 20 March 1978.
- STANAG 2834 – The Operation of the Explosive Ordnance Disposal Technical Information Center (EODTIC), Edition 2, 26 March 1990.
- STANAG 2928 – Land Forces Ammunition Interchangeability Catalogue in Wartime, Edition 3, 9 June 1995.
- STANAG 2961 – Classes of Supply of NATO Land Forces, Edition 1, 11 December 1984.

The proponent for this publication is United States Army Training and Doctrine Command (TRADOC). Send comments and recommendations on DA Form 2028 (*Recommended Changes to Publications and Blank Forms*) (or in 2028 format) directly to Commander, CASCOM, Directorate of Combat Development, DCD-OD, 3901 A Avenue, Fort Lee, VA 23801-1713.

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

Chapter 1
Munitions Operational Environment

The digitized, force projection Army of the future requires efficient logistics organizations that are quickly adaptable to the warfighter's needs. Our Army has moved from a threat-based force to a capabilities-based force able to dominate across the spectrum of conflict. Leading this will be the digitized Army XXI division—the backbone of the Army's capabilities-based force. It eventually will be supported by a hybrid of forces (special operations, strike, contingency light, and contingency heavy forces). Our logistics organization must be capability-based, modular for flexibility, able to anticipate and predict logistics requirements sooner, have pipeline visibility, focus limited logistics resources at the point of need, and able to react faster than ever before. The recent creation of forward support companies in the digitized Army XXI division will employ many of these attributes. Our overarching objective is to achieve a single CSS [combat service support] operator at each echelon to facilitate maximum throughput and follow-on sustainment.

Army Logistician

The ammunition logistics system provides the right type and quantity of ammunition to the force in any contingency from general war to military operations other than war (MOOTW) engaging the "full spectrum of operations." The challenge is to move required amounts of modern high lethality ammunition into a theater from the continental United States (CONUS) sustaining base and other prepositioned sources in a timely manner to support a CONUS-based contingency response force. The system must also be flexible enough to meet changing ammunition requirements in simultaneous operations around the world. The objective of the system is to provide configured Class V support forward to the force as economically and responsively as possible with a minimum of handling or reconfiguration. Effective and efficient ammunition support requires integrated information and distribution management at all levels from the national provider/industrial base to the combat user.

CONTENTS

PURPOSE AND SCOPE

1-1. Munitions are the dominant factor in determining the outcome of combat or stability and support operations. It is a critical component of fire and maneuver operations performed by the force projection Army. Munitions provide the means to defeat, as well as destroy, the enemy, and provide the force with the ability to block, screen, or protect itself. Major military operations will be joint or coalition and based on unexpected contingencies. These operations will require the munitions logistics system to be modular, tailored, easily deployed, and flexible.

FULL SPECTRUM OPERATIONS

1-2. Army commanders at all echelons may combine different types of operations simultaneously and sequentially to accomplish missions in war and MOOTW/stability and support operations. Throughout a campaign, offensive, defensive, stability, and support missions occur simultaneously. When conducting full spectrum operations, commanders combine and sequence these operations to accomplish the mission. For each mission, the joint force commander (JFC) and Army component commander (ACC) determine the emphasis Army forces place on each type of operation. Offensive, defensive, support, and stability (ODSS) operations represent the range of *decisive operations* that comprise full spectrum operations. The predominant decisive operations associated with war are offensive and defensive operations, while MOOTW/stability and support operations encompass a wide range of military actions taken to deter war, resolve conflict, and promote peace. MOOTW/stability and support operations may include offensive and defensive operations, but the major effort is generally on stability operations and support operations

1-3. Future military operations will require that ammunition units be effective, efficient, highly mobile organizations. Battles may be non-linear in non-contiguous environments and require rapid movement, multiple relocations, and the ability to support and sustain maneuver forces in a variety of mission profiles. Thus, ammunition support units must be capable of adapting to many scenarios and configurations. Depending on the size of the supported force, an ammunition unit may conduct sustainment operations in either a company or modular configuration. Modular configurations will be based on operational needs. This may mean that a single modular platoon could be deployed to support a brigade contingency, or a number of platoons and/or companies could be deployed to support a mature theater. When deployed separately or modular, the heavy lift or medium lift platoons are supported by the organizational headquarters to which they are tasked organized. When deployed with the headquarters modular ammunition company, the food service support will come from this element. For all other support they will rely on their support from appropriate elements of the corps or theater support for religious, combat, legal, health support, and finance personnel and administrative services in any deployment scenario.

COMBAT SERVICE SUPPORT CHARACTERISTICS

1-4. Force commanders apply the CSS principles to visualize and describe the concept of logistics support with CSS commanders. Commanders view CSS characteristics from the perspective of the overall operation and use

these characteristics to help describe the considerations required to plan, prepare, execute, and assess successful operations. They guide prudent planning and assist the staff in developing the CSS plan. CSS characteristics include—

- Responsiveness.
- Simplicity.
- Flexibility.
- Attainability.
- Sustainability.
- Survivability.
- Economy.
- Integration.

MUNITIONS SUPPORT MISSION

1-5. The role of the ammunition logistics system is to provide the right type and quantity of ammunition to the force in any contingency, from full scale contingencies to MOOTW/stability and support operations. The challenge is to move required amounts of ammunition into a theater from the CONUS sustaining base and other prepositioned sources in a timely manner to support a CONUS-based contingency response force. The system must also be flexible enough to meet changing ammunition requirements in simultaneous operations around the world. The objective of the system is to provide mission-configured load (MCL) support forward to the force as economically and responsively as possible to minimize handling and reconfiguration. The unique characteristics of ammunition complicate the system of ammunition distribution. These factors include its size, weight, and hazardous nature. It requires special handling, storage, accountability, quality assurance, and security.

1-6. The Army's ability to react and sustain the battle improves the chances of conducting a successful operation. The munitions logistical support plan must mesh the tactical level commander's plan to the operational and strategic plans. This helps ensure timely support and sustains the operation. Commanders, with advice from logisticians, tailor support packages to meet theater requirements for a variety of strategic contingency plans. The use of modular ammunition units/platoons increases our ability to meet theater munitions requirements. They will deploy based on operational needs that ease strategic lift requirements. Chapter 2 contains detailed information on munitions unit missions and organization.

1-7. Similar to any other logistical support, ammunition support requires that the unit have the appropriate mix of personnel, military occupational specialty (MOS) skills, and tools and equipment to accomplish the mission. Modular platoons and companies are 100 percent mobile; however, they are only sustainable for a short period of time.

FORCE XXI MUNITIONS STRUCTURE

1-8. When based on modularity, Force XXI munitions structure meets the needs of a force projection Army more effectively. The headquarters (HQ), modular ammunition ordnance company efficiently supports a more flexible munitions distribution system. The concept of modular units permits the building of ammunition units tailored for specific functions. Modules

consisting of HLPs, MLPs, or a combination of both, with companies can be deployed to support forces as required. This HQ platoon will always be located with a minimum of one MLP or HLP. This organization allows for modules to be sent forward to support other munitions units when required. In an area of operations (AO), the condition of facilities may be uncertain and operational support may be unstable for an undetermined period of time. Since there is no one scenario for combat operations/stability and support operations, ammunition units must be prepared to support operations ranging from peacekeeping to regional conflicts to major war. Chapter 2 of this manual and FM 4-30.13 provide detailed information on munitions unit structure and capabilities.

OBJECTIVE FORCE MUNITIONS

1-9. The objective force will challenge the Army's ability to meet its force projection requirements. Highly mobile, multifunctional organizations must be capable of projecting munitions support anywhere in the world. The converging challenges of the objective force have been described as—

- Distinctions between conventional and unconventional.
- Symmetric and asymmetric.
- Traditional and non-traditional.
- Expeditionary and homeland security.
- Fading tactical/operational/strategic operations.

1-10. This blurring emphasizes the need for full spectrum forces with special purpose capabilities. To meet this myriad of challenges, munitions units will continue to evolve, improving efficiency and maximizing the use of technological enablers, integrated communications, and seamless logistics automated systems to meet the munitions demands of the deployed forces during decisive operations.

SUPPORTED UNITS

1-11. Every unit on the battlefield requires munitions. Providing sufficient types and quantities at the right place and on time is critical to the success of combat, and stability and support operations. When the Army fights as part of a joint, multinational, or combined force, munitions units may support other U.S. services and allied forces. Class V requirements for possible contingencies are determined during peacetime planning. Planners consider the concepts of operation and organization, including the projected force deployment sequences; the availability of stocks and storage locations, and deployability into various theaters; and the responsiveness of the production base to meet shortfalls. As the force receives new weapon systems and munitions, there will be an evolving mix of "high-low" technology munitions, which the logistics system must be able to support. FM 3-0, FM 4-0, and FM 4-30.13 detail supported unit characteristics and planning considerations.

Joint Operations

1-12. Joint integration of ammunition support is crucial to unity of effort. Army ammunition units support the requirements of other services during joint operations. In computing the required supply rate (RSR)/controlled supply rate (CSR), these requirements must be forecasted and considered. Failure to plan for this support may result in severe shortages of critical ammunition items and handling capability. Plans must consider efficiencies gained by having integrated ammunition support. The plans must be

coordinated with the various services involved to ensure adequacy of personnel, storage requirements, materiel-handling equipment (MHE), accountability procedures, and safety.

Multinational Operations

1-13. Combined and coalition logistics operations require integration for unity of effort. Procedures for ammunition support must be worked out during the planning phase of a deployment or operation. This ensures interoperability and availability of handling equipment. Multinational forces may not be able to utilize efficiencies of U.S. logistics technologies, such as the PLS or container/materiel handling equipment (C/MHE). Ammunition planners must integrate these factors into the logistics preparation of the theater (LPT). During emergency deployments there may not be time to develop formal inter-country agreements. Planners must develop methods to preclude competition for resources, particularly infrastructure and lines of communication (LOC) that could adversely affect operations. Planners should consider options for contracting, acquiring host nation support (HNS), or obtaining support from other national forces, then integrating this support into the multinational force as outlined in FM 100-7.

SUPPORT ENVIRONMENT

1-14. To retain maximum flexibility and mobility for future combat operations, ammunition units must maintain minimum essential stocks throughout the distribution system. The need to protect ammunition support activities from rear area threat activities complicates munitions support operations. Ammunition units require augmentation to provide security for ammunition support activities. Ammunition units may find themselves close to combat. In such situations, units must continue to provide essential munitions support while relocating away from the threat. Disruptions from threat forces are likely to occur throughout the theater of operations; from brigade support areas (BSAs) to deep within the communications zone (COMMZ). Chapter 2 contains detailed information on the doctrinal layout of a mature ammunition system in a developed theater.

SUPPORT STRUCTURES

1-15. Munitions support units are organized to meet mission support requirements. Each unit has the appropriate mix of personnel, MOS skills, tools, and equipment to accomplish assigned missions. The types of ammunition support activities in theater include TSAs, CSAs, and ASPs. The goal of an ammunition transfer point (ATP) is to provide, as closely as possible, 100 percent of the ammunition requirements to all units within its sector.

1-16. The TSA encompasses storage facilities located in the COMMZ, where the bulk of the theater reserve ammunition stocks are located. TSAs are operated and maintained by modular ammunition companies with a mixture of HLPs/MLPs. Besides shipping ammunition to CSAs, the TSA provides area ammunition support to units operating in the COMMZ. The Army service component commander (ASCC) determines the TSA stockage objective.

1-17. The CSA is the primary source of high-tonnage ammunition for the division and corps. CSAs receive 50 percent of their ammunition from the

port of debarkation (POD) and 50 percent from the TSA. Containers will go only as far forward as the CSA.

1-18. In the division area, ASPs receive, store, issue, and maintain a one- to three day supply of ammunition. ASP stockage levels are based on tactical plans, availability of ammunition, and the threat to the resupply operations. ASPs provide 25 percent of each ATP ammunition requirement in the form of MCLs.

1-19. ATPs are located in/near each BSA with an additional rear ATP for the division support area (DSA) that comes from the MLP the mission of each ATP is to provide 100 percent of the ammunition required by all units in its sector. ATPs receive 75 percent of their ammunition from the CSA and 25 percent from the ASP. These munitions are kept loaded on semitrailers, CROPs, or PLS flatracks until ATP personnel transload it to using unit vehicles. If the situation demands, the ammunition can be transferred immediately to using unit tactical vehicles. Detailed information on ammunition support activities (ASAs) and ammunition units is contained in chapter 2 and FM 4-30.13.

STRATEGIC MUNITIONS PLANNING

1-20. For the ammunition planner at the Department of the Army (DA) level, planning is based on the Defense planning guidance (DPG). DPG provides scenarios modeled and integrated into Army force structure, budgeting, procurement actions, and operational plans (OPLANs). Ammunition planning at the DA level considers the following:

- Priorities.
- Mission synchronization.
- Threat capabilities.
- Production base.
- Transportation assets.
- Consumption rates determined by the U.S. Army Concepts Analysis Agency (USACAA).
- Depot stocks.
- Prepositioned stocks afloat.
- Worldwide ammunition stocks.
- Echeloning of units using time-phased force deployment (TPFD).

LOGISTICS PREPARATION OF THE THEATER

1-21. The LPT process is an evolving continuum of logistics planning and execution, and is vitally important to the continuous resolution of sustainment challenges and opportunities. This process includes all actions taken by CSS personnel to maximize the methods supporting the commander's plan. These actions include identification and preparation of bases of operations and LOC, forecasting and building reserves forward and afloat, and improving theater infrastructure. LPT involves two closely related types of activities: information gathering and management activities required to prepare the theater to receive and sustain forces.

LOGISTICS PREPARATION OF THE THEATER RESPONSIBILITIES

1-22. The primary responsibility for LPT is handled at theater, strategic, and operational levels by the combatant commander's and ASCC support staffs. The combatant commander's staff considers available resources and requirements across all services. This staff ensures limited resources reach the organization's most essential accomplishment The ASCC staff performs LPT activities in accordance with the combatant commander's priorities. See FM 4-0, FM 100-10-1, and FM 100-16 for detailed information on the LPT process.

INFORMATION GATHERING AND MANAGEMENT

1-23. CSS personnel require several types of information to develop theater support plans. This information includes all factors influencing support requirements and the conduct of CSS operations. These factors include terrain and climate, and any theater-specific agreements to provide support to joint or multinational forces. Critical information also includes all information on available resources in the operational area.

RESOURCE AVAILABILITY

1-24. The CSS process consists of making arrangements to gain access to the resources identified in the information-gathering stage. Resource availability information also includes data on the geographical area's infrastructure. This encompasses a wide-ranging set of considerations including—

- Seaport and airport capacities.
- Transportation networks.
- Communications networks.
- Fuel storage and distribution facilities.
- Utility systems.
- Medical facilities.
- Billeting facilities.
- Financial institutions.
- Postal systems.
- Other fixed facilities.

HOST NATION CONSIDERATIONS

1-25. CSS personnel must know any factors that may influence access to local resources, such as political or economical conditions. Another critical category of information relates to any arrangements currently in place that affect support to the theater of operations, such as HNS, foreign national (third country) support agreements, interservice support agreements, multinational force compatibility agreements, security assistance agreements, the Logistics Civilian Augmentation Program (LOGCAP), and prepositioned stocks. Informational sources for the aforementioned will vary.

INTELLIGENCE PREPARATION OF THE BATTLEFIELD

1-26. Intelligence preparation of the battlefield (IPB) provides weather and terrain information to the LPT process. Intelligence also identifies the vulnerability of CSS sites and operations to enemy action, in both forward and rear areas. CSS personnel carefully manage information flows. FM 34-130 and FM 100-16 provide additional information on IPB.

THEATER PREPARATION ACTIVITIES

1-27. Logistics preparation (LPT) includes negotiating specific HNS agreements. It also includes coordinating with strategic-level CSS managers to gain access to prepositioned stocks or assets received through national-level agreements. The initial lodgment or support base requires adequate port facilities capable of supporting the throughput requirement identified in the operations plan. The base should include container handling capabilities, secure facilities for maintenance operations, soldier support functions, and storage of ammunition.

1-28. Transportation networks from potential base locations to forward areas must be capable of handling theater onward movement requirements. Network elements include roads, nets with adequate capacities, bridges, rail nets, inland waterways if applicable, and MHE.

INFRASTRUCTURE ENHANCEMENT

1-29. Army capabilities must include improvements accomplished IAW combatant commander-established priorities. The first elements to deploy should be terminal operators or engineers to enhance the base's capability to receive additional forces. The requirement for adequate CSS capability is especially critical in the early stages of operations. In addition, support planners consider opportunities for training that also serve as nation-building activities in austere environments. Such environments may be the best locations for realistic training conditions for activities, such as building or repairing airstrips, piers, and roads, and preparing marshaling sites. For more information, refer to FM 3-0.

Movement of Munitions Stocks

1-30. The number of theater HLPs must be considered prior to requesting containerized ammunition. Containerization significantly improves delivery times of munitions and other selected cargo to the AO by reducing handling, shipload, and discharge times. However, effective use of the system requires advanced planning to ensure necessary C/MHE is available. For more information on this aspect of planning, see FM 100-16 (will be revised as FM 3-100.16).

Operational and Tactical Munitions Planning

1-31. At the operational and tactical levels, logistics preparation of the battlefield (LPB) is as critical as IPB. The ammunition planner uses the tactical commander's mission analysis to ensure a complete understanding of what must be accomplished. The ammunition planner participates in the orders process by preparing the munitions piece of the logistics estimate. Chapter 2 and FM 4-30.13 detail the doctrinal layout of a mature ammunition system in a developed theater.

Logistics Preparation of the Battlefield

1-32. Tactical CSS planners depend on information gathered in the LPT process. Tactical-level support personnel employ LPT methods as the LPB. LPB is a conscious effort to identify and assess the factors that facilitate, inhibit, or deny support to forces at the tactical and, sometimes, operational levels. Thorough information gathering in the early stages of LPB ensures adequate information is available to the concept of support. LPB also includes establishment of bases, including any forward logistics bases,

required to reduce distances supported elements must travel. In general, many of the factors listed above for LPT also apply to LPB.

DISTRIBUTION OPERATIONS

1-33. Distribution is the process of synchronizing all elements of the CSS system to deliver the "right things" to the "right place" at the "right time," in support of the combatant commander. The distribution system, as displayed in figure 1-1, is a complex of networks tailored to meet the requirements of the military force across the range of operations. Distribution is inherent in the LPT process and continues throughout CSS activities at all levels of operations. Distribution includes the receipt, storage, and maintenance of equipment in transit, and the movement and control of resources between the receipt of materiel and personnel into the system until final delivery to the user. Distribution is the key to CSS operations. FM 4-0 and FM 100-10-1 (FM 4-01.1) detail distribution operations and the planning process.

1-34. Distribution is defined in JP 1-02 as that functional phase of logistics that embraces the act of dispensing materiel, facilities, and services; and the process of assigning military personnel to activities, units, or billets. FM 100-10-1 (will be revised as FM 4-01.1) describes the transition of the theater distribution system from a mass and stovepipe-oriented functional system to a distribution-based CSS system leveraging available automation and information technology. The ultimate goal of both requirements' determination and acquisition of resources is the provision of personnel, materiel, and services to the supported force. Identification of available resources (and in some cases, requirements for certain types of support) depends on the capability of the distribution system. FM 100-10-1 (will be revised as FM 4-01.1) provides extensive detail on distribution operations.

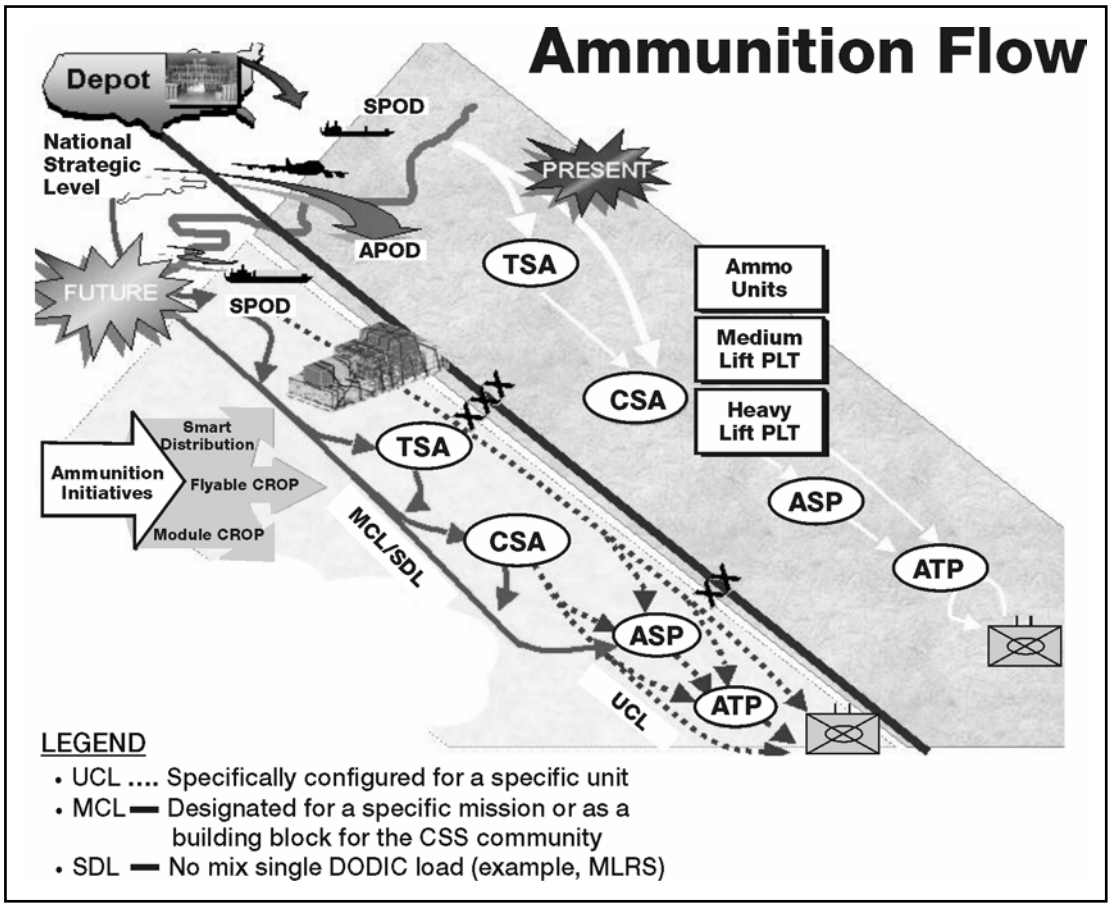


Figure 1-1. Distribution Operations

MUNITIONS DISTRIBUTION MANAGEMENT

1-35. Materiel managers located in the distribution management centers (DMCs) at theater, corps, and division support commands along with other functional organizations/directorates and control center elements, are responsible for managing theater distribution by balancing the existing capabilities of the distribution infrastructure with the current and projected operational requirements. Distribution management is the process of planning and synchronizing the time-definite delivery of materiel, equipment, units, personnel, and services to and within the AO. FM 10-1 (will be revised as FM 4-20) provides extensive detail on the functions of the DMCs at each echelon. Theater DMCs work with CSS resource managers and movement controllers to—

- Provide an integrated distribution information network. Leverage all available distribution infrastructure and optimize pipeline flow to meet requirements/priorities by implementing distribution management theories and practices.
- Project distribution pipeline volume, flow rates, contents, and associated node and port handling requirements. Integrate force generation and force sustainment operations. Manage operations and the flow of multiconsignee shipments.

- Coordinate, align, and reconcile receipts of CSS resources with in-theater movement control operations.
- Ensure effective cross-leveling of supplies, and efficient retrograde and redeployment of equipment, personnel, supplies, and services.
- Establish theater-specific, time-definite delivery schedules for routine and high-priority requirements through the use of intra-theater distribution and inter-theater surface/air express networks.

1-36. To meet these requirements, distribution managers apply the following principles.

PRINCIPLES OF DISTRIBUTION

1-37. The principles of distribution emphasize centralized management, optimized infrastructure, maximized throughput, minimized forward stockpiling, and a continuous and seamless flow of materiel. Successful distribution must be both effective and efficient. Anticipation, integration, continuity, responsiveness, and improvisation facilitate effective and efficient distribution operations. Commanders and support personnel who integrate CSS concepts and operations with strategic, operational, and tactical plans must anticipate requirements, maintain visibility of the distribution pipeline, and be able to effect rapid and positive control within the distribution system. The theater distribution system allows units to request, receive, sort, maintain, distribute, retrograde, and control the flow of resources between the point of entry into the theater system and the theater destination.

COMPONENTS OF DISTRIBUTION MANAGEMENT

1-38. The scope of a distribution plan is limited to explaining exactly how the DMC will maintain asset visibility; adjust relative capacity; and control the flow of supplies, services, and support capabilities in theater. Distribution management operations are broadly described as a function of three critical components: visibility, capacity, and control.

Visibility

1-39. Visibility must begin where resources start their movement to the AO, whether that is a depot, commercial vendor, storage facility, APS stockpile, or a CONUS/OCONUS unit power projection platform. The information must be digitized and subsequently entered into the necessary CSS information systems.

Capacity Management

1-40. Capacity management deals with balancing distribution system capacity against evolving changes in theater support requirements. The ability to anticipate distribution bottlenecks, disruptions, and changes in the distribution operational scheme is a key factor in allowing the successful distribution manager to optimize a theater's distribution capacity. Theater and corps ammunition supply activities provide the foundation for the in-theater distribution plan.

Control

1-41. The responsiveness of a control process is comparable to the timeliness of management visibility. When changing directions, the manager includes time for the physical actions of the directional change to occur. Theater

distribution managers use asset visibility, JFC policy, and service cooperation to apply control measures to the theater distribution system.

1-42. Enabling technologies are used to determine how effectively the distribution system operates and maintains itself. Situational understanding (SU) is improved significantly using a combination of current and emerging technologies. The DMC is the focal point for controlling the continuity of the Army distribution pipeline through situational understanding (SU) resulting from joint total asset visibility (JTAV)/Army total asset visibility (ATAV).

ENABLING TECHNOLOGIES

1-43. Enabling technologies and the ability to integrate current and new systems into CSS distribution systems is essential to developing and maintaining effective distribution operations. Fielding key equipment enablers focused on high speed delivery and efficient distribution of supplies is changing the way logisticians approach the planning for seamless logistics distribution on the battlefield. The battlefield distribution concept is predicated on several key technological platform enablers. The PLS is a mobile, self-contained, materiel handling system engineered to transport, drop, and retrieve flatrack loads. The PLS dramatically reduces transloading and the multiple handling of cargo, expediting the delivery of supplies to the user. The container handling unit (CHU) is an add-on kit for the PLS and load handling system (LHS), and is used to drop, retrieve, and transport 20-foot containers.

1-44. The CROP is a redesign of the PLS platform, allowing conformance to the interior capacity of a standard International Standards Organization (ISO) freight container. Strategic, operational, and tactical movements of munitions are greatly enhanced, resulting in increased logistics velocity and throughput of supplies to the user.

1-45. The movement tracking system (MTS) is a satellite-based, two-way communications system that uses global positioning technology to track and control ground transportation assets anywhere in the world. The MTS provides near real-time transportation asset location, movement data, and SU of munitions in the distribution pipeline.

CONFIGURED LOADS

1-46. FM 100-10-1 describes how munitions are configured into MCLs, packaged on a container/LHS (PLS, CROP), and shipped in a standard 20-foot ISO to a theater of operations. Delivery of CLs of unit-matched packages of ammunition in a complete round configuration is transported as single units and quickly throughput to the user. CLs are preplanned loads of supplies built to anticipated or actual needs, intended for maximum throughput with minimal reconfiguration. The loads may be built for a specific mission (MCL) or for a specific unit (unit-configured load [UCL]). The Army has developed sufficient CLs, reference that support the warfighting units.

1-47. The AMC has maximized the tonnage capacity of the containers being shipped from CONUS depots. Although each CL is designed to meet unit and mission requirements, planners must be aware that cargo vehicles (PLS) assigned to the artillery units supporting field support command (FSC) have a cargo capacity of 16½ short tons (STONs) per flatrack, while cargo vehicles

(LHS) assigned to the maneuver units supporting FSC have a cargo capacity of only 11 STONs per flatrack.

1-48. DMCs located within theater/corps management centers and the DSA manage the theater distribution system by accessing asset and in-transit visibility (AV/ITV) system, tracking shipments as necessary. They also establish priorities to ensure theater infrastructure is balanced with the resource flow requirements. This is accomplished through DMC staff supervision of distribution terminals and control centers, and in close coordination with the functional elements. (For access to the CASCOM Battle Book visit www.cascom.lee.army.mil/private/dcd_qm "*Distribution Based Logistics Configured Loads Concept Battle Book.")*

COMMUNICATIONS AND AUTOMATION

> Building stovepipe systems is a "prerevolutionary" business practice none of us can afford again. The full success of the single seamless logistics system will be measured by how well GCSS–Army ties into other critical automation tools such as the Combat Service Support Control System (CSSCS) and the Transportation Coordinator's Automated Information for Movements System–II (TC AIMS–II). The ability to pass the logistics STAMIS–type information through GCSS–Army, and then share a portion of it with CSSCS, will start giving future logisticians a "common logistics picture" across all echelons. The same concept applies to getting critical transportation movement information through the TC AIMS-II and into CSSCS, thereby giving the future logistician information dominance (ID).
>
> Army Logistician

1-49. Situational understanding (SU) of support personnel and their ability to manage CSS operations depends on effective communications and automated systems that will interface with all services' automated CSS systems, global transportation network, global positioning system, and theater command and control (C2) systems. FM 4-0 and FM 100-10-1 describe the importance of the voice and data communications systems to seamless logistics operations. Nodes within the distribution system must be able to communicate with each other within specified time and design parameters.

COMMUNICATIONS

1-50. Ammunition units must have reliable communications to accomplish their mission. Effective communications networks must be established to ensure the success of ammunition support in the theater of operations. These networks must relay accurate and timely information between supported and supporting units, the DMCs, and the division ammunition officer (DAO). They must also interface with the combat and combat support networks of units supported by ammunition units. The most critical link is the one between the accountable standard Army ammunition system (SAAS) level and those responsible for stock status reporting. This link provides necessary data to the ASCC, enabling critical decisions to be determined in support of the combat forces. Figure 1-2 illustrates standard Army ammunition system—modernized (SAAS-MOD) data flow.

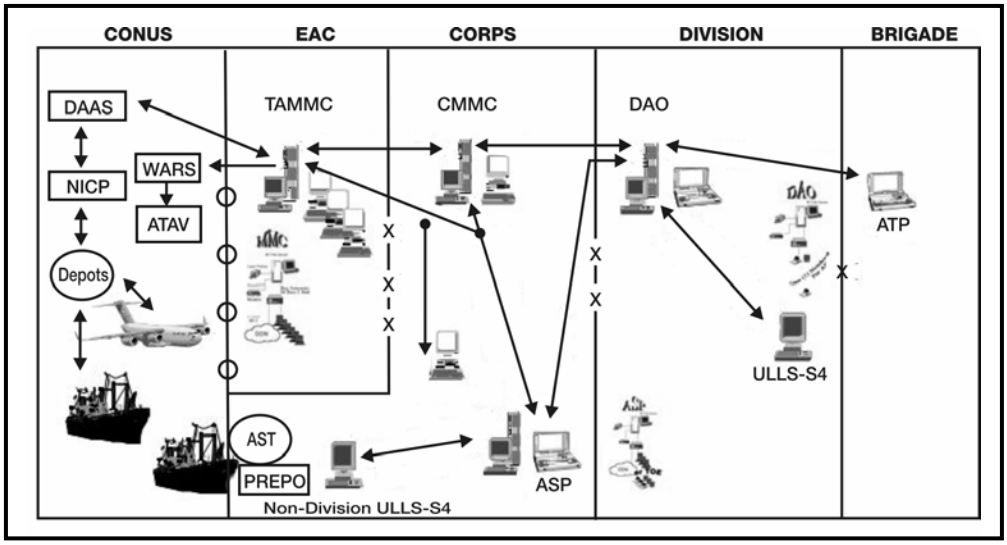


Figure 1-2. SAAS-MOD Current Data Flow

SYSTEMS INTERFACE

1-51. Improved SU gained through the use of innovative logistics automation systems allows distribution managers at all levels to monitor the logistical distribution system from the "factory to the foxhole." CSS also depends on requirements generated by, and managed through, the respective standard Army management information systems (STAMIS). The objective automated environment will greatly enhance the ability of CSS commanders and staffs to communicate current status and near-term capabilities to force commanders, as well as to anticipate requirements. The Combat Service Support Control System (CSSCS), a component of the Army Battle Command System (ABCS), provides critical CSS information for theater and force-level commanders.

1-52. At unit level, the Battle Command Sustainment and Support System (BCS3) tracks those munitions items (figure 1-3) appearing on the BCS3 commander's tracked items list (CTIL). Additionally, ammunition asset displays report assets for all forces (figure 1-4). As a result of its interface with the SAAS, the BCS3 provides status displays of Class V assets (figure 1-5) within the division and corps areas. Ammunition stockage data flows from CSAs and ASPs to the battalion, the group, the corps support command (COSCOM) operations section, and the corps materiel management center (CMMC).

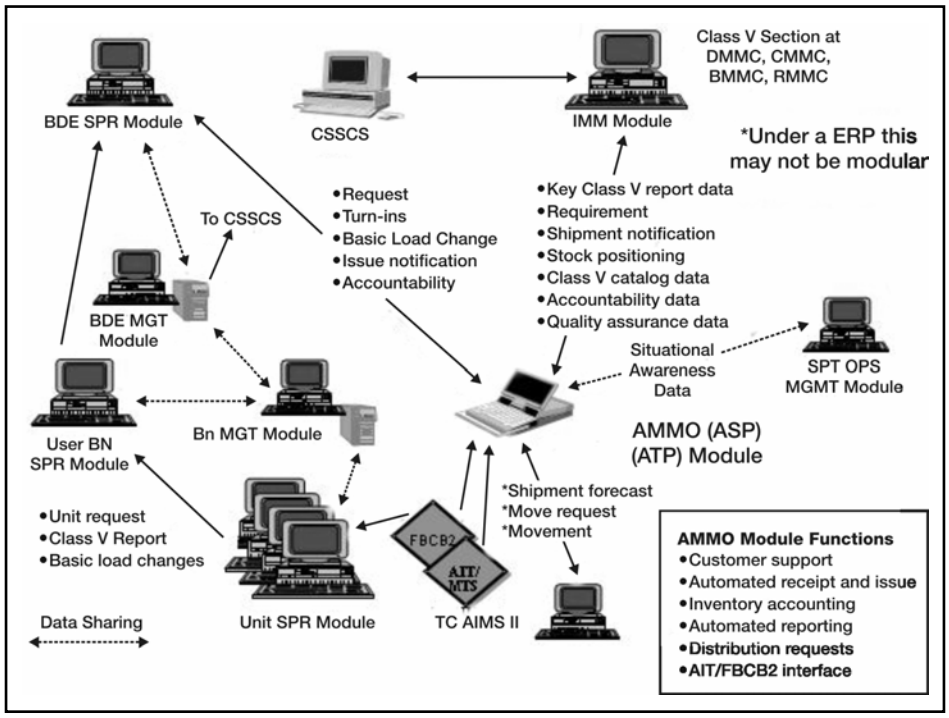
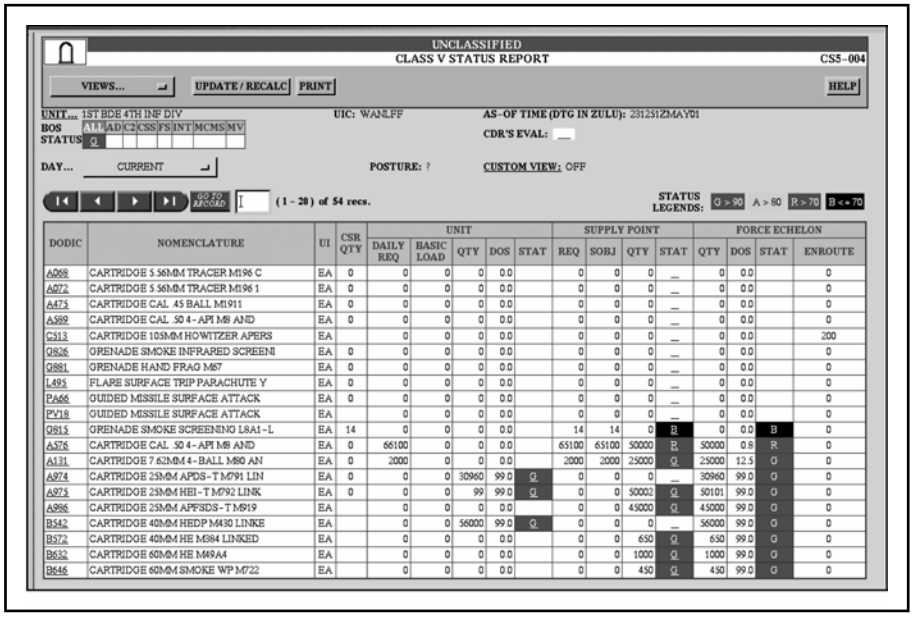


Figure 1-3. The GCSS-Army



UNCLASSIFIED
CLASS V STATUS REPORT CS5-004

VIEWS... | UPDATE / RECALC | PRINT | HELP

UNIT... 1ST BDE 4TH INF DIV UIC: WANLFF AS-OF TIME (DTG IN ZULU): 231251ZMAY01
BOS ALL AD C2 CSS FS INT MCMS MV
STATUS G
CDR'S EVAL:
DAY... CURRENT POSTURE: ? CUSTOM VIEW: OFF

GO TO RECORD 1 (1 - 20) of 54 recs. STATUS LEGENDS: G > 90 A > 80 R > 70 B <= 70

DODIC	NOMENCLATURE	UI	CSR QTY	UNIT					SUPPLY POINT				FORCE ECHELON			
				DAILY REQ	BASIC LOAD	QTY	DOS	STAT	REQ	SOBJ	QTY	STAT	QTY	DOS	STAT	ENROUTE
A068	CARTRIDGE 5 56MM TRACER M196 C	EA	0	0	0	0	0.0		0	0	0	_	0	0.0		0
A072	CARTRIDGE 5 56MM TRACER M196 1	EA	0	0	0	0	0.0		0	0	0	_	0	0.0		0
A475	CARTRIDGE CAL .45 BALL M1911	EA	0	0	0	0	0.0		0	0	0	_	0	0.0		0
A589	CARTRIDGE CAL .50 4-API M8 AND	EA	0	0	0	0	0.0		0	0	0	_	0	0.0		0
C513	CARTRIDGE 105MM HOWITZER APERS	EA		0	0	0	0.0		0	0	0	_	0	0.0		200
Q826	GRENADE SMOKE INFRARED SCREENI	EA	0	0	0	0	0.0		0	0	0	_	0	0.0		0
Q881	GRENADE HAND FRAG M67	EA	0	0	0	0	0.0		0	0	0	_	0	0.0		0
L493	FLARE SURFACE TRIP PARACHUTE Y	EA	0	0	0	0	0.0		0	0	0	_	0	0.0		0
PA66	GUIDED MISSILE SURFACE ATTACK	EA	0	0	0	0	0.0		0	0	0	_	0	0.0		0
PV18	GUIDED MISSILE SURFACE ATTACK	EA		0	0	0	0.0		0	0	0	_	0	0.0		0
Q815	GRENADE SMOKE SCREENING L8A1-L	EA	14	0	0	0	0.0		14	14	0	B	0	0.0	B	0
A376	CARTRIDGE CAL .50 4-API M8 AND	EA	0	66100	0	0	0.0		65100	65100	50000	R	50000	0.8	R	0
A131	CARTRIDGE 7 62MM 4-BALL M80 AN	EA	0	2000	0	0	0.0		2000	2000	25000	G	25000	12.5	G	0
A974	CARTRIDGE 25MM APDS-T M791 LIN	EA	0	0	0	30960	99.0	G	0	0	0	_	30960	99.0	G	0
A975	CARTRIDGE 25MM HEI-T M792 LINK	EA	0	0	0	99	99.0	G	0	0	50002	G	50101	99.0	G	0
A986	CARTRIDGE 25MM APFSDS-T M919	EA		0	0	0	0.0		0	0	45000	G	45000	99.0	G	0
B542	CARTRIDGE 40MM HEDP M430 LINKE	EA		0	0	56000	99.0	G	0	0	0	_	56000	99.0	G	0
B572	CARTRIDGE 40MM HE M384 LINKED	EA		0	0	0	0.0		0	0	650	G	650	99.0	G	0
B632	CARTRIDGE 60MM HE M49A4	EA		0	0	0	0.0		0	0	1000	G	1000	99.0	G	0
B646	CARTRIDGE 60MM SMOKE WP M722	EA		0	0	0	0.0		0	0	450	G	450	99.0	G	0

Figure 1-4. CSSCS Consolidated Class V Report

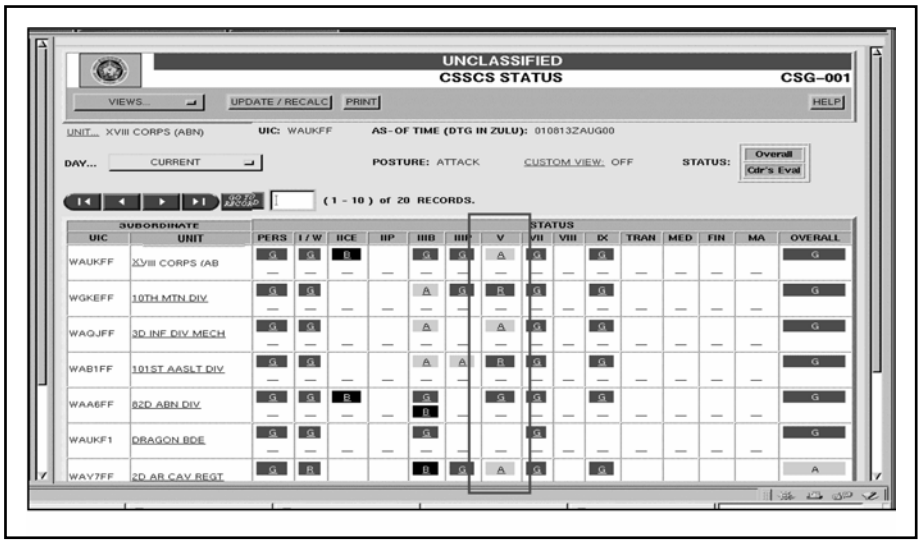


Figure 1-5. CSSCS Ammunition Supply Point Status

1-53. The BCS3 displays assets located in supply points and all the Department of Defense activity address codes (DODAACs) or weapon categories on hand in subordinate units. COSCOM munitions support branch officers use CSSCS force-level displays to assess the current or projected availability of ammunition assets for the force. They assess the unique situation at a particular ammunition supply unit or the status at a particular CSA, ASP, or ATP. This allows them to better tailor stockage levels to support requirements. The COSCOM operations officer uses CSSCS force-level displays to recommend adjustments to distribution plans, allowing additional supply of ammunition to committed units. Figure 1-6 illustrates the interface between the GCSS-A ammunition module and the CSSCS. FM 63-3, FM 63-2, and the SAAS EM provide detailed information on the munitions data flow.

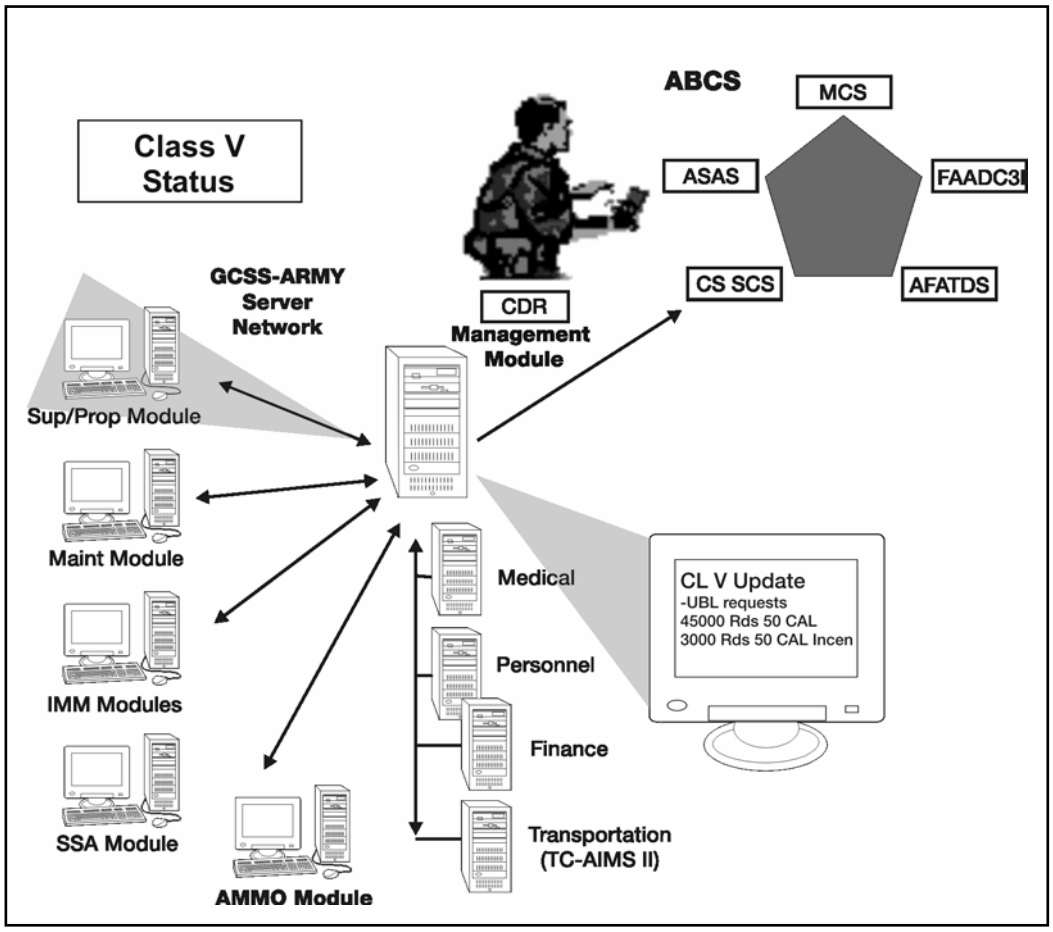


Figure 1-6. GCSS-A Ammunition Module and CSSCS

1-54. Force XXI battle command brigade and below (FBCB2) (figure 1-7) provides real-time ammunition on hand/consumption data to the CSSCS. It will include a full set of sensors within weapon system platforms that report weapon status in terms of readiness, required maintenance, fuel, manning, and ammunition. Tactical-level logisticians obtain the same logistics SU as provided to the tactical commander. This data provides the logisticians with the SU required to maintain asset visibility, direct and redirect logistics platforms, and conduct traffic management within the brigade area.

Figure 1-7. The FBCB2 System

1-55. Information will be transmitted to either the Global Combat Service Support System-Army (GCSS-A) or BCS3, or both, depending on the specific information. For example, munitions status (figure 1-8) would go to the BCS3 for battalion S4s and forward support battalion (FSB) support operations personnel to track status and plan resupply operations; on-hand or expenditure data would go to the GCSS-A for initiation of ammunition requests. Details on each STAMIS at each echelon are in the related support organization manual. For example, FM 63-3 covers the role of CSS STAMIS at corps, and FM 63-2 and FM 63-2-1 detail STAMIS at the division level.

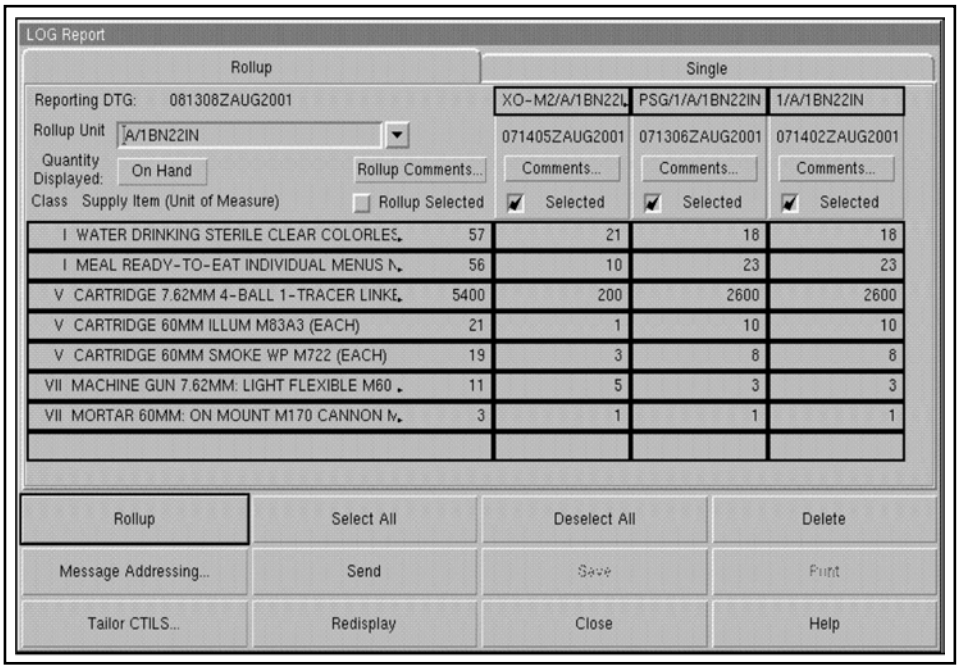


Figure 1-8. Logistics Situation Report Screen

STANDARD ARMY AMMUNITION SYSTEM—MODERNIZED (SAAS-MOD)

1-56. The SAAS is a computer-based information system used at the operation and management levels in a theater of operations and at installations. It provides an integrated ammunition management and control capability for ammunition support operations. The system's primary purpose is to satisfy the conventional ammunition tactical information requirements of commanders under wartime conditions. FM 4-30.13 and the SAAS end users manual (EM) provide additional information on the environment, functions, and employment of the SAAS. Detailed information on SAAS functions is contained in appendix A.

Operating Environment

1-57. The SAAS-MOD provides information processing support for conventional ammunition logistical support applications at installations, divisions, corps, and echelon above corps (EAC). The SAAS-MOD gives commanders and ammunition managers the capability for producing accurate, timely, and near real-time Class V information (figure 1-9) during peacetime, contingency operations, and wartime operations on a highly-mobile battlefield. It provides management and stock control for conventional ammunition, guided missiles and large rockets (GMLRs), and component and packaging (C&P) materials. The SAAS-MOD operates at all of the following functional levels in the theater of operations. Refer to figure 1-2 for an illustration of SAAS-MOD integration.

- Corps and theater materiel management centers (MMCs) or MACOM-equivalent.
- ASA (TSA, CSA, or ASP).
- Installation ASA.
- DAO and ATP.

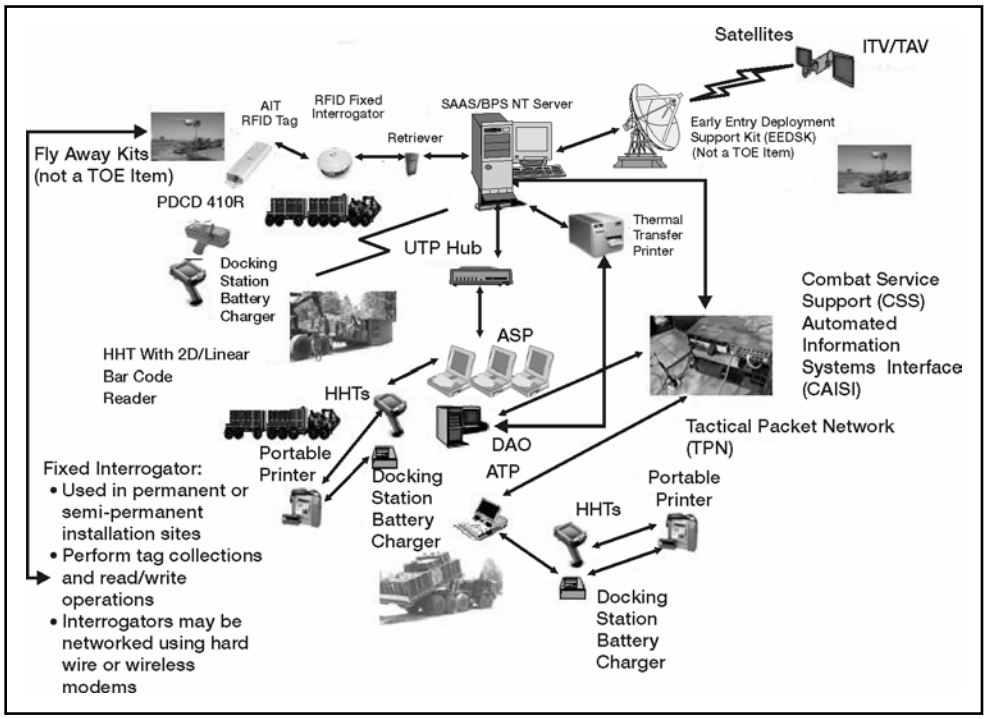


Figure 1-9. SAAS-MOD ITV/AIT Integration

Materiel Management

1-58. In the current SAAS, ammunition materiel management functions are performed only at theater and CMMCs. These functions relate to the overall management of authorizations, requirements, and redistribution of ammunition assets within the theater. The current SAAS is designed for major operations with the theater currently in place or in a deployed corps. Management functions may be performed at a lower level only when authorized.

Requirements Management

1-59. The functions of managing ammunition requirements are performed at the DAO and ATP. They include maintaining ammunition requirements, visibility, and distribution within the division. The DAO is responsible for distributing ammunition, verifying unit requirements, and tracking ammunition coming into the division. Once ammunition is shipped from the ASP to the ATP, visibility is maintained until munitions are issued and consumed by the user. The standard property book system-redesign (SPBS-R) provides accountability for ammunition basic load (ABL) and/or operational load munitions at the user level.

Logistics Systems Interfaces

1-60. The SAAS-MOD receives and sends data to several systems. All data received by communications is normally batch-processed after the communications portion of the interface is complete. All SAAS activities within a theater provide data for each other. The SAAS-MOD performs the following interfaces:

- The Worldwide Ammunition Reporting System (WARS) receives SAAS transactions that affect assets daily.
- Military Standard Requisitioning and Issue Procedures (MILSTRIP) data is received and sent to the Commodity Command Standard System (CCSS).
- MILSTRIP and Military Standard Transportation and Movement Procedures (MILSTAMP) data is sent and received through the Defense Automated Address System (DAAS).
- The Logistics Support Agency (LOGSA) provides up-to-date catalog information.
- The training ammunition management information system-revised (TAMIS-R) provides allocation and authorization data for training ammunition.
- The CSSCS provides a manual interface that keeps tactical commanders informed on the status of selected ammunition stocks.
- The SPBS-R provides on-hand quantities of the ABL/operational load at the unit.
- ASAs/ATPs that provide training ammunition support send training expenditure information to the TAMIS-R.

Hardware Configuration

1-61. The SAAS EM describes how SAAS equipment is tailored for each of the three functional levels and to the site that operates it. Quantities of hardware at each location are based on unit missions. They are outlined in the basis of issue plan (BOIP) for the SAAS and are contained in appendix A. SAAS equipment is subject to change because of technology improvements. The computer hardware at the theater and CMMC levels consists of a network file server, PCs for user terminals, laser printers, an uninterruptible power supply (UPS), a surge suppressor, local area network (LAN) equipment, and modems. The computer hardware at the DAO and ATP levels consists of similar equipment plus a laptop for each ATP, the LAN equipment, the modems, and the automatic information technology (AIT) equipment. AIT equipment includes the following:

- RF interrogator (ASA only), hand-held terminal (HHT), and docking stations.
- Portable printer.
- Thermal printer (ASA only).

Chapter 2
Munitions Force Structure

This chapter describes the munitions support structure and distribution system. Modular ammunition units are the major topic. Also discussed is the flow of munitions, information, and documents, as well as the responsibilities of distribution managers at each echelon.

CURRENT FORCE MUNITIONS OPERATION

2-1. Major operations and deployments create a tremendous demand on CONUS ammunition activities (depots, plants, and arsenals). The Army no longer has massive stockpiles of munitions outside CONUS (OCONUS), and the amount of APS is limited. This leaves stateside ammunition activities to provide most of the munitions required in an operation. Very early in the deployment process, planners must provide augmentation support to these ammunition activities. A significant number of Army munitions units are in the Reserve Component (RC); therefore, RC units should assist in the planning process. RC munitions units will probably assist in providing both planning and support at the ammunition activity. When planning to use RC units to provide support, planners must consider the time required to mobilize and deploy the units. Normally, it takes RC units at least two weeks to complete the mobilization process. This time must be factored into all operational plans. With the modular munitions unit concept implanted, one or more ammunition MLPs or HLPs may be assigned to each ammunition activity requiring augmentation. The numbers assigned will depend on several factors:

CONTENTS

- The projected size and duration of the operation.
- The projected amount and configuration of munitions to be shipped.
- The size of the depot or port, and the facilities, equipment, and personnel organic to the depot or port.
- The readiness level of augmented units.

2-2. Providing support to CONUS ammunition activities is critical for the success of any operation. Ammunition sitting in stateside storage facilities does not win battles; the failure to get it to the theater of operations may result in unnecessary casualties and an unsuccessful operation.

SUPPORT STRUCTURE OVERVIEW

2-3. The mission of the munitions support structure is to provide the required type and amount of munitions to the combat user at the time and location

(when and where) it is needed. This requires an efficient, effective, and flexible munitions distribution system. To meet the needs of combat commanders, munitions distribution must adhere to sustainment presented in FM 4-0 and chapter 1 of this manual.

2-4. Three types of ASAs are in the theater: TSAs, CSAs, and ASPs. An ATP is not considered an ASA because of its temporary nature. The ASA mission is to receive, store, issue, and maintain the theater conventional ammunition stocks. Also, ASAs can configure ammunition into CLs. Once configured, CLs are shipped forward to ATPs for issue to combat units.

THEATER STORAGE AREA OPERATIONS

2-5. The TSA is the largest munitions storage facility in the theater. It is operated by a HQ, modular munitions company, with several HLPs and possibly an MLP. The TSA provides direct support (DS) by area, to units operating in the COMMZ and provides general support (GS) to the corps within the theater. The number, size, and stockage objective of a TSA is METT-TC driven and determined by the ASCC. It is assigned to an area support group (ASG).

2-6. The TSA is normally a permanent or semi-permanent storage facility. It may expand to cover approximately 40-square kilometers. In a combat environment, the TSA may be relocated to a field environment where ammunition stocks are kept in open storage. To ensure smooth shipment operations, the TSA should be located where there is ready access to highway, rail, air, and port facilities. The TSA receives 100 percent of its ammunition from the POD, whether it is seaport, airhead, or logistics-over-the-shore (LOTS) operations. The ammunition and components received are either containerized, break-bulk, or a combination of both. The ammunition arrives at the TSA on theater transportation assets, primarily railcars and trucks. Ammunition sent from the TSA to the CSA and ASP is shipped as single Department of Defense identification code (DODIC) loads or CLs.

2-7. Containers received at the TSA must be efficiently managed by transportation and ammunition personnel to ensure accountability and recovery for reuse. Ammunition ISO containers are shipped only to the TSA or CSA.

CORPS STORAGE AREA

2-8. The CSA is the primary source of high-tonnage Class V for the division and the corps. It is operated by a HQ, modular ammunition company, with a combination of MLPs and HLPs. The CSA also provides DS, by area, to units operating in the corps. Initially, the stockage objective of the CSA should be from 10 to 15 days of supply (DOS). After the initial combat drawdown, the CSA should maintain 7 to 10 DOS. The number, size, and actual stockage objective of CSAs are METT-TC dependent. One CSA is normally required to support ASP and ATP operations for each committed division. When a CSA wartime stockage objective exceeds 25,000 STONs, a second CSA should be established.

2-9. In established theaters, initial stockage of the CSA is in the form of CLs or break-bulk from APS. Once the supply system is established, the CSA receives approximately 50 percent of its ammunition from the POD. The remainder is from the TSA. Ammunition resupply from the POD is both break-bulk and CLs. Ammunition is shipped from the CSA to an ASP in CLs

and single-DODIC loads. The ammunition shipped from the CSA to the ATPs is configured into MCLs. The CSA can expand to encompass approximately 40-square kilometers. The storage environment depends on the tactical situation. It allows for enough room for the CSA to configure MCLs for onward movement. A medium truck company should be identified to work in DS of the CSA, and should be collocated in or near the CSA. With modular ammunition units, the number of MLPs and HLPs will be based on workload. At a minimum, one MLP will be required at each CSA to meet the MCL workload. Figure 2-1 illustrates munitions flow in the theater of operations.

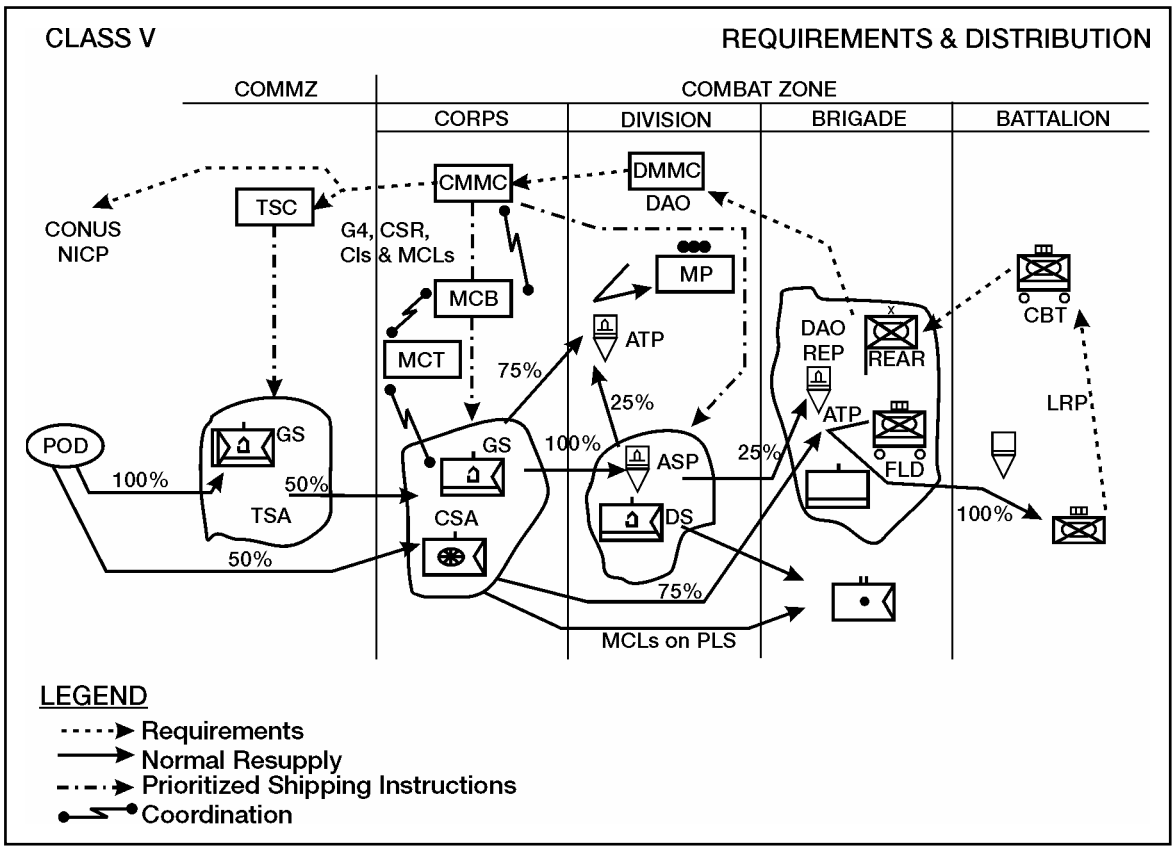


Figure 2-1. Munitions Flow in the Theater of Operations

AMMUNITION SUPPLY POINT

2-10. The ASP is located in the division rear and operated by a MLP from a modular ammunition company. The ASP provides Class V support to corps, divisional, and non-divisional units. Normally, three MLPs are required to support a division and to provide manning for the division rear ATP. Each ASP is a field site and operated by one or more MLPs. During the ASP site selection process, commanders should focus on locations that minimize the need for engineer support. It should be located near an improved road network to ensure access by theater/corps transportation assets. It maintains a one-to-three day supply of ammunition to meet a routine surge and emergency requirements for supported units. The actual stockage level and size of an ASP are METT-TC dependent. The ASP can expand to five- or six-square kilometers, or larger, depending on the METT-TC factors. Unlike the

CSA and TSA, ASP stocks are most often stored on the ground on unimproved surfaces. Under current doctrine, the ASP receives 100 percent of its requirements from a supporting CSA. Once in the ASP, the ammunition is issued in single DODIC loads or as MCLs.

AMMUNITION TRANSFER POINT

2-11. Each brigade combat team (BCT) is authorized an ATP located near the brigade support area (BSA) and operated by the Class V section of the supply company of the forward support battalion (FSB), and a division ammunition office (DAO) representative from the division materiel management center (DMMC). The ATP provides 100 percent of the ammunition requirements to all units within the brigade sector.

2-12. The modular ammunition company operates one ATP in the division rear, usually near the division support area (DSA). The ATP is organized by combining the rear ATP sections of the three MLPs within the ammunition company. This ATP receives mission guidance and responds to the priorities established by the DAO. The DAO representative from the DMMC and the ATP section fulfils the ammunition requirements for all divisional, non-divisional, and corps elements (artillery, aviation, and so forth) operating in the division rear area.

2-13. ATPs are the most mobile and responsive of all Class V supply facilities. They must be able to move and provide support to the brigade as it moves. They receive about 75 percent of their ammunition as throughput from the CSA. The other 25 percent comes from an ASP in the form of MCLs. The ammunition is loaded on flatracks, brought forward to the ATP on corps transportation assets; the ammunition is transferred to the receiving unit's organic vehicles. If the gaining unit's vehicle is not available, their flatracks are placed on the ground temporarily. The ATP gains visibility of the shipment using automated information technology (AIT) by using RF tags or conducting an inventory using the handheld terminals (bar code scanner). The ATP personnel assist units without the PLS to transload munitions.

2-14. The brigade S4, with the assistance of the DAO representative (RSR/CSR guidance), consolidates the ammunition requests from the battalion S4s within the BCT and forwards the brigade ammunition request to the DAO in the DMMC. Additionally, the DAO representative, in conjunction with the FSB support operations officer and the movement control team (MCT), coordinates with the units and informs them when munitions will arrive at the ATP. The DAO representative issues the ammunition in accordance with the RSR/CSR and reports the receipt and issue transactions to the DAO in the DMMC, using the communication process in SAAS-ATP.

2-15. Corps units employed in the brigade area pick up their ammunition at the forward ATP. Their ammunition requirements must be pre-coordinated with the division ammunition office and the brigade S4.

2-16. Units arriving at the ATP to pick up munitions drop off empty, or partially empty, flactracks and retrieve fully loaded flatracks. The SPO and MCT will coordinate with the corps transportation to facilitate the return of empty or partially empty flatracks back to the nearest ASP, CSA, or TSA.

ARMY SERVICE COMPONENT COMMANDER

2-17. The ASCC has overall responsibility for in-theater receipts, accountability, and management of munitions stocks. The ASCC is also responsible for the following functions:

- Establishing ASPs, CSAs, and TSAs.
- Coordinating distribution between storage sites and forward ATPs, and coordinating direct issue to using units on an area support basis.

OPERATIONAL-LEVEL MATERIEL MANAGEMENT CENTER

2-18. The operational-level MMC is the support unit responsible for providing theater-wide munitions supply management and allocation. Support is based on priorities established by the theater combatant commander. The MMC is the prime interface between the theater and the CONUS sustaining base, which includes the Defense Logistics Agency (DLA), national inventory control points (NICPs), and U.S. Army Logistics Command (USALC). The operational-level MMC communicates with the operational-level movement control agency (MCA), the theater support command (TSC), CMMCs, and the CONUS sustainment base. The MMC provides initial resupply to the corps from several possible theater ammunition sources:

- Army prepositioned stocks include either ammunition pre-configured on logistics ships available for rapid delivery to the theater or prepositioned ammunition available on a regional basis to support contingencies worldwide.
- Sustainment-based production stocks include ammunition either off the production line or stored in depots. These stocks are shipped to the theater as needed.

CORPS MATERIEL MANAGEMENT CENTER

2-19. When a corps is the Army Forces (ARFOR), the CMMC is the operational-level MMC. In a theater with more than one corps, the ASCC may establish a centralized MMC to which CMMCs report. The CMMC provides centralized control of munitions and all other classes of supply within the corps. It is the interface between corps units and the theater/operational-level MMC.

MISSILE AND MUNITIONS DIVISION

2-20. In the CMMC, the missile and munitions division includes three branches: the missile and munitions support branch; the missile and munitions parts supply branch; and the missile and munitions maintenance branch (see FM 63-3).

2-21. The missile and munitions division is responsible for ammunition management, to include the following:

- Processing requisitions.
- Reviewing the RSR.
- Directing the storage and distribution of ammunition.
- Coordinating with the CMMC to integrate ammunition movement requirements into movement programs.
- Enforcing the CSR.

- Directing the CSA(s)/ASP(s) to fill ammunition requests from supported divisions and corps elements.

2-22. The munitions support branch exercises staff supervision over munitions support operations. These include supply and maintenance operations relating to munitions, missiles, special weapons, and associated repair parts, special tools, and test equipment. Responsibilities include—

- Developing plans and policies involving munitions supply and maintenance.
- Providing staff input for munitions planning to the corps support command (COSCOM) CSS plans staff branch.
- Developing munitions surveillance policies.
- Maintaining a running estimate of munitions requirements.
- Coordinating munitions requirements with the corps G3 and G4 staffs.
- Establishing ammunition supply levels based on corps directives.
- Recommending ammunition supply and storage site locations to the corps rear command post (CP) CSS cell.

2-23. Missile and munitions officers assigned to the munitions support branch develop operating procedures and plans to implement munitions supply policies prescribed in AR 710-1, AR 710-2, and SAAS technical manuals (TMs). Other duties include—

- Providing technical advice and assistance to ammunition officers in subordinate corps support groups (CSGs) and ammunition supply units.
- Coordinating with CSG ammunition officers on cross-level munitions support personnel and equipment.
- Recommending establishment and movement of ASAs as the situation dictates.
- Reviewing and updating ammunition planning factors to the theater scenario.
- Monitoring ammunition suspensions.
- Recommending adjustments to munitions stockage levels.
- Coordinating resupply of munitions stocks for attrited units at regeneration sites.

AMMUNITION BATTALION MATERIEL OFFICE

2-24. In the absence of an ordnance group in theater, the conventional ammunition battalion is normally assigned to the COSCOM/TSC to establish and operate ammunition supply activities. The materiel officer (MATO) of this battalion serves as the initial point of coordination for resolving ammunition support problems. The MATO acts in concert with the COSCOM staff and CMMC munitions and transportation managers to accomplish the following:

- Coordination of assets.
- Monitoring and cross-leveling of stocks.
- Directing the implementation of COSCOM/TSC support operations (SPT OPS) directives, CMMC/TAMMC taskings, and CMMC/theater Army movement control center (TAMCC) commitments.

2-25. MATO responsibilities include the following:

- Analyzing CSSCS data, which interfaces with the SAAS to determine the trends and efficiency of stock operations.
- Monitoring supply status data on munitions stocks at ASAs.
- Assisting in synchronizing activities of subordinate ammunition units with habitually supporting truck companies.
- Providing technical assistance and monitoring quality assurance, ammunition surveillance, and ammunition maintenance programs of subordinate units.
- Coordination with the COSCOM/TSC on cross-leveling munitions support personnel and equipment.
- Coordination to the COSCOM/TSC; when in-transit, ammunition stocks should be diverted based on METT-TC factors.

SUPPORT OPERATIONS OFFICE

2-26. Under the control of the SPT OPS officer, the division SPT OPS office provides overall total asset visibility (TAV) and in-transit visibility (ITV) for all commodities, movements, and units within, assigned, or inbound to the AO. The critical focus of this section is on establishing and maintaining a "logistical fusion center" to collect, collate, and analyze TAV/ITV information for the DISCOM SPT OPS, and in coordinating with, gaining information from, and integrating the efforts of all other elements of the SPT OPS staff.

CLASS V SUPPLY BRANCH

2-27. The Class V supply branch maintains records and stock control of all ammunition allocations, and receipts current ATP operations and expenditures for Class V items through automated and digitized information systems. It provides technical assistance and advice on ammunition, and provides overall supervision to ATP and other ammunition operations. This section is tailored to meet the management needs of brigade combat teams and division troops.

DIVISION AMMUNITION OFFICER

2-28. The DAO is responsible for ammunition resupply for all units operating in the division AO. He represents the MMC and DISCOM commanders on all ammunition-related matters. The DAO has five broad missions:

- Consolidate division ammunition requirements.
- Assist the S4/G4 in preparing plans and procedures for ammunition operations.
- Maintain ammunition visibility through stock records and reports (SAAS-MOD data entry point). (See appendix A.)
- Conduct and supervise ammunition operations.
- Validate ammunition requests and enforce the CSR.

2-29. The DAO maintains liaison with the ASAs supporting the division and with ammunition staff officers at the corps.

2-30. Brigade S3 ammunition responsibilities include—

- Determining brigade ammunition requirements based on input from subordinate battalions and knowledge of upcoming tactical operations.
- Determining the consolidated brigade RSR and submitting it to the division G3 and the DAO.
- Determining the best location for the BSA.
- Providing security for the ATP.

2-31. Brigade S4 ammunition responsibilities include—

- Consolidating and forwarding daily ammunition requirements to the DAO.
- Coordinating an issue schedule with the SPT OPS office, FSB, and modular ammunition company ATP.
- Providing a unit issue priority list to the DAO and forwarding the consolidated unit ammunition requirements to the DAO.
- Providing subordinate battalion S4s with their allocations of the brigade CSR. (This information is also provided to the DAO so battalion units do not exceed their authorizations when transloading at the ATP.)

FORWARD SUPPORT BATTALION

2-32. The Class V section of the FSB supply company operates one ATP near the BSA. It provides area support to division and corps units. Each ATP has DAO representatives assigned to control the flow of ammunition.

2-33. When munitions arrive at the ATP, the FSB Class V section inspects, inventories, and signs for the shipment. A copy of the shipping document is returned to the originating ASA. The DAO representative receipts the ammunition on the SAAS-ATP and sends the transactional data to the DAO via the communications process within the SAAS-MOD.

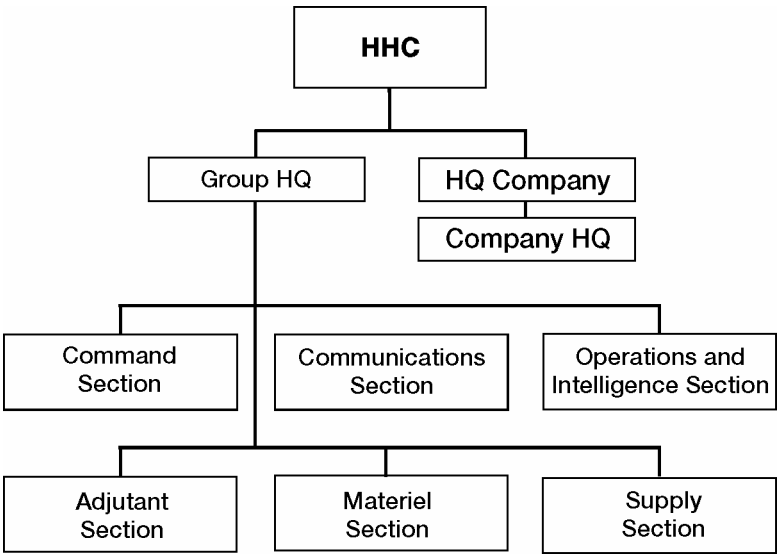
2-34. The brigade S4 coordinates with the FSB SPT OPS officer to establish an issue schedule. When supported units arrive at the ATP, they submit ammunition requests that have been authenticated by the battalion S4. Before a unit is issued ammunition, the DAO representative at the ATP validates the request. Once ammunition is issued to a unit, the unit assumes accountability and uses its transportation assets to move the ammunition forward.

HEADQUARTERS AND HEADQUARTERS COMPANY (HHC), ORDNANCE GROUP (AMMUNITION) (DS/GS)

2-35. The mission of the headquarters and headquarters company (HHC), ordnance group (ammunition), is to command and control assigned or attached DS and GS ammunition units (see figure 2-2). The ordnance group is primarily responsible for the ordnance support structure for ordnance units assigned to EAC. It is responsible for TSA operations. The group also commands, controls, and plans ammunition missions, to include the following:

- Retrograde activities.
- Enemy ammunition inspection, processing, and shipping.
- Operating ASAs for COMMZ transient units.
- Advising ASCC on theater-wide ammunition policy.

- Establishing ammunition supply and maintenance procedures consistent with the policies and directives of the ASCC and the corps.



Mission: Command and control assigned or attached DS and GS ammunition units or other attached units.

Assignment: Assigned to a TSC.

Capabilities: At 100 percent of assigned personnel, this unit can provide—

- Command, control, and staff planning for up to six subordinate units.
- Technical direction over ammunition support missions of subordinate units, except for inventory management functions for which the operational level MMC is responsible.

Basis of Allocation: Normally one per TSC or one per two to six battalions commanded.

Mobility: This unit is required to move 50 percent of its TOE equipment and personnel in a single lift, using organic vehicles.

Figure 2-2. Ordnance Group, Ammunition (DS/GS) (TOE 09662L000)

2-36. The ordnance group executes missions through subordinate ordnance battalions or in coordination with ASGs. The ordnance group provides technical assistance through the materiel section to ASG ordnance planners. The group can also provide coordination for resolving support problems between subordinate units, supported units, and CONUS depots.

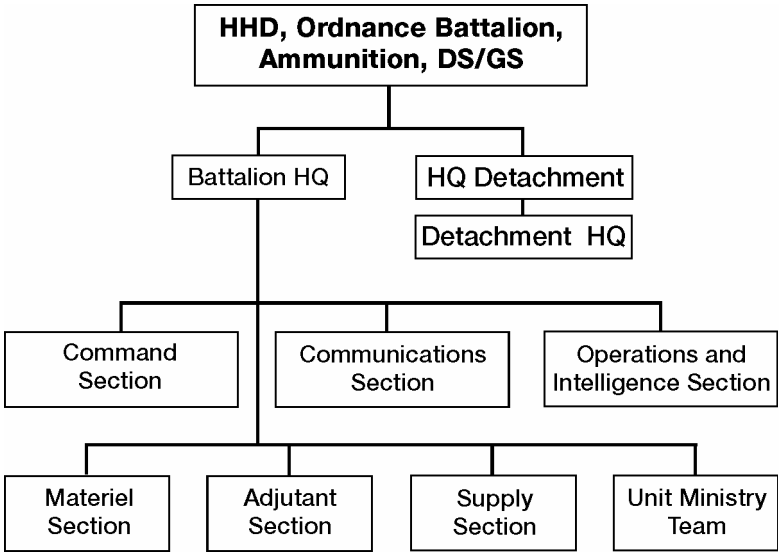
2-37. Ordnance group technical assets can be deployed before, during, and after operations to work in concert with the TSC, the logistics support elements (LSEs), and the theater support command materiel management center (TSCMMC). The ordnance group (ammunition) is assigned to a TSC. It is allocated one per theater or one per two to six battalions commanded. At 100 percent of assigned personnel, ammunition group missions include the following:

- Command, control, and staff planning for up to six subordinate units.
- Technical direction of subordinate unit ammunition support operations, except for inventory management functions for which the TSC MMC is responsible.

HEADQUARTERS AND HEADQUARTERS DETACHMENT, ORDNANCE BATTALION (AMMUNITION) (DS/GS)

2-38. The mission of the HHD, ordnance battalion (ammunition) (TOE 09466L000 or TOE 09666L000) (see figures 2-3 and 2-4, respectively), is to command and control assigned units, attached DS ammunition units, or other attached units. These units ensure compliance with ammunition supply and maintenance procedures established by the TSC. This unit is assigned to a COSCOM or a CSG. It may also be assigned to a TSC, normally attached to an HHC, conventional ammunition group (DS). A minimum of one ammunition battalion is required per COSCOM to support a fully deployed corps. This battalion is allocated one per three to five companies commanded. It can provide—

- Command, control, and staff planning for up to five subordinate units.
- Technical direction over ammunition support operations of subordinate units (the exception is inventory management functions, for which the operational-level MMC is responsible).
- Ordnance battalion, ammunition (DS/GS) (TOE 09466L000).
- Ordnance battalion, ammunition (DS/GS) (TOE 09666L000).



Mission: Command and control of assigned or attached companies or modular ammunition platoons or other attached units.

Assignment: Assigned to a CSG.

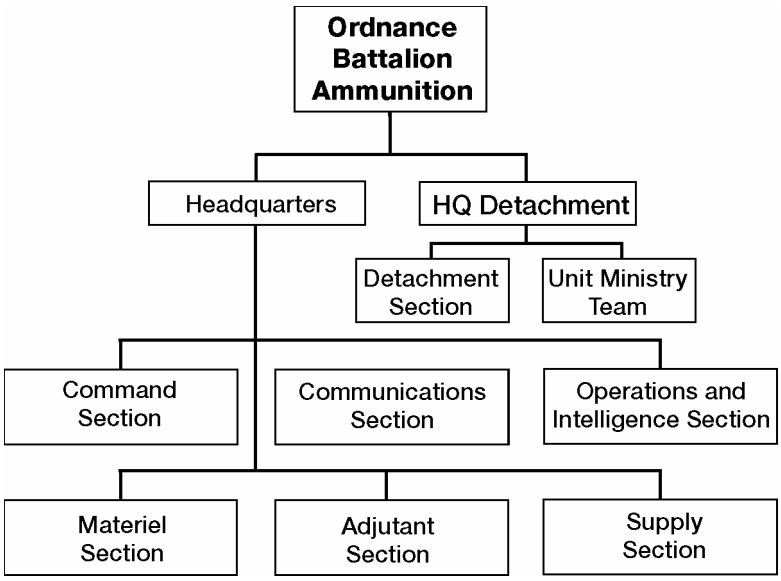
Capabilities: At 100 percent of assigned personnel, this unit can provide—

- Command, control, and staff planning for two to five subordinate units.
- Technical direction over ammunition support missions of subordinate units, except for inventory management functions for which the operational level MMC is responsible.

Basis of Allocation: Normally one per two to five companies commanded.

Mobility: This unit is required to move 50 percent of its TOE equipment and personnel in a single lift, using organic vehicles.

Figure 2-3. Ordnance Battalion, Ammunition (DS/GS) (TOE 09466L000)



Mission: Command and control assigned or attached ammunition companies or modular ammunition platoons or other attached units.

Assignment: Assigned to a TSC or ordnance ammunition group.

Capabilities: At 100 percent of assigned personnel, this unit can provide—

- Command, control, and staff planning for two to five subordinate units.
- Technical direction over ammunition support missions of subordinate units, except for inventory management function for which the operational level MMC is responsible.

Basis of Allocation: Normally one per two to five companies commanded.

Mobility: This unit is required to move 50 percent of its TOE equipment and personnel in a single lift, using organic vehicles.

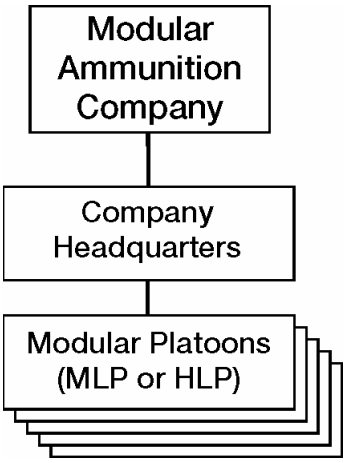
Figure 2-4. Ordnance Group, Ammunition (DS/GS) (TOE 09662L000)

MODULAR AMMUNITION UNITS

2-39. Under the modularity concept, only the number of platoons needed to support the forces is deployed. This might mean deploying a single platoon to support a brigade contingency or a company with added platoons attached to support a mature theater. The initial deployment of modular ammunition units to a theater will consist of one or more platoons. Heavy lift modular platoons are capable of loading and moving 20-foot ISO containers. The MLP has no container handling capabilities. As the theater matures and more modular ammunition units arrive in-theater, a conventional C2 structure is established, and the modular platoons are formed into company-size units.

2-40. The headquarters platoon (see figure 2-5) provides C2, administrative, planning, and logistical support for two to five geographically separated or

centrally located modular ammunition platoons (MLPs, HLPs, or a combination of both) in either the corps or COMMZ areas. This section operates the unit supply, and provides limited construction and fire-fighting equipment for assigned platoons. It will collocate with at least one platoon for logistics support.



Mission: Provide command, control, administrative planning, and logistical support for two to five modular ammunition platoons.

Assignment: Depends on the assigned mission.

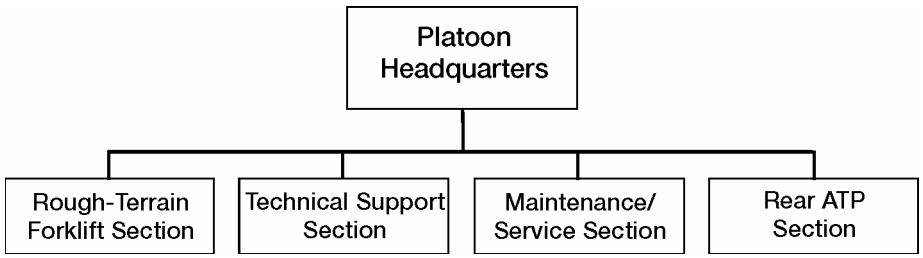
- When assigned to ASP functions, the unit is assigned to a CSB (TOE 63426L000).
- When assigned to the CSA function, the unit is assigned to a CSB (TOE 63426L000) or a corps ammunition battalion (TOE 09666L000).
- When assigned to the TSA function, the unit is assigned to an ammunition battalion (EAC) (TOE 09666L000).

Basis of Allocation: As required by theater operations and the number of modular ammunition platoons deployed.

Mobility: The company headquarters is 100 percent mobile.

Figure 2-5. Modular Ammunition Company Headquarters Platoon

2-41. The MLP does not have container handling equipment (see figure 2-6). The MLP receives, configures, inspects, manages, issues, ships, and retrogrades non-containerized ammunition. This platoon operates one ASP and one-third of a rear ATP. This platoon will combine with two other MLPs in support of a division. After the platoon provides the one-third of a rear ATP, it will have a total lift capability of 1,128 STONs daily. With the one-third slice it has a lift capability of 1,521 STONs daily. The MLP can operate independently from the modular HQ, but it will require outside support for sustainment. MLPs can collocate with HLPs to operate a CSA or TSA.



Mobility: The company headquarters is 100 percent mobile.

Mission: Receives, configures, inspects, issues, manages, ships, and retrogrades noncontainerized ammunition stocks. Operates independently or as part of a large unit.

Assignment: Assigned to a modular ammunition company headquarters (TOE 0948L000).

- When deployed independently or as part of a unit to perform the ASP or the CSA function, platoons are assigned to a CSB (TOE 63426L000); or when deployed to perform the CSA function, platoons are assigned to an ammunition battalion (corps) (TOE 09466L000).
- When deployed independently or as a unit to perform the TSA function, the unit is assigned to an ammunition battalion (EAC) (TOE 09666L000).

Capabilities: When operating in a CSA or TSA with no ATP mission, the MLP has a total life capability of 1,521 STONs (507 STONs per mission). When the ATP section of the MLP is employed separately, it has a life capability of 393 STONs per day. Each MLP can provide one-third of a rear ATP. Figures are based on 24-hour operations.

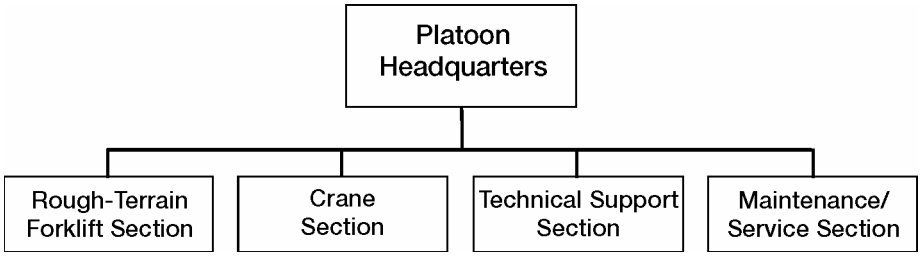
Basis of Allocation: As required by the theater of operations, daily tonnage lift requirements, or theater ammunition stockage requirements.

Mobility: The platoon is 100 percent mobile, minus ammunition stocks. Unit depends on nonorganic transportation assets to move any ammunition supplies on hand. This platoon should expect to move every 3 to 10 days.

Figure 2-6. Modular Ammunition Ordnance, Medium Lift Platoon

MODULAR AMMUNITION ORDNANCE, HEAVY LIFT PLATOON

2-42. The HLP (see figure 2-7) receives, ships, configures, inspects, manages, issues, and retrogrades containerized ammunition. It operates independently or as a part of a large unit. This platoon has a total lift capability of 2,658 STONs per day. Similar to the MLP, it can operate independently from the modular HQ (see figure 2-8), but will require outside support for sustainment. It requires a military police combat support company that provides security on an area basis unless the site is designated by the TF commander as a critical site. The TF commander commits military police assets to guard the site. Figure 2-9 provides an illustration of CSAs and figure 2-10 illustrates a TSA.



Mission: Receives and ships containerized ammunition. Configures, inspects, issues, manages, ships, and retrogrades ammunition stocks. Operates independently or as part of a larger unit.

Assignment: Assigned to a modular ammunition company headquarters (TOE 09408L000). When deployed independently to perform the TSA function, the unit is assigned to an ammunition battalion (EAC) (TOE 09666L000).

Capabilities: When deployed independently, this platoon has a total lift capability of 2,658 STONs.

Basis of Allocation: As required by theater operations, daily tonnage lift requirements or theater ammunition stockage requirements.

Mobility: The platoon is 100 percent mobile minus ammunition stocks. The unit depends on nonorganic transportation assets to move any ammunition supplies on-hand.

Figure 2-7. Modular Ammunition Platoon (Heavy Lift)

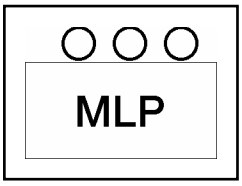


Figure 2-8. Headquarters, Modular Ammunition Company for an ASP

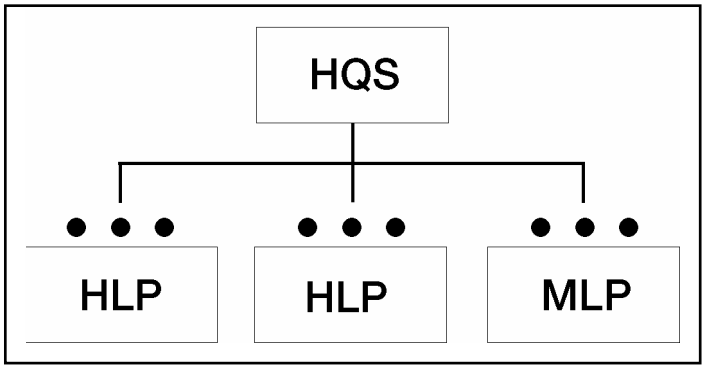


Figure 2-9. Headquarters, Modular Ammunition Company for a CSA

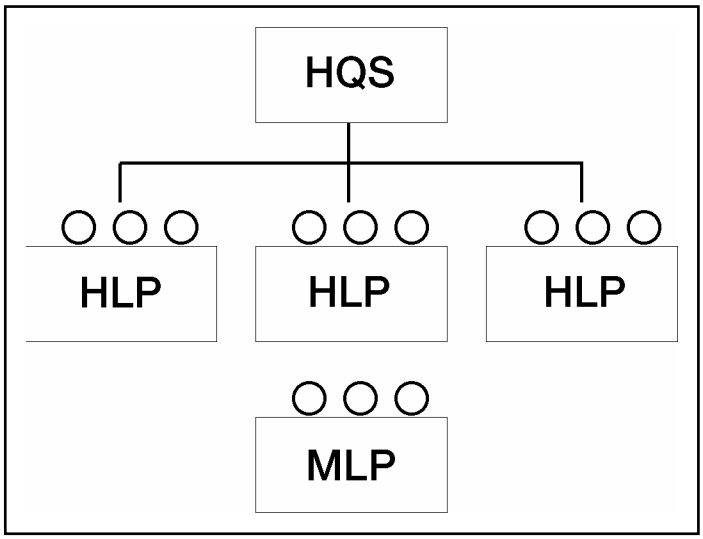


Figure 2-10. Headquarters, Modular Ammunition Company for a TSA

2-43. Tables 2-1 and 2-2 illustrate modular ammunition platoon life capabilities and MAN/MHE team life capabilities by STONs per day.

Table 2-1. MAN/MHE Team Life Capabilities by STONs Per Day

MHE	*TSA/CSA*	*ASP*	*ATP*
6,000-pound variable-reach forklift	187	119	88
7 ½-ton rough-terrain crane	NA	219	NA
65-ton container crane	295	NA	`NA
10,000-pound rough-terrain forklift	116	52	NA
5-ton rough-terrain crane	NA	200	NA
20-ton rough-terrain crane	257	NA	NA
Note: When forklifts are operated, all forklift MAN/MHE teams require two persons per forklift plus a ground assistant. Crane MAN/MHE teams require three persons per crane: an operator and two ground assistant operators. Ground assistants are for safety purposes; any personnel in the area may perform this task.			

Table 2-2. Modular Ammunition Platoon Lift Capabilities

Mission	*Lift Capacity*
Heavy Lift Platoon	
Receive	886 STONs
Re-warehouse/configure	886 STONs
Issue	886 STONs
Total Lift Capability	***2,658 STONs***
Medium Lift Platoon	
Receive	376 STONs
Re-warehouse/reconfigure	376 STONs
Issue	376 STONs
ATP	393 STONs
Total Lift Capability	***1,521 STONs***
Maximum Storage Per Platoon	
Heavy Lift Platoon	11,363 STONs
Medium Lift Platoon	11,273 STONs

Notes:

1. STONs per day.

2. When operating in a CSA or TSA with no ATP mission, the MLP has a total life capability of 1,521 STONs (507 STONs per mission). When the ATP section of the MLP is employed separately, it has a lift capability of 393 STONs/day. Each MLP can provide one-third of a rear ATP.

3. This capacity represents a portion of the designated level of the theater stockage objective.

CLASS V FLOW

2-44. Ammunition issued to users must be replaced by ammunition moved up from rear storage areas. In turn, ammunition stockage levels at the rear storage areas must be maintained by shipments from the CONUS or out of other theater locations. The quantity of ammunition shipped forward is determined by the amount on hand, current and projected expenditures, and the CSR. A layout of a Class V simplified distribution flow is shown in figure 2-11.

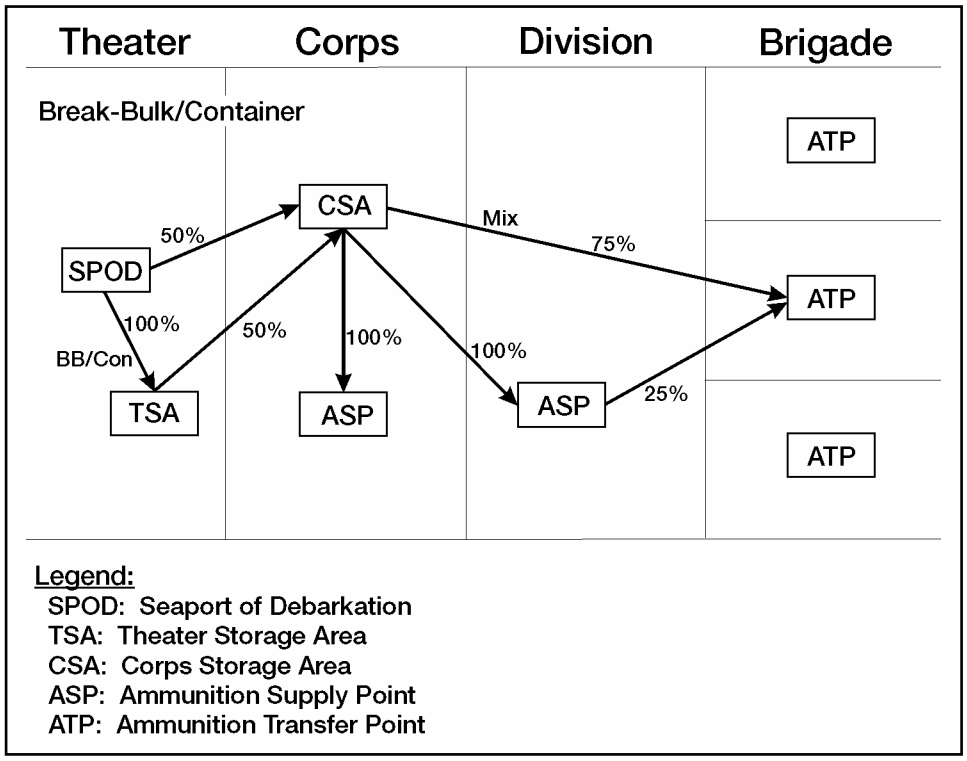


Figure 2-11. Class V Distribution Flow (Modular)

2-45. Each battalion S4 transmits a request for resupply of ammunition (usually CLs) for organic and attached combat units through the brigade S4 to the DAO in the DMMC. The DAO coordinates and controls the use of Class V supplies for the division, consolidates the division's requests, and submits them to the corps MMC. The CMMC, in coordination with the corps G4, reviews all requests and balances them against the CSR issued by the theater. The corps issues the CSR to support the maneuver units; some ammunition requirements are prioritized due to scarcity, and some may not be issued due to unavailability. The DAO and CMMC coordinate for the shipment of ammunition to the designated ATP for pickup by the requesting unit. In some situations, the CMMC may designate an ASP, rather than an ATP, to provide more responsive ammunition resupply to the units in the division rear. Most issues to the brigade (75 percent) will be performed through CLs from the CSA. Use of CLs does not preclude ordering single DODIC loads required for specific missions or contingencies.

2-46. The USALC ammunition support team arrives at immature theater PODs before prepositioned munitions vessels, sustainment shipments, or munitions units. It establishes a point at which the PODs munitions stocks can be accounted. Also, the team coordinates the off-loading and distribution of stocks either to storage areas or for direct issue to units from the PODs. Early arrival of ammunition units is essential to move Class V from the port area. The concept for employing the ammunition support team is dissimilar to employment of all other LSE organizations.

2-47. During the early stages of any contingency operation requiring APS munitions, the ammunition support team deploys with the necessary accountable records and quality assurance (QA) specialist (ammunition surveillance) (QASAS) support. Normally, this coincides with the deployment of the LSE advance party. The early departure of the ammunition support team from the CONUS is necessary to ensure its arrival is prior to port acceptance of the Army APS vessels. The ammunition support team provides technical expertise and assistance in the following areas:

- Supply.
- Storage.
- Maintenance.
- Surveillance.
- Demilitarization.
- Transportation.
- Security.
- Explosive safety.
- Supplies.
- Packaging.
- Accountability for munitions materiel and associated equipment.

2-48. Ammunition support team responsibilities may include, but are not limited to, the following activities:

- Providing theater munitions units with technical assistance in establishing and managing ASAs.
- Conducting inventories and maintaining initial theater-accountable records.
- Providing for the transfer of DA-owned, NIPC-accountable Army reserve stocks assigned to the theater.
- Developing and administering contract statements of work (SOWs).
- Planning and executing retrograde operations.

2-49. Deployment of the ammunition support team (AST) should be based on the tempo of logistical operations in the theater. The major functions of the AST include the following:

- Preparing for overseas deployment.
- Deploying to theater PODs.
- Setting up the support team base of operations.
- Transferring the accountability of APS assets from NICP-accountable officers to theater-accountable officers.
- Providing initial theater accountability and SAAS operations.
- Linking the CONUS sustainment base and the combat logisticians.
- Submitting status reports through NICP to HQ, USALC, and HQDA.
- Coordinating joint munitions operations as required.
- Providing initial QASAS support to the theater.

2-50. Once the AST has established itself in the theater, the ground component commander may expand the AST mission based on the specialized training and technical expertise of the team. Any expansion of responsibilities must be coordinated with the parent organization at the time, either the LSE or the U.S. Army Materiel Command (USAMC).

2-51. The mission of the headquarters and headquarters detachment, ordnance battalion (ammunition) (wartime host nation support [WHNS]) is to command and control to assigned or attached units (see figure 2-12). This unit provides—

- Command, control, and staff planning for up to nine ammunition companies (TOE 09574LB00).
- Technical directions over ammunition SPT OPS of subordinate units (the exception is inventory management functions for which the operational-level MMC is responsible).

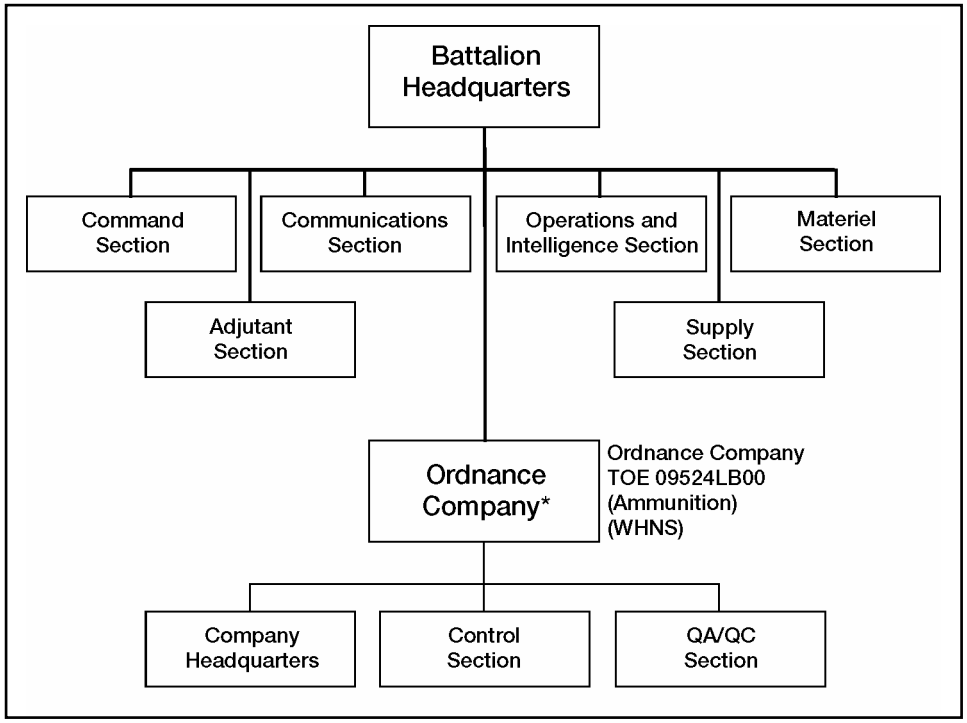


Figure 2-12. Headquarters and Headquarters Detachment, Ordnance Battalion, Ammunition (WHNS) (DS/GS)

2-52. This detachment is also involved in the coordination and management of U.S.-owned Class V stocks received, stored, and issued by HN ammunition units. It can be assigned to a CSG; it can also be assigned to an ammunition group in the TSC.

2-53. The mission of the ordnance company (ammunition) (WHNS) is to provide operational control over U.S.-owned ammunition stocks received, stored, and issued by HN units to U.S. force combat units. This company is assigned to an ordnance battalion (TOE 09574LA00) with one company allocated per HN ammunition company. On a 24-hour basis, this unit provides—

- Expertise required to perform stock accountability, stock status reporting, and QA/QC functions for U.S.-owned ammunition stocks received, stored, warehoused, and issued by HN ammunition units.
- Coordination needed for maintenance support for U.S. equipment operated by HN units.

- Coordination for operational taskings.

2-54. The theater receives munitions from the CONUS or OCONUS locations through air and water ports or by LOTS operations. From there, munitions are transported to the appropriate munitions support activity. Several factors determine the quantity of munitions moved forward. These factors are as follows:

- Quantity of munitions on-hand.
- Current and projected consumption.
- Available transportation.
- Available personnel and equipment.

DETERMINING OR REQUESTING MUNITIONS REQUIREMENTS

2-55. Combat commanders control the flow of ammunition in their areas of responsibility (AORs) by using two ammunition supply rates: the RSR and the CSR. Commanders at each level submit their RSR to the next higher HQ. At the ASCC level, the total unrestricted ammunition requirements are compared against the total ammunition assets available (on-hand or expected) to develop the CSR.

2-56. To request ammunition, each unit consolidates its own on-hand quantities and forwards its report to the battalion supply officer (S4), with information copies to the battalion commander and the operations (S3). Company commanders indicate in their situation report (SITREP) remarks any critical munitions or forecasted changes in munitions requirements.

2-57. The battalion S4 requisitions ammunition based on information provided in the company SITREPs and guidance received from the battalion commander and S3. The battalion S4 consolidates the entire battalion munitions requirement and submits it to the brigade S4. When necessary, battalion commanders cross-level within companies or throughout the battalion to meet mission requirements. The battalion S4 also reports the unit on-hand quantities by DODIC or nomenclature, along with any critical shortages and any forecasted changes in requirements in the battalion SITREP to the brigade.

2-58. The brigade S4 consolidates the requests for ammunition and passes them to the DAO. An information copy is forwarded to the support operations officer. The CMMC uses the information copy to determine if on-hand stocks in the ASP are sufficient, or if munitions from the CSA or TSA will be required. The brigade S4 monitors the munitions on the CTIL requiring special attention, such as emergency resupply. The SPT OPS officer consolidates the brigade munitions requirements and forwards them to the DISCOM.

CONTROLLED SUPPLY RATE/PRIORITY OF ISSUE

2-59. The SPT OPS officer, with guidance from the brigade S3 and S4, informs the DAO about the brigade CSR breakout and unit priority of munitions resupply. Forecasted critical shortages and changes in requirements, as reported in the brigade SITREP, are provided to the DAO.

MUNITIONS RESUPPLY

2-60. The preferred method of munitions resupply is to deliver as far forward as possible. Ammunition containers are shipped only to the TSA or CSA.

There they are unpacked, and the ammunition configured into CLs is sent to forward ASAs and ATPs. If the situation requires or transportation assets are available, munitions may be throughput as close to the unit as possible. Figure 2-13 depicts an example munitions supply rate flow.

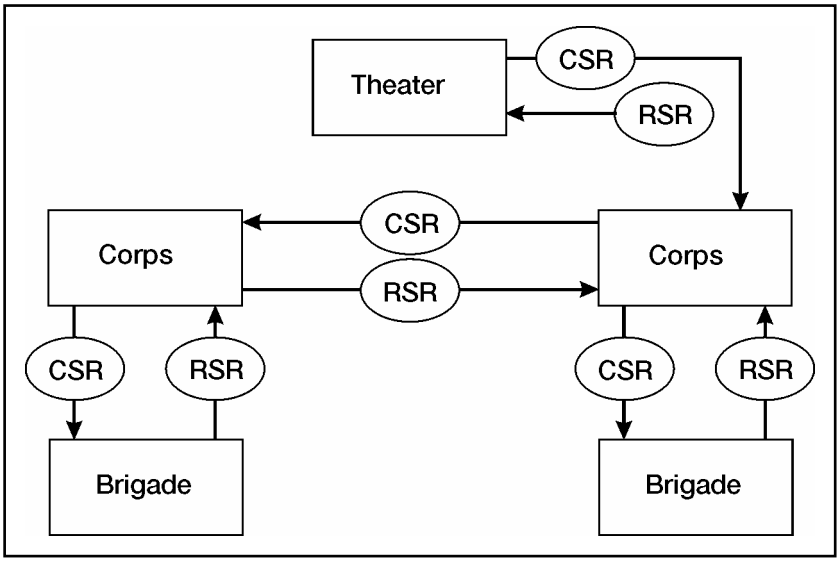


Figure 2-13. Munitions Supply Rate Flow

2-61. The CMMC determines whether the munitions resupply will come from the ASP or the CSA. If the munitions are coming from the CSA and ASP, the CMMC prepares a materiel release order (MRO) directing the munitions shipment. After ammunition has been loaded, the radio frequency (RF) tags are verified along with the correct cargo and destination. All ammunition shipments are tracked through ITV and the MTS. The delivery coordinates and time are forwarded to the receiving unit or activity, with information copies furnished to the DAO, the FSB support operations officer, the DAO representative, and the S4. If an ammunition shipment must be diverted within the brigade, the brigade commander, or designated representative, retains sole authority to do so. This is accomplished through the FSB SPT OPS officer. Ammunition shipments that must be diverted within the division are directed by the division commander to the DISCOM commander for implementation.

EMERGENCY RESUPPLY

2-62. Emergency resupply requests for ammunition should be for immediate consumption to continue the fight or a mission above normal operation or tempo. Emergency resupply requests should not be used as a means to circumvent the normal supply "pipeline." There are two means of requesting an emergency resupply. One method uses the unit organic lift capability and the other uses corps lift assets. The requesting units should attempt to cross-level ammunition within the division prior to submitting an emergency request, because in many cases cross-leveling can be accomplished sooner than the approval/movement of ammunition to the unit. Normally, an emergency ammunition request exceeds the RSR/CSR and to exceed RSR/CSR requires corps G4 approval.

Procedures for Use of Organic Unit Lift Assets

2-63. The unit forwards an emergency resupply request to the brigade S4. The S4 validates the request, forwards it to the division G4, and sends a courtesy copy to the DAO. Upon validation, the division G4 submits the request to the corps G4 for approval. The DAO forwards a copy to the CMMC. Once the request is approved, the corps G4 will inform the division G4 of the approval and the location to which to send the aircraft, and the CMMC is instructed to release the ammunition. The division G4 informs the G3 and the G3 tasks the aviation brigade to conduct the mission. Once the ammunition departs the CSA or ASP, the CMMC will notify the DAO.

Procedures for Use of Corps Lift Assets

2-64. When the corps G4 approves an emergency resupply to an organization using corps air assets, the supporting CSA or ASP is responsible for providing the equipment (sling/cargo nets and so forth) to transport the ammunition to the organization. An agreement on how the sling load equipment will be returned must be formalized prior to the mission.

AERIAL RESUPPLY

2-65. When the corps G4 approves an emergency resupply and the requesting unit provides the air assets to move the ammunition, the FSB must provide the equipment to perform the sling-load operation. Once the division G3 tasks the aviation brigade to perform the aerial resupply, the FSB will prepare the equipment for transportation to the CSA or ASP. The aviation brigade through coordination of the DTO and MCO will receive the equipment from the FSB and fly to the CSA or ASP and provide the equipment to the CSA or ASP personnel to prepare the ammunition for sling load. The FSB will recover the equipment once the resupply has taken place.

2-66. Emergency requests are passed through supply channels in the same manner as routine requests. However, emergency requests are also passed simultaneously through command channels from the user to the G3. The G3 approves emergency requests and tasks the aviation brigade to perform the mission. Simultaneously, the G4 coordinates with the DISCOM SPT OPS branch so it can task the appropriate supply activity to prepare the shipment. A liaison officer from the aviation brigade coordinates with the MCO and the requesting unit. Prerigged loads of standard resupply packages may reduce response time for emergency air resupply. For more details on requests for aerial resupply, see FM 55-30.

COMMAND AND SUPPORT RELATIONSHIPS

2-67. Army, joint, and/or combined units or elements may be required to perform their missions within the AO of a corps, division, brigade, or battalion, with which they have no formal command or support relationship. Unless attached for logistical support, parent units are responsible for providing support to their elements dispersed throughout the battlefield. At times, mission requirements may exceed the organic support capabilities of the parent unit. When this occurs, the parent unit must coordinate support for its elements with the HQ controlling that element AO. Once coordination is accomplished, the HQ assumes responsibility for providing logistical support for the units in the AO. The rear CP facilitates support of non-

divisional units by identifying the name and location of the divisional coordinating staff element or host unit.

2-68. Munitions support for non-divisional units operating in the division AO is coordinated by the DAO. Non-divisional units attached to, or supporting, the brigade combat trains (BCTs) forward their munitions requests through the FSB SPT OPS officer to the DAO. Non-divisional units attached to or supporting the division and operating in the division rear area forward their munitions requests through the DISCOM SPT OPS officer to the DAO. Specific procedures for supporting non-divisional units are detailed in the Class V section of the service and support annex of the OPORD.

Chapter 3
Interim Objective Force Munitions Operation

The division operates four ammunition transfer holding points (ATHPs). These are usually arrayed to support one maneuver brigade each, and one supports the division aviation support battalion (DASB) and division cavalry squadron. A DAO representative manages each ATHP. In addition to the division ATHPs, the MLP establishes an ATHP that provides Class V support to both divisional and non-divisional troops in the division rear area. The corps direct support (DS) ammunition company also operates an ASP to provide support to the division ATHPs and as an alternative source of Class V to units not supported by an ATHP. Both the ASP and the rear ATHP are corps assets. The Class V ATHP section of the DASB provides the ammunition transfer capability from corps or EAC transportation assets to the units supported by the DASB. It provides unit distribution of ammunition to the attack battalion and the cavalry squadron. This section cannot arm aircraft. Emergency arming must be coordinated externally.

DETERMINING/REQUESTING BATTALION AMMUNITION REQUIREMENTS

3-1. The BN/TF S4 determines ammunition resupply requirements, based on information provided in the unit logistics situation report (LOGSITREP) and guidance received from the battalion commander and S3. The BN/TF S4 consolidates the entire battalion ammunition requirements and submits the battalion roll-up ammunition resupply to the brigade S4. The brigade S4 consolidates the ammunition requests and passes the consolidated request to the SPT OPS officer located in the supporting DASB. Units in the division rear submit their requests through the LOGSITREP/logistics status (LOGSTAT) to the DSB SPT OPS officer. The SPT OPS officer for the FSB, DASB, and DSB requests ammunition support from the DAO in the Class V section of the DMMC. The DAO compares the request with the CSR. If the request is within the limits of the RSR/CSR, the DAO orders the ammunition from corps to be shipped directly to the ATP, or to replace stocks issued from the AHPs located in the FSBs, DASB, or the rear ATP.

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3-2. The ATP, operated by the headquarters distribution company in the FSB, is responsible for supporting all units located in the brigade that are assigned, attached, have established a support relationship, or as directed by the DISCOM commander. The ATP in the DASB supports the aviation brigade (AB) and division cavalry squadron. The rear ATP, operated by corps,

is responsible for supporting all divisional and non-divisional units in the division rear. The ATP is designed to provide the required lift and transload capability associated with high-volume and high tonnage. The SPT OPS officer of the FSBs and DASB, in conjunction with the DAO NCO representative, will coordinate directly with those non-organic units supported by the ATP. The SPT OPS officer/DAO representative consolidates their ammunition requirements, and their request for resupply is "rolled-up" with the brigade request. Ammunition and explosives are accounted for and provided proper physical security at all times.

AMMUNITION REQUEST VALIDATION

3-3. The DAO validates the brigade ammunition requests by comparing the amount of ammunition requested against the RSR/CSR and the on-hand stocks in the FSB ATP, the DASB ATP, and the rear ATP; then the DAO considers the current mission posture, scheduled/future mission posture, and operational guidance. After all of these factors are analyzed, the DAO either validates the request or adjusts it to meet the situation in coordination with the brigade S4 and supported units. The DAO determines, based on METT-TC and transportation availability, whether the ammunition resupply will be throughput to the appropriate ATP or to a forward rear point. Ammunition can be throughput to a cache (a storage location where corps transportation drops flatracks loaded with ammunition; the ammunition will be closer to the maneuver unit to reduce transit time) unless the tactical situation does not allow delivery that far forward. "Prep-fire" ammunition is delivered as close to the batteries as possible to prevent the artillery ammunition carriers from having to up-load after the "prep-fire." The ammunition resupply requests and transportation requests are sent to the CMMC/corps movement control center (CMCC) with information copies to the brigade DAO representatives, and the brigade and battalion S4s. The brigade DAO representatives notifies the HDC ATP (FSBs), HSC ATHP (DASB), or rear ATP section (run by corps) of any scheduled ammunition deliveries.

AMMUNITION RESUPPLY

3-4. The CMMC verifies the request is within the RSR/CSR and the using SAAS-MMC determines whether the ammunition resupply comes from the CSA or ASP, then generates a MRO directing the ammunition shipment. The ammunition arrives in the theater in configured loads. Either the CSA or ASP configures the CLs into mission configured loads (MCLs) prior to shipment forward to the ATP.

3-5. The CMMC schedules resupply in accordance with priorities established by the corps commander. The corps movement control center (CMCC) notifies the CSA and ASP where and when transportation will arrive. After ammunition is loaded, the RF tags are verified along with the correct cargo and destination. All ammunition shipments should be tracked through the MTS delivery, coordinates, and time.

AMMUNITION SUPPLY POINT OPERATIONS

3-6. The ASP is located in the vicinity of the DSA, but is non-organic to the division and run by corps assets. The ASP is run by the corps DS ammunition company and provides support to the division ATPs and units not supported by an ATP.

AMMUNITION TRANSFER HOLDING POINT OPERATIONS

3-7. ATHPs function mainly as temporary distribution points, conveniently located to facilitate rapid issue to the users. ATHPs are operated by the HDCs FSBs for maneuver brigades, and the HSC DASB for the aviation brigade and division cavalry squadron. When utilized, the rear ATHP is located in the vicinity of the DSA. It is established and operated by the corpsDS ammunition company. The rear ATHP is responsible for providing Class V support to divisional and non-divisional assets located in the division rear. One DAO representative will be located at each ATHP. These DAO representatives manage the issues of ammunition.

3-8. The ATHP is used when forward deliveries are not required. Units directed to pick up ammunition from the ATHP follow the normal request procedures outlined previously, and prepare a DA Form 581 (*Request for Issue and Turn-In of Ammunition*), which is sent to the DAO representative at the ATHP. The requesting unit submits the DA Form 581 through the BN/TF S4, who approves the request and either forwards it to the brigade S4 or has the unit hand-carry it to the brigade S4 for approval. The DAO representative confirms the request through the DAO prior to issue.

3-9. If the unit has a heavy extended mobility tactical truck (HEMTT)/LHS, it is directed to the appropriate "rack" for pick-up. If the unit requires a "break bulk" issue, the ATHP section issues munitions based on the DA Form 3151-R (*Ammunition Stores Slip*) provided by the DAO representative. The DAO representative goes to the respective SPT OPS section and uses the CSSCS or MSE to coordinate and confirm. Coordination on the location, amount, and type of ammunition received at the ATHP is determined among the DAO, CMMC, and the respective SPT OPS officer, based on guidance from the DISCOM commander, and the division G4 and G3. Ammunition is delivered on flatracks by corps transportation assets using PLS trucks and trailers.

3-10. ATHP personnel will interrogate RF tags of arriving PLS shipments to gain immediate visibility of the shipment and enable it to immediately identify the organization where it will be issued. Units arrive at the ATHP to pick up ammunition, drop off empty or partially empty ammunition flatracks, and receive fully loaded flatracks. ATHP personnel assist the unit PLS in transloading ammunition. The ATHP section reconfigures loads to meet mission requirements on a limited basis only. The flatracks are normally issued as shipped. If partially empty flatracks are returned and the returned ammunition is required within the brigade, the ATHP section may consolidate the ammunition from the partially empty flatracks and make full loads for issue within the brigade. All empty flatracks are shipped back to the ASP or CSA as soon as possible.

3-11. The ATHP representative reports all issues and turn-ins. Corps transportation assets used to deliver ammunition resupply pick up the unit turn-ins and return them to their respective SPT OPS and the DAO for immediate retrograde. When time and equipment permit, the ATHP representative will attach RF tags to the retrograde shipments. The MTS tracks the ammunition vehicle returns as they are retrograded to the rear. The MTS provides the ability to redirect the shipment if needed. The ATHP maintains the ammunition stocks they can transport.

STRYKER BRIGADE COMBAT TEAM—BRIGADE SUPPORT BATTALION

Brigade Ammunition Office

3-12. The brigade ammunition officer (BAO) manages ATHP operations. The BAO acts in concert with the ARFOR, transportation managers, and the ATHP to accomplish coordination of assets, monitoring and cross-leveling of stocks, monitoring supply status data/accountability on munitions stock at the ATHP, providing technical assistance and monitoring ammunition surveillance, and validating ammunition requests.

Ammunition Officer

3-13. When the Stryker brigade combat team (SBCT) is independently deployed, a BAO, normally a warrant officer, and an ammunition logistics NCO in the BSB SPT OPS section functions as the brigade ammunition office responsible for Class V commodity management. The BAO will function as a member of the DAO staff when the SBCT is not independently deployed.

3-14. The BAO acts as the principle munitions staff officer for the brigade and provides assistance in all matters pertaining to munitions support, munitions requirements, and availability. The BAO maintains direct liaison with the SBCT S3/S4, the BSB S3/S4, and supported units within limits defined by the SBCT commander. The BAO provides input on the proper positioning of the ATHP and ensures it is positioned to most effectively support maneuver elements of the SBCT consistent with METT-TC. The BAO should also provide input to OPLAN development, specifically to those sections or annexes that identify munitions support to maneuver elements. The duties of the brigade ammunition officer (BAO) include the following:

- Preparing plans and procedures for ammunition operations.
- Maintaining ammunition stocks records and reports through SAAS-MOD.
- Supervising ammunition operations.
- Consolidating and validating ammunition requests.

3-15. The BAO is equipped with a SAAS-DAO. The SAAS-DAO allows the BAO to manage brigade or task force (TF) organization, produce and manage reports, compute and maintain training ammunition requirements during extended support and stability operations, and submit electronic DA Forms 581 to a SAAS-ASP. The ATHP uses the SAAS-ASP to account for any turn-in of unused ammunition from using units, and all gains/losses until the corps slice arrives.

3-16. The ammunition logistics NCO is the principle enlisted assistant to the BAO. He performs duties as assigned consistent with the responsibilities of the brigade ammunition office, and may be designated to act on behalf of the BAO in his absence. Additional responsibilities might include—

- Developing an operational SOP for ATHP operations.
- Providing technical assistance, coordination, and advice on ATP operations.
- Monitoring munitions flow into and out of the ATHP.
- Ensuring ATHP operations comply with SOPs.
- Establishing primary and back-up communication linkages.
- Coordinating with transportation elements.
- Coordinating munitions receipt and handling at the aerial port of debarkation (APOD).

Ammunition Transfer Holding Point Section

3-17. The ATHP section is equipped with a SAAS-ASP hardware suite capable of operating either the SAAS-ASP or SAAS-ATP. The decision to select which platform to use is based on METT-TC and command guidance. Additionally, each platform has different capabilities that should be weighed when making this decision. This flexibility allows the ATHP section to initially operate the SAAS-ASP in a new and austere theater. By doing so, ammunition transaction data is made available to the supporting MMC, which provides echelons above brigade (EAB) visibility of what the brigade has received, and facilitates the anticipatory logistics process. Additionally, TAV resolution is enhanced because the SAAS-ASP operates in a retail mode. Operating the SAAS-ASP also allows the ATHP to support ammunition flow out of the brigade area as well as into it, such as might be necessary when sustainment is called forward and is held at the ATHP; or may include support to non-brigade units operating in the BSA.

3-18. When the brigade is augmented with a corps ammunition element, the ATHP may pass off their data to the inbound element platform. The ATHP can then re-establish their system as a SAAS-ATP platform that is more appropriate to a mature or maturing theater.

Ammunition Transfer Holding Point

3-19. The functions of the SBCT ATHP differ from the rear ATP in that the SBCT ATHP performs more like an ASP.

- Ammunition receipt.
- Ammunition issue.
- Ammunition reconfiguration.
- Inventories.
- Transload.
- Split-based operations.
- Supervision of ammunition supply operations.

ATHP DISPLACEMENT

3-20. The relocation requirements for the SBCT's ATHP are no different from AOE or Force XXI doctrine. The ATHP provides dedicated support to users as far forward as possible. Brigade transportation assets assists the ATHP section to relocate. The ATHP moves as the force maneuvers. In a combat scenario, the ATHP should be prepared to move every 24 hours for security reasons or when it is unable to support operations from its location. In a stability operation or support operation, there may be little or no requirement for movement. When it does have to move, the ATHP requires external transportation support. Detailed plans should be established to allow for quick, orderly movement under pressure.

3-21. Evacuation and/or emergency destruction priorities should be established for the most critical munitions, dependent on METT-TC. Communications must be maintained between the EAB munitions support structure and supported units. Munitions flow in support of the brigade must not be disrupted. An ATHP may be moved in three phases; pre-movement, movement, and post-movement, as described below.

3-22. Planning input, coordination, and guidance are provided by the BAO, BSB SPO, S3, S4, and ATHP section to ensure a coordinated, safe, and quick

relocation is conducted. The BAO must communicate with using units and EAB munitions support structure to ensure the flow of munitions is not disrupted. The BAO also assists in site reconnaissance and site selection. The coordination loop for BSB transportation assets must be closed to assist with the relocation. The ATHP requires more than one lift to relocate. With guidance, ATHP personnel will conduct the relocation.

3-23. The BSB organizes convoy support and security for movement to the new site. Movement operations depend on the tactical requirement for uninterrupted munitions support. If continued support to the brigade is required, the BAO establishes an advanced element at the new site and coordinates the arrival of MHE, personnel, and munitions. EAB munitions support structure begins shipment to the new site as required. On closure at the new site, the BAO and ATHP section establish operations and ensure all required MHE, personnel, and stocks have been relocated.

STRYKER BRIGADE COMBAT TEAM MUNITIONS SUPPORT

3-24. The SBCT has utility in all operational environments against all projected future threats. The many possibilities for utilization require that the SBCT receive munitions support that ensures the right types of munitions arrive in the right quantities at the right place and at the right time. The SBCT is optimized primarily for employment in SSC operations in complex terrain, confronting low-end and mid-range threats that may employ both conventional and asymmetric capabilities. It deploys rapidly, executes early entry, and conducts effective combat operations immediately upon arrival to prevent, contain, stabilize, or resolve a conflict through shaping and decisive operations. It also participates with appropriate augmentation in stability and support operations as an interim entry force and/or as a guarantor to provide security for stability forces by means of its extensive combat capabilities. The SBCT participates in MTW as a subordinate maneuver component within a division or corps, but only with augmentation.

Initial Support

3-25. Initial munitions support is required to ensure the SBCT deploys with the prescribed, combat-ready amount, and type of munitions necessary to ensure successful, decisive action. The SBCT must deploy rapidly by air to a theater of operations within 96 hours. To be able to conduct effective combat operations upon arrival in the AO, the SBCT deploys with a full combat load of ammunition.

3-26. The urgency of the deployment and the requirement for decisive action may dictate initiating combat operations immediately upon APOD roll-off in an AO, without waiting for offloading, forward staging, positioning, and distribution from the APOD to the ATHP. This roll-off combat capability requires that the SBCT deploy with an uploaded combat load of munitions. A combat load is the MACOM-designated quantity of munitions and items authorized to be carried by unit personnel and combat vehicles (turret-load). Troop-carried munitions to accompany troops (TAT) are those issued before departure from the aerial port of embarkation (APOE). Turret-load/combat-load munitions are those authorized for transportation in thick-skinned vehicles for deployment purposes.

3-27. While an uploaded deployment provides capability for immediate mobility and lethality, it requires an assessment to determine the impact on maximum on the ground (MOG) capacity at the APOE. Additional weight of

uploaded combat vehicles and increased safety risks may negatively impact airflow and ultimately impact the 96-hour deployment timeframe. International clearances and waivers must be carefully preplanned for an uploaded deployment.

Sustainment Support

3-28. Upon arrival at the APOD, 463L pallets are received by U.S. Army elements and transloaded onto CROPs or flatracks. Munitions may have to be staged or spotted and held briefly at a munitions holding area prior to transportation to the ATHP. It is essential that appropriate MHE be available at the APOD and the holding area to conduct the receipt, offloading/staging, and transportation missions. Due to the brigade limited CSS footprint, transportation capabilities will be limited. The brigade will utilize CSS reach concepts and exploit regionally available support assets for movement of munitions from the APOD to the ATHP. The brigade ammunition officer is responsible for ensuring accountability, security, and proper loading/handling procedures are enforced at the APOD, and for the implementation of measures to ensure that ITV is maintained. The brigade ammunition office maintains direct liaison with the brigade and BSB staffs to facilitate movement.

3-29. Upon arrival at the ATHP, munitions are inspected and accountability is established through SAAS-MOD (to be replaced by the GCSS-A ammunition module). Munitions are segregated into maneuver battalion/unit sets and held at the ATHP until called forward. Munitions must be periodically inspected to ensure serviceability and safe storage. The safety guidance in DA Pam 385-64 should be used to develop SOPs.

Follow-on Sustainment Support

3-30. Follow-on munitions sustainment support beyond the unit basic load (UBL) of ammunition may be required. Sustainment flow is based on previous RSRs/CSRs. Follow-on munitions support to the SBCT involves two basic functions: planning and execution. The brigade ammunition office planning function focuses on how to logistically support the tactical plan to ensure the right quantity and type of munitions are available at the right time and at the right place. The execution function is used to monitor the distribution and flow of munitions, and to determine the amount of munitions needed to support the brigade.

3-31. Current and anticipated tactical operations drive SBCT sustainment munitions requirements. Sustainment munitions are provided to the brigade from EAB support activities. Requirements are determined in coordination with the BSB SPO, S2/S3, and the BAO. The S4 of each maneuver battalion requests munitions based on consolidated user requirements needed to support tactical operations. Based on requests submitted by battalions and munitions allocations to users (based on CSRs), the BAO determines the type and numbers of MCL packages, then submits these requirements to EAB support activities. MCL configurations continue to flow until they are changed in type and/or quantity.

3-32. These munitions may be configured in the CONUS, an intermediate staging base (ISB), or other location(s) within the theater of operations. The ATHP has very limited configuration capability based on available MHE and personnel. Typically, these munitions would be configured as required, documented, loaded, and organized on ready-to-deploy CROP flatracks/463L

pallets that can be moved forward quickly via strategic or intra-theater transportation to the designated APOD. Procedures for transportation, handling, and accountability of follow-on munitions once they arrive at the APOD and ATHP are essentially the same as for the receipt of initial munitions.

User Resupply

3-33. The S4 of each maneuver battalion requests munitions based on consolidated user requirements needed to support tactical operations. Users forward their requirements in the LOGSITREP to their battalion S4. The LOGSITREP should include on-hand quantities, critical shortages, and forecasted changes in munitions requirements based on command guidance. The maneuver battalion S4 consolidates the battalion munitions requirements and submits them to the BAO within authorized quantities (the CSR), if established. The BAO verifies that the request is within the unit CSR and that the ATHP has the required types and amounts.

3-34. The BAO notifies the ATHP section of a pending resupply mission and identifies the required type of MCL and quantity. The transportation platoon is tasked to move munitions and dispatches a HEMTT-LHS to the ATHP. Loaded LHS flatracks are dropped at a designated battalion release point (BRP). Close coordination with supported units is required to establish the location and time of delivery. Using units assume accountability upon receipt and use their organic personnel/equipment assets to re-arm. The BAO, in conjunction with the ARFOR, determines if on-hand stocks in the ATHP are sufficient to meet requirements or if munitions from an EAB support activity will be required.

OBJECTIVE FORCE MUNITIONS DISTRIBUTION

3-35. The objective force is organized, manned, equipped, and trained to be more strategically responsive, deployable, agile, versatile, lethal, survivable, and sustainable across the full spectrum of military operations. The objective force will be comprised of modular, scalable, tailorable organizations equipped and trained for prompt and sustained land operations that can transition quickly between changes in task, purpose, and directions, maneuvering into and out of contact, without sapping operational momentum. Decisions will be determined by trained, equipped leaders and soldiers at the lowest levels.

3-36. The Army will bring a campaign quality to the fight, ensuring long term dominance over evolving, sophisticated threats with asymmetric capabilities, maximizing the effectiveness of standoff while maneuvering on a non-contiguous distributed battlefield against an adaptive enemy. The team requires an integrated seamless joint C4ISR—a revolutionary architecture with linkages to current and Stryker forces, joint, interagency, and multinational forces. The Army knowledge enterprise will enable this knowledge-based force through an architecture that connects “factory to foxhole” and “space to mud.” Soldiers will have the prerequisite communications equipment to receive and send the right information, at the right time, and the right place.

3-37. Objective force systems will support decisive maneuver (horizontal and vertical, day and night) in all weather and terrain as a dismounted or mounted combined arms team without compromising unit integrity. The

systems will provide the best combination of low observable, ballistic protection, long-range acquisition and targeting, and first round hit-and-kill technologies. They will be capable of destroying enemy formations at longer ranges with smaller caliber, greater precision, and more devastating target effects. Commonality of systems and components, and interoperability with multinational forces reduces demand for fuel, ammunition, and power generation. Advanced sustainment technologies will reduce the logprint in theater.

3-38. The objective force will be strategically and operationally responsive; an Army that can deploy a unit of action (UA) in 96 hours, a division in 120 hours, and 5 divisions in 30 days using a mix of air, sea, and land movement, and prepositioned equipment. It will arrive at multiple entry points as a coherent, integrated combined arms team capable of rapidly concentrating combat power and fighting upon arrival. The UA must be self-sustainable for three to seven days of operations and maintain combat power with dramatically reduced theater stockpiles through reach-back access to supplies, sustained distribution management, and real-time tracking of supplies, equipment, and personnel (military, DOD civilian, and contractor).

3-39. The objective force will meet national and defense requirements, and accomplish the goals of the Defense planning guidance, joint and Army visions. The objective force will incorporate the Reserve Component as part of a joint, interagency, and multinational team in support of rapid deployment and operations against a range of threats, including defense of the homeland. The objective force is an offensively-oriented, integrated combined arms, multi-dimensional maneuver force that will employ revolutionary operational concepts enabled by technology. The force will possess the inherent capability to conduct decisive maneuver by closing with and destroying enemy forces through assured overmatch, tactical standoff, and close combat assault synchronized with Army and joint fires to dominate any point on the spectrum of operations.

DISTRIBUTION AND SUPPLY

3-40. Improvements in weapon systems and munitions capabilities require changes in ammunition distribution methods. The introduction of combat or platform CLs and weapon systems that can perform self-rearm will enable UAs to eliminate organic Class V logistics support. In addition, the UAs will rely on reach-back (out of the UA AO) and increased responsiveness of the supply and distribution system.

3-41. FCS weapon systems must be designed with ammunition handling capabilities that provide the potential to conduct self-transloading of modular ammunition packages, from weapon system to weapon system, from distribution platform to weapon system, from ground to weapon system, and vice versa. Embedded sensors in the objective force platforms will enable continuous monitoring of ammunition status from the consumer to the provider. Additionally, modular ammunition packages and munitions will be designed to allow crew cross-leveling of ammunition from system to system within the battlespace, and by the unit of employment (UE) ammunition resupply section and/or echelons above the UE.

3-42. If a pod concept is used, pods will be either collapsible or expendable, and/or will be designed to allow direct transloading of single munitions from

a distribution platform to a pod within the weapon system. This will reduce or eliminate pod or flatrack retrograde requirements.

3-43. In the UA, there will be no organic Class V handling or distribution force structure. Ammunition will be distributed through either cross-leveling or transloading. Cross-leveling consists of the using unit transferring single or multiple munitions from system to system and modular ammunition package to modular ammunition package in accordance with command priorities. Transloading consists of the transfer of fully or partially loaded modular ammunition packages from the distribution platform to the using unit.

3-44. Units will deploy with the required ammunition to self-sustain for three days of high OPTEMPO operations. Resupply will occur at the sustainment replenishment site (SRS) or mission staging site (MSS) in accordance with the unit OPLAN. In addition to distribution by the ammunition resupply section of the UE, units and crews will conduct cross-leveling of ammunition to create full loads while in the SRS or MSS. These actions can occur before or simultaneously with the ammunition resupply operations.

3-45. The brigade HQ combat power cell in coordination with the FSB sustainment cell will be responsible for monitoring ammunition status of weapon systems, directing cross-leveling activities within the UA, and coordinating with the UE for ammunition resupply activities. Should the need arise, ammunition can be prepared for aerial delivery directly into the battlespace. Weapon system crews will be responsible for conducting self-transloading from the ground to the weapon system.

3-46. ASPs and/or CSAs may be established at an ISB (if utilized), by the UE, METT-TC dependent. At the ASP and/or CSA, ammunition will be configured in weapon system CLs for distribution to the UE1 and UA. The ammunition resupply section of the UE has limited organic capability to reconfigure loads.

3-47. Once at the SRS or MSS, modular ammunition packages will be transloaded from the distribution platform to the weapon system platform using on-board transloading capabilities. If the weapon system is not capable of receiving the ammunition, the loads will be placed on the ground, and the weapon system platform will have the capability to self-load without external MHE or other handling requirements. Limited and extremely temporary ammunition holding areas may be established in the MSS, METT-TC dependent. There will be no ammunition holding areas established in a SRS.

3-48. Explosive ordnance disposal (EOD) capability is not routinely organic to a deployed unit. This capability is accessed through operational channels and may come from U.S. military or multinational EOD elements in the UE. U.S. military EOD elements will utilize reach to access ammunition depots and arsenals, as well as the CONUS-based technical intelligence agency for information on EOD issues.

MATERIEL HANDLING SYSTEM

3-49. Each future combat system (FCS) platform must have the automated capability to self-load or exchange preconfigured sustainment packages (both up-load and down-load) from grounded stocks, and tactical wheeled vehicle or compatible intermodal delivery platform (in accordance with O&O 6.1.6.9).

Rationale: Minimizes MHE and soldier exposure, and enhances soldier protection while reducing the logprint. Leverage preconfiguration packaging, and platform-embedded materiel handling and lift for rapid, accurate, and agile resupply that minimizes demand on soldiers. This requirement contributes to eliminating the requirement for MHE in the battlespace. This speeds sustainment replenishment "pit stop" operations and rapidly returns FCS platforms to the fight.

Reason for Change: Clarity. The grounded stocks requirement had been included but was omitted in the final version. It must be incorporated to ensure the complete potential required of the automated capability.

3-50. FCS developmental ammunition must function with no degradation after 10 years in depot-level protected storage, or after two years (threshold) and three years (objective) field storage/uploaded on the vehicle. The ammunition must meet operational performance requirements within the operating range of -32 degrees Centigrade to +65 degrees Centigrade after having been stored within the extreme range of -51 degrees Centigrade to +71 degrees Centigrade.

Rationale: Ensures FCS ammunition is ready for use in all conditions in which the UA may operate. Also supports long-term storage for readily accessible ammunition resupply in support of Army operations worldwide and for industrial base considerations. The reason that the FCS developmental ammunition functionality threshold is 10 years instead of the 20-year lifespan associated with conventional ammunition is that much of the FCS ammunition is considerably more technically-sophisticated with seeker and guidance/control electro-mechanical components like those of advanced missile systems that require inspection/upgrades. A 20-year unattended life span is not technically feasible at this time.

Reason for Change: Technical performance numbers were developed by the U.S. Army Tank-Automotive Command (TACOM) Armament Research, Development, and Engineering Center (ARDEC) reliability and assurance team and are now the established performance range for FCS ammunition.

3-51. Ammunition packaging must be durable, easily reusable, and compatible with all Army distribution platforms.

Rationale: To ensure timely and effective delivery in accordance with the Army's distribution-based supply system.

Reason for Change: A reduction in packaging materials requirements.

3-52. Diagnostics and prognostics either embedded within the munitions or in either the packaging or distribution system are required for FCS missiles and primary munitions to monitor health and reliability data of these critical assets. This capability must allow for remote monitoring, particularly when in long-term storage.

Rationale: Diagnostics/prognostics of FCS ammunition will ensure efficient storage and delivery of critical munitions that perform as designed when

needed. This capability will reduce life cycle costs by avoiding historical trends of destroying suspected faulty munitions due to the lack of knowledge on the legacy munitions health. Diagnostics/prognostics (RRAPDS type device) may be on an inter-model pallet or flatrack for bulk items, as these devices are too costly to place on every depot pack of ammunition; however, ammunition status must still be known to ensure reliability of stock.

Reason for Change: Provides a clearer definition of the requirement and allows for some flexibility to minimize costs.

KEY DISTRIBUTION ENABLERS

3-53. Successful logistical support of Force XXI, interim, and the objective force units into the 21st century will require a "living" vision that charts and adjusts the critical path to future doctrine, organization, training, materiel, leadership, personnel, and facilities (U.S. DOD) (DOTMLPF) requirements. Performance and technological enhancements continue to evolve and must be incorporated as enablers, leveraging digitally produced logistics information and 21st-century technology to achieve munitions support in a seamless CSS battlespace.

3-54. Logisticians will use enhanced SU to take anticipatory and responsive actions to provide focused logistics support to engaged forces. New support concepts using 21st-century business practices call for centralized management and decentralized operations on a global scale. The ordnance corps will provide responsive, flexible, and precise support to the field by integrating technological enablers that enhance focused logistical support that masses effects rather than units. The Army will continue to rely on its soldiers and civilian work force to find innovative ways of combining available, and sometimes new, technologies to achieve warfighting success.

Key Enablers

3-55. Enabling technologies and the ability to integrate these new systems into the CSS distribution system is key to achieving success in reducing the logprint on the battlefield and providing the amount of logistics required by combat units at the right place and time. The battlefield distribution concept is predicated on several key technological enablers. Munitions automation systems and related C2 automation systems, to include the CSSCS and the Force XXI FBCB2 system, are described in chapter 1 and appendix A of this manual.

Smart Distribution System

3-56. Objective force operations require a logistics system with timely, rapid, and pulsed delivery of supplies. Incompatibilities between transportation modes, MHE, and cargo platforms in the current system will force the inefficient rehandling of supplies by soldiers and require a variety of equipment at each logistics node. Key to success is the use of technology to transform the current cumbersome, seamed, and inefficient distribution operations system to a seamless, inter-modal smart distribution system. As indicated in figure 3-1, the transformation of these three distribution system components through technological and equipment enhancements will reduce the equipment variants, provide timely support, reduce the logprint within the battlespace, and improve the efficiency of the distribution system. Each of the subsystems addresses particular problems within the distribution

system. Benefits derived from the implementation of smart distribution include the following:

- Responsiveness – streamlined sustainment process supporting the objective force.
- Deployability – increased efficiency in distribution nodes.
- Agility – ability to respond to changing unit needs to maintain battle rhythm.
- Lethality – reduced disengagement time enables continuous operations.
- Operations.

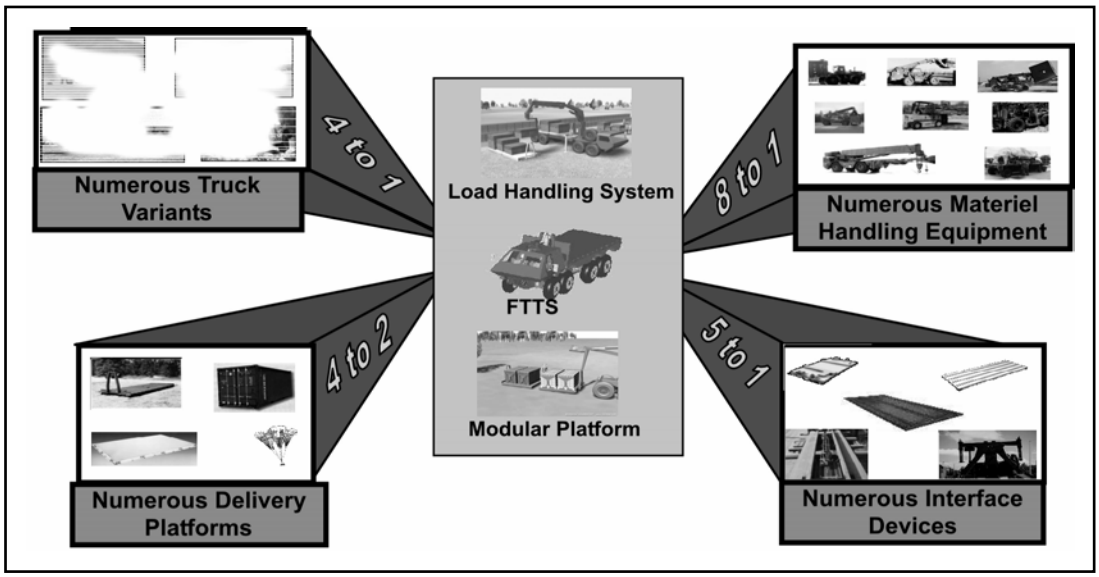

Figure 3-1. Smart Distribution System – Subsystems

Intelligent Materiel Handling Equipment

3-57. In current distribution operations, numerous types of MHE are required to either transfer cargo platforms between transportation modes or to reconfigure loads on the platforms. Manning and maintaining MHE adds to the logprint at each distribution node. Additionally, personnel spend numerous hours determining safe and stable cargo configurations for shipment on flatracks or CROPs. The components of the intelligent LHS help to reduce the personnel and equipment requirements for accomplishing these distribution tasks.

3-58. The intelligent LHS (see figure 3-2) has two components: the articulated load handling arm and CL building software. The articulated arm will perform the same function as the LHS on the PLS and HEMTT-LHS by loading modular platforms or ISO-compatible containers onto the future tactical truck system (FTTS). As an improvement over the current LHS, the articulated arm movements will allow the FTTS to load or unload platforms from C-130s (and other aircraft) without obstruction by the aircraft tail. The articulated arm will also have a materiel handling capability. The arm will be capable of lifting supply modules on and off of a platform loaded onto the FTTS. Through machine vision and sensors on the arm, the FTTS operator

will pick up loads from the ground, then robotics will place the load at a predetermined location on the platform as determined by the CL building software.

Figure 3-2. Intelligent Materiel Handling Equipment

Modular Platform System

3-59. Current incompatibilities require numerous interface devices for cargo platforms, such as PLS flatracks and CROPs, to be transported on aircraft and watercraft. This will force soldiers to rehandle all classes of supply using numerous types of MHE from the national provider to the objective force UA. Interface devices add to the cargo handling time by requiring additional steps to connect or disconnect them in distribution operations, thus creating a larger logprint in terms of the soldiers required to perform these extra steps. Examples of these enhancing interface devices include the following:

- Container handling unit (CHU) for the PLS and the HEMTT.
- LHS to carry ISO containers.
- Roller platform for air deployment (RPAD) for ISO containers.
- CROP aircraft interface kit (CAIK) (see figure 3-3) for loading/unloading a CROP on a C-17 or C-130 (also known as a Slipper device).
- Flatrack aircraft interface kit (FRAIK) for aircraft loading/unloading the wider flatrack.
- Transportation container transfer kit (TC TK) rails for loading containers on PLS trailers using the CHU.

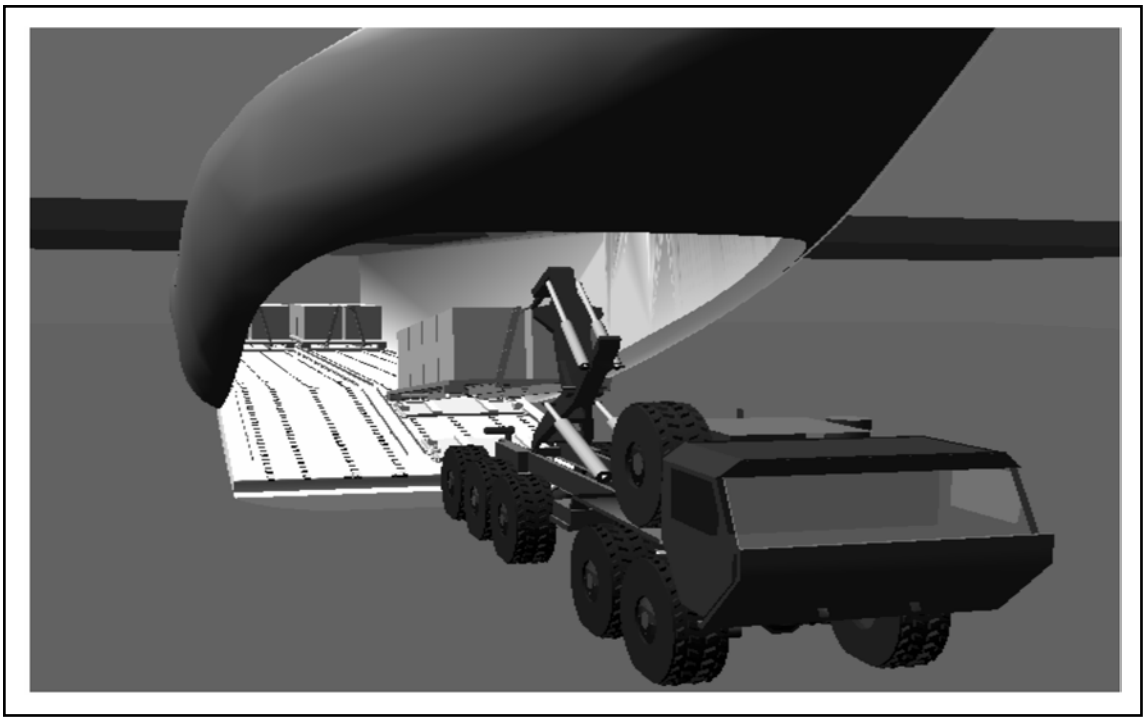

Figure 3-3. CROP Aircraft Interface Kit

3-60. The Modular platform system (see figure 3-4) will address interface issues through its design characteristics. The platform itself will be designed to interface directly with the logistics rails in Air Force aircraft. Additionally, the platform will be capable of being loaded onto a PLS or HEMTT-LHS making it compatible with legacy and interim systems that will be present during the transition to the objective force. The platform will be modular and capable of disconnecting a portion of the platform and loading the remainder of the platform back onto the FTTS, as described in the next paragraph. This will provide a less-than-truckload capability not available with the CROP or flatrack variants. Additional capabilities being designed into the modular platform are for it to be air-droppable and sling-loadable to reduce the numerous types of platforms in the distribution system.

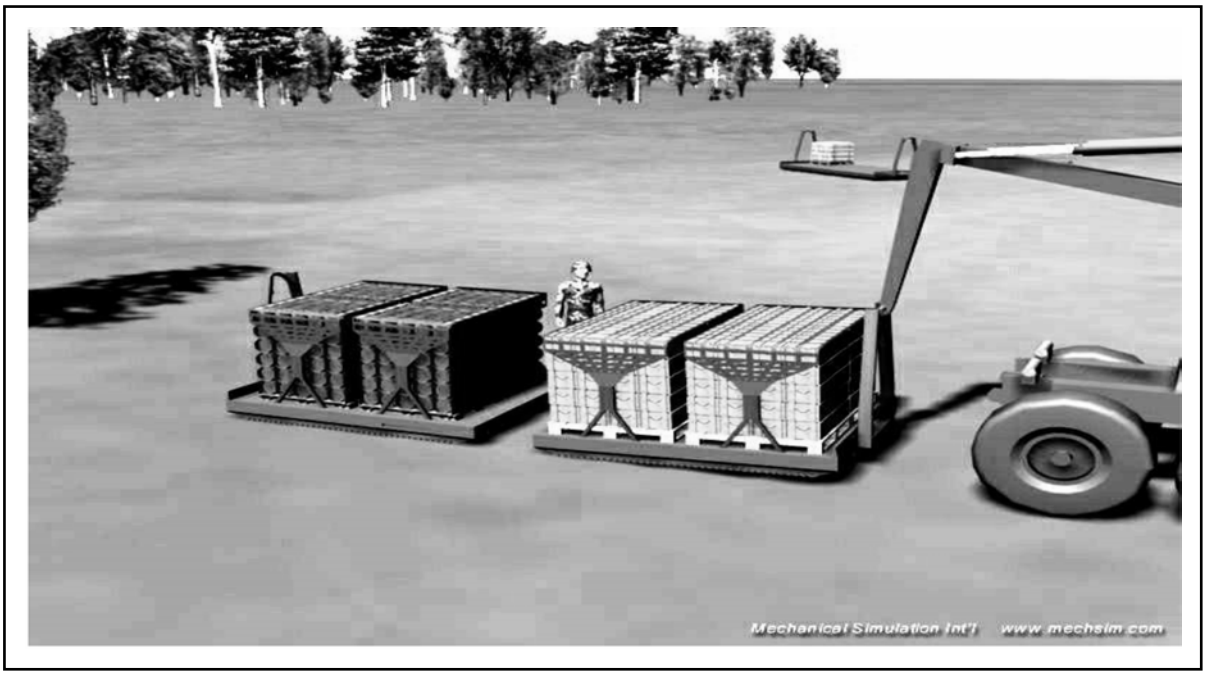

Figure 3-4. The Modular Platform System

3-61. The slipsheet is an innovative concept of operation that includes using a prime mover to attach to and pull a 20-foot slipsheet, with load, from the ISO container in a single pull. The slipsheet can slide directly onto an awaiting flatrack. Two 20-foot slipsheets can be placed in a 40-foot box and slide individually from the ISO container. MHE used by logistical elements will be greatly improved over today's most modern versions. Future MHE will enhance lift and handling capabilities throughout the ammunition logistics pipeline. Robotic remote-controlled MHE, multipurpose MHE (forklift/crane/container/handler), and exoskeleton devices will expedite the rapid handling of ammunition through the logistical pipeline. Soldier personal computer aides will play an important role in all phases of ammunition logistics. Personal computer aides will be used in the management of receipts, issues, storage, inventory, safety, and environmental controls.

3-62. Hardware enhancements provide streamlining opportunities that may decrease deployment time for logistics support of the SBCT. The Slipper and the Shoe are hardware enhancements evaluated for use with the CROP on C-17 and C-130 aircraft. The Slipper locks in directly with the logistics rails of the C-17 and can be chained between the logistics rails of the C-130. The Shoe locks in directly with the logistics rails of the C-130 and can fit down the center of the C-17 rails. Relative to pallets and airlifting CROPs, the Slipper has the capability to double the strategic lift capacity of a C-17. The Shoe and Slipper demonstrated the capability to double the tactical lift capacity of the C-130 aircraft. Both devices, when employed, greatly reduce deployment time and reduce MHE requirements compared to a 463L-based distribution system.

Rapid Load Technology

3-63. Use of load-conforming smart tie-down systems (figure 3-5) reduce loading time and enable rapid securing of CLs.

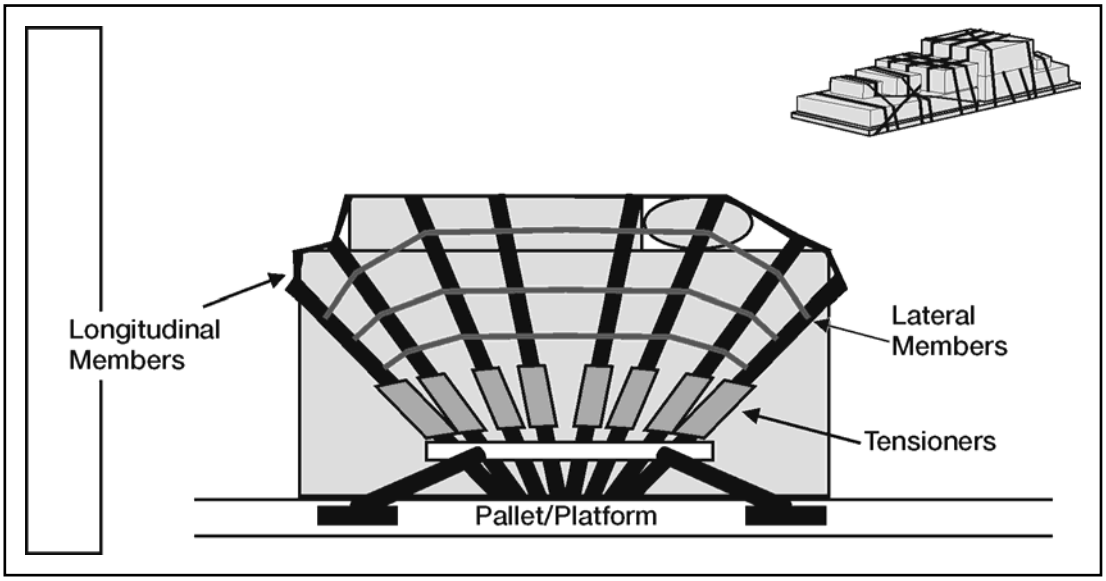

Figure 3-5. Rapid Load Tie-Down Hardware

Future Tactical Truck System

3-64. In legacy and interim organizations, numerous truck families comprise the transportation links in the ground distribution system. The PLS, HEMTT variants, and the FMTV all have their own maintenance and repair parts stockage requirements that collectively create a larger logprint. The future tactical truck system (FTTS) will be a single, common-chassis family of vehicles that will meet ground transportation requirements for distribution in the objective force. A combination of embedded diagnostics and hybrid-electric power will further reduce the sustainment requirements for the FTTS. Smart distribution adds a vehicle alignment system to the FTTS (see figure 3-6). This system consists of a series of sensors enabling the FTTS to quickly align with modular platforms, containers, Air Force aircraft, trailers, or other trucks for loading, unloading, or transloading. This will reduce the need for additional personnel to guide the vehicle and help reduce the amount of time required to acquire loads.

Figure 3-6. The FTTS with the Intelligent Load Handling System

ENHANCED DELIVERY SYSTEM—AIR

3-65. The enhanced delivery system—air (EDS-A) (see figure 3-7) initiative is focused on providing modular, lightweight, air mobile flatracks, with an aircraft-compatible LHS. Rapid deployability and rapid distribution are the principal objectives reducing the need for double handling and MHE. This initiative supports the transportation system need for a seamless transportation/distribution system and the distribution need to reduce customer wait time (CWT). Enhanced strategic responsiveness and the ability to achieve deployment timelines are encouraging outcomes of this initiative. In-theater payoffs for the warfighter have been estimated as—

- Forty percent fewer sortie equivalents.
- Soldier productivity increased by four times.
- Forty-five percent faster on-the-ground delivery.

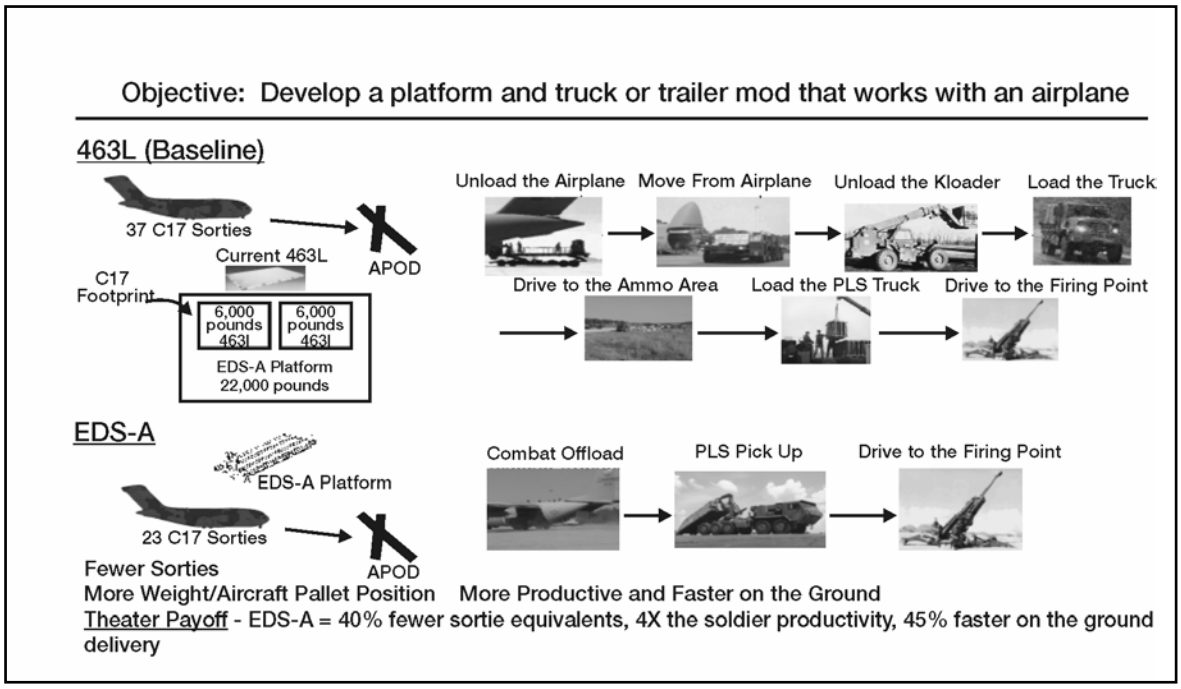

Figure 3-7. Enhanced Delivery System—Air

AMMUNITION PREDICTIVE TECHNOLOGY

3-66. Ammunition predictive technology is a scientific-based discipline that provides the tools and methodology aimed at reducing premature degradation and/or failure of munitions under storage conditions or operational environments. This effort ensures safety, reliability, and readiness by predicting and evaluating the service/shelf life of munitions (see figure 3-8). Life models will be developed for integration into smart sensors to provide real-time indicators of munitions readiness. Extreme environmental exposure histories can degrade all, or portions of, munitions to a degree that results in significantly reduced performance or even critical failure, hence jeopardizing mission success. Currently, there is no way to know the extent to which munitions are degraded because their exposure histories are not monitored. This enabler will improve/enhance munitions inspection, tests, and surveillance. Simplistic munitions readiness indicators (such as green equals good-to-go and red equals stop) will enhance soldier confidence. This program also enhances warfighting capability or readiness by ensuring the highest quality munitions are available at any given time/place.

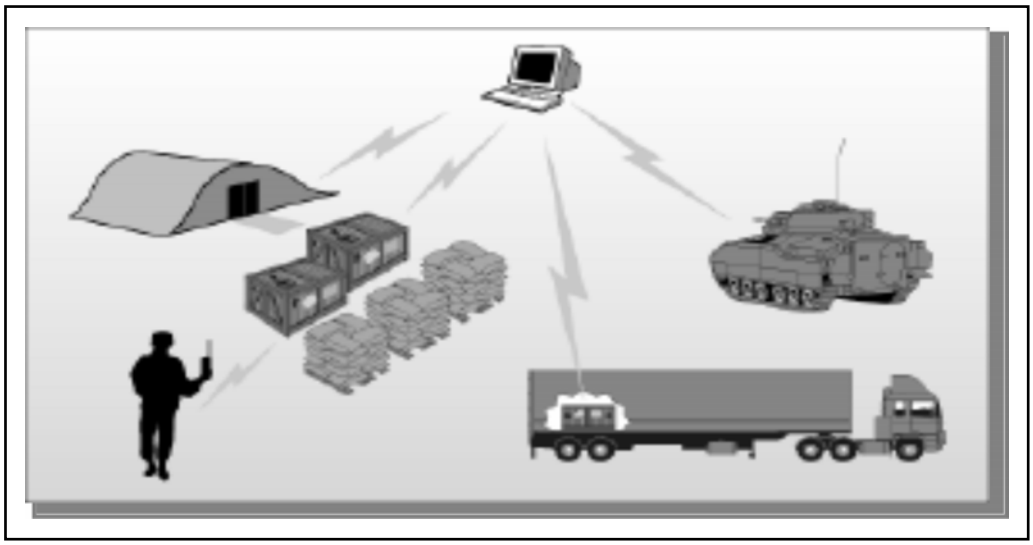

Figure 3-8. Reporting Munitions Readiness

3-67. This enhancement also provides TAV, improves first round effects on targets, ensures precision strike capability, and improves the logistician's capability to provide anticipatory logistics and reduced operating and support (O&S) costs. Manpower requirements will be reduced at field and wholesale levels with sensors and predictive models for inspection, test, and surveillance; rapid and ensured distribution using on-board readiness and assurance sensors assist with distribution decisions. This enabler should reduce supply requirements for munitions and subsequently reduce the weight and volume of Class V delivered on the battlefield. Consequently, preventive maintenance requirements for munitions will also be reduced by introduction and use of munitions predictive technology.

3-68. Ammunition surveillance information system munitions history program (ASIS MHP) is an Internet accessible inspection application that collects and communicates munitions mission-capable status and RRAPDS environmental sensor data directly from the field to command level through the munitions accountability systems of SDS, SAAS-MOD, future WLMP and GCSS. The ASIS MHP reduces the logprint and replenishment cycle time, ensuring a more strategically, deployable, agile, and sustainable force for the future combat system.

CONFIGURED LOAD BUILDING SOFTWARE

3-69. This software provides efficiencies for munitions handling operations that will reduce the labor hours currently required to configure custom loads and increase the distribution velocity of ammunition shipments through the ISB, CSA, and ASPs. This technology will increase the efficiency of the munitions distribution systems and distribution management by providing a planning and decision support tool to enable anticipatory logistics. It will also enhance strategic responsiveness by providing increased throughput of ammunition at storage sites when building custom CLs, and reduce the cost of performing CS/CSS without reducing warfighting capability or readiness by reducing load planning times.

3-70. As a force multiplier, it provides a modular ammunition platoon access to expert load planning guidance. The logistics units will be able to adapt to changes in the maneuver course of action plans to provide rapid and ensured distribution of munitions as required without negatively impacting the battle plan. It supports the distribution need to rapidly configure loads by user need, reduces CWTs, and provides logistics support to the end user.

MUNITIONS SURVIVABILITY SOFTWARE

3-71. Munitions survivability software (MSS) is a computer program designed to aid the soldier or ammunition logistician in quickly establishing safe field ammunition storage areas. MSS automates quantity distance calculations ensuring ammunition storage areas have maximum survivability and a reduced logprint. Personnel can use the software to analyze the stockage objective and plan ammunition storage areas in advance, as well as react quickly and correctly to changing situations. This system will provide a 3-D display of the supply or staging area with overlays of unique geography features and structures, recommended areas for storage, overlays of safety protocols that will point out risk areas, and a set of recommended actions that will mitigate the risk areas that are determined. MSS is designed to interface with the ammunition accountable system, SAAS-MOD, and operates from the SAAS-MOD computer. MSS 2, is an improved and more capable program, and will be capable of operating on the SAAS-MOD or stand-alone computers. Figure 3-9 illustrates munitions survivability software.

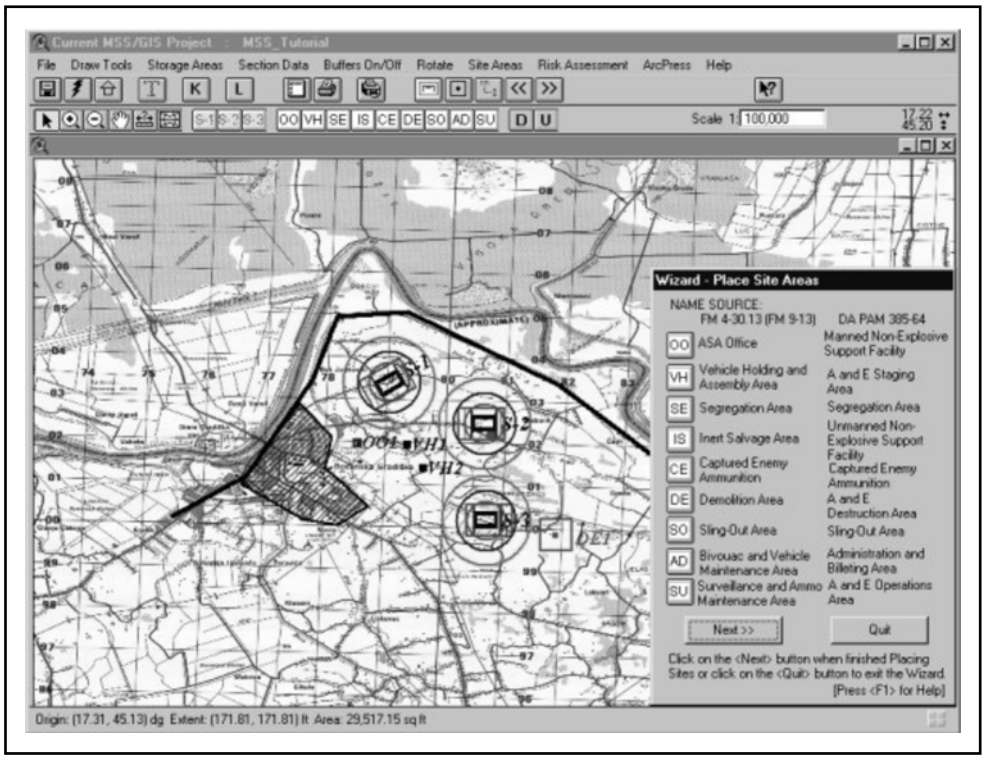

Figure 3-9. Munitions Survivability Software

DIGITIZED AMMUNITION TRACKING

3-72. Ammunition movement will be tracked within the CONUS from initial storage depots and production/assembly plants, through intermodal convergence points at airports and seaports of embarkation (APOEs/SPOEs) to subsequent loading on rapid movement aircraft and ships by battle command logisticians. Tracking will continue through movement to combat theater airports and seaports of debarkation (APODs/SPODs) through battle command logistics activities in the theater and, ultimately, to the combat units or ammunition distribution points. Receipt at the combat user or an ammunition distribution point will be reported back through the knowledge-based digital network system.

3-73. A critical element in this advanced knowledge-based digital network system will be attaining and maintaining ITV and TAV of all ammunition within the system. ITV and TAV will be achieved due to advanced microchip technology in logistics applications (MITLA) used with advanced computer technology, satellite tracking, and advanced satellite communications. MITLA-embedded containers will be tracked from their loading in the CONUS through their movement within the entire transportation system, and finally to their arrival at the combat user. MITLA will constantly monitor the status of each container's movement in the logistics management system and will provide real-time requisition status for all ammunition in the supply pipeline.

PRECISION AND MULTIPURPOSE MUNITIONS

3-74. Ammunition design and acquisition for the future will continue to focus on advanced technology and devastating lethality for smart and brilliant munitions. Future applications include increasing the use of particle beam, electric rail guns, and weapon lasers; replacing solid propellant with liquid propellant; integrating robotics into ammunition operations; and replacing various fuzes with a single multifunctional fuze fitted to a multifunctional projectile. The single multifunctional fuze will also be able to self-destruct if the round does not function as designed. Self-destruct fuzes will reduce unexploded ordnance (UXO) problems encountered during maneuver operation post-battle cleanups. Design and acquisition will also aggressively focus on developing a stand-alone, integrated, multifunctional cannon artillery round that requires no component assembly. This integrated round will replace the current multicomponent round, and reduce the large volume and high tonnage components used today. Design and acquisition will also focus on improved packaging techniques, increased ballistic protection, and easier handling procedures.

Chapter 4
Munitions Planning

The objective of the munitions distribution system is to provide munitions at the right time, place, and quantity to ensure the success of an operation. Munitions planning and operations must be versatile. They must complement combat plans and operations, and improve the ability of the supported unit to accomplish its mission. The supported commander's concept of operations, priorities, and allocations dictate the actions of the ammunition planner. Ammunition planning includes—

- Determining ammunition requirements.
- Echeloning capabilities and ammunition units.
- Establishing split-based operations.
- Preconfiguring ammunition basic loads and resupply amounts.
- When required, using civilian, contractor, allied, and HN capabilities.

PLANNING CLASS V REQUIREMENTS—CONVENTIONAL AMMUNITION ALLOCATIONS

4-1. The Army G8 is responsible for developing munitions programming and budgeting requirements. The Army G3 determines the requirements essential to support a strategy, campaign, or operation. During a conflict, resupply quantities must constantly be reviewed and adjusted based on historical usage data gathered as the conflict progresses.

CONTENTS

OPERATIONAL PLANNING FACTORS

4-2. The United States Army Combined Arms Support Command (USACASCOM) validates the munitions operational planning factor. The Army G4 is the approving agency. The automated operational logistics (OPLOG) planner is the authorized method for determining munitions planning data at all levels. FM 101-10-1 (FM 101-10-2) is no longer an authorized tool for determining operational ammunition planning factors. Ammunition consumption rates for all operations, including stability and support operations, are determined using the OPLOG planner. Units base their ammunition requirements on METT-TC, their projected mission, and the supported commander's concept of the operation and intent. Developing ammunition requirements for using units is the responsibility of their operations section.

AMMUNITION BASIC LOAD

4-3. The ammunition basic load (ABL) is that quantity of ammunition either allocated or issued (depending on the MACOM policy) to a unit to sustain its

operations in combat until it can be resupplied. Basic load requirements are based on the unit weapon density and mission requirements. Units must be able to transport ABLs using organic vehicles, equipment, and personnel.

MUNITIONS CONTROL PROCEDURES

4-4. To sustain tactical operations for specific periods, units determine their munitions requirements and submit a RSR. The RSR is the amount of ammunition that a maneuver commander estimates will be needed to sustain tactical operations without ammunition expenditure restrictions over a specified time. The RSR is expressed as rounds per weapon (on-hand) per day, or as a bulk allotment per day or per mission. RSR computations and routing are performed by unit S3s/G3s. As such, it is not a logistics function, but the S4/G4 should assist in the process. RSRs can be computed using manual or automated procedures. Weapon density (WD) and mission are key to determining the RSR.

DETERMINING THE RSR/CSR

4-5. RSRs are developed by maneuver commanders and submitted to the next higher HQ. HQ at each level reviews, adjusts, and consolidates RSR information and forwards it through command channels. The ARFOR determines the CSR by comparing the total unrestricted ammunition requirements against the total ammunition assets on-hand or due-in. Several factors limit the amount of ammunition available for an operation (such as stockage or lift capabilities). Accordingly, ammunition issues are controlled by CSRs. The ARFOR establishes the CSR, which is based on the amount of munitions available for issue. When a munitions item is in short supply, the CSR is low. The commander determines who receives the ammunition. The DAO informs the G3 of the quantity available.

4-6. The ARFOR commander gives the corps commanders the CSR for each ammunition item. The CSR may vary from corps to corps, based on the mission objectives and corps priorities, the projected threat, and ammunition availability. The corps gives subordinate combat commanders their unit CSR. Each combat commander gives the CSR to each subordinate combat commander. Commanders making CSR allocations to subordinate units should retain a portion of the CSR to meet unforeseen contingencies. The CSR is disseminated to units through the OPORD. The CSR should appear in the OPORD in paragraph 4, or in either the service support or fire support annex. The ammunition requirements of other services and coalition members must be considered when computing the RSR and CSR.

PLANNING MUNITIONS SUPPORT OPERATIONS

4-7. A review of U.S. Army involvement in recent operations clearly indicates the need to improve logistical planning. Plans must be developed to support all levels of combat operations/stability and support operations. It is critical that Class V support planning be detailed and threat-based. For more information, refer to FM 3-0.

4-8. Ammunition units will apply this guidance when developing plans to support the ASCC or combatant commander's plans and priorities.

4-9. Ammunition support planners must anticipate support requirements for operational campaigns by planning for forward logistics bases and extending lines of support. As tactical developments render earlier support plans

obsolete, ammunition support planners formulate new ones. For more information on CSS, refer to FM 4-0.

4-10. The unit commander must identify the logistical support structure that will sustain the unit. This type of contingency planning must be established during peacetime so the unit can develop detailed SOPs and plans. At a minimum, the following factors must be considered during planning:

- Local points of contact (POCs) for unit support (such as computer; engineer; signal; security; defense; transportation; and petroleum, oils, and lubricants [POL]).
- Status charts for unit personnel, equipment, and ammunition, including organic basic load (see FM 4-30.13, appendix A).
- Replacements for equipment, personnel, authorized stockage list (ASL), and prescribed load list (PLL).
- Factors affecting the mission (such as stock objectives, chain of command, site locations/grid coordinates of supported units, identifying supporting MMC, corps movement control battalion [CMCB], QASAS, and hazardous materiel [HAZMAT] certified personnel).
- Equipment staging location and procedures.
- Organization of march units.
- Organization of duties for advance and rear parties and the reconnaissance element.
- Densities and speeds for different types of moves.
- C4ISR procedures.
- Actions to take in the event of attack.
- Accident and maintenance procedures.
- Messing and refueling procedures.
- Communications methods.
- Load plans for personnel, equipment, and ammunition-related materiel.
- Night operations.
- Continuity of operations plan (COOP).
- Directional signs, fire symbols, and stack signs sufficient for three storage locations.
- Retrograde operations.
- Identification of QASAS source organization and the method of acquiring support.

STANDING OPERATING PROCEDURES

4-11. External SOPs of ammunition units are based on logistical SOPs of the command organizational element. They provide guidance in developing SOPs for supported units to facilitate the ammunition support process. At a minimum, external SOPs must cover the following:

- Unit and Class V WHNS.
- Communications, engineer, and transportation support.
- Safety.
- Ammunition issue and turn-in procedures.
- Protecting ammunition from the elements.
- Emergency resupply procedures.

4-12. At a minimum, internal SOPs must cover the following:

- Deployment (such as staging) procedures.
- Field setup (including storage, perimeter defense, and storage facility layout plans).
- Operational procedures (including ammunition receipt, storage, issue, and maintenance operations).
- Links to the C2 element.
- Routine and emergency destruction plans.
- Fire-protection plans and other safety concerns.
- Air resupply procedures.
- Logistical plans for required augmentation elements (such as QASAS personnel).
- Coordination for security with external agencies/units.

TRANSPORTATION

4-13. Modular ammunition platoons are 100 percent mobile, minus ammunition stocks. They must coordinate unit movement through their supporting higher HQ. For information on motor transportation request procedures, see FM 4-01.30 (FM 55-10).

TRANSITION TO FULL SPECTRUM OPERATIONS

4-14. The transition from a peacetime mission to a wartime mission, and the move from an installation, post, camp, or activity are major steps for ammunition units. Commanders must ensure that officers and NCOs understand the transition process, and that unit training is given priority. This understanding and training prepare the unit to deploy to its assigned area, and perform its mission effectively and efficiently. During movement, units must continue to execute contingency plans and tactical operations. When a move is to be made, the following must be considered:

- Planning.
- Equipment and personnel.
- Transportation.
- Reconnaissance and site selection.
- Area preparation and layout.
- Defense, security, and area damage control.

4-15. Command elements analyze many factors when making decisions concerning unit deployment. These factors include the following:

- Location or theater of deployment.
- Operational situation (such as forced or permissive entry).
- Date and time of deployment.
- Support structure in the theater.

4-16. Many deployment decisions are made based on answers to critical questions. Questions that must be addressed prior to deployment include the following:

- Will the deployment be as a unit, and will advance, main, and rear parties be required?
- Will the deployment be in phases?
- What organization will act as the POC in the theater?
- What is the deployment mission (such as forward in support of a brigade-, corps-, or division-size force)?

- What is the theater situation?

4-17. The warning order for deployment normally includes the general location of the area in which the unit will conduct its operations, the movement date, and a list of special requirements or instructions. When notified of an impending move, the unit commander alerts unit personnel and initiates planning. The move is coordinated with the supporting C2 element and transportation activity. The commander determines the type of move to be made (unless specified), requests additional transportation as necessary, takes steps to phase out current operations, and schedules a reconnaissance of the area.

4-18. Rapid, efficient deployments are subject to the detailed contingency planning and preparation of simplified field SOPs. To ensure a successful move under stressful conditions, unit training must employ these contingency plans and SOPs, making adjustments as necessary, until procedures are understood thoroughly by all unit personnel. See FM 4-30.13, appendix B, for guidance commanders can use in preparing for deployment. It is probable there will be a continuing need to forecast and manage training ammunition effectively. See FM 4-30.13, appendix C, for information and guidance.

POST-OPERATIONAL TRANSITION

4-19. One of the major missions of ammunition support units, following completion of combat operations/stability and support operations, is the retrograde of Class V materiel and components. Retrograde operations often signal the beginning of the redeployment process (see chapter 5). The same amount of detail given to transitioning to combat operations/stability and support operations should be given to redeployment operations. Post-combat/stability and support operations transitions may constantly change. Unit commanders must maintain close coordination and contact with their C2 element to ensure their unit deployment is carried out as smoothly as possible. Briefings should be conducted frequently to control rumors and prevent erroneous information from having a negative effect on morale and operations.

4-20. Command emphasis must be given to training for transition to and from combat operations/stability and support operations. Scenario-based training is often the most effective method since preplanning and transitions can be emphasized separately. A unit's ability to develop situational SOPs may be dependent on logistical guidance from their C2 element and higher logistical HQ. However, it is always appropriate to maintain a standard SOP package that can be tailored to meet operational requirements. Preplanning and training can ease the strain and stress characteristic of deployment, unit movement, and redeployment.

4-21. Combat operations and stability and support operations require detailed munitions support planning consistent with Army doctrine, logistics characteristics, and support considerations. Support planners must adapt quickly to changing requirements as a result of tactical successes. Combat/stability and support operations and post-combat/stability and support operations transitions are major missions of munitions units.

Chapter 5
Miscellaneous Munitions Operations

During Operation Just Cause, Operation Urgent Fury, Operation Desert Shield, Operation Desert Storm, and Operation Joint Endeavor, huge amounts of munitions were requisitioned, shipped, received in theater, and issued to deploying forces. During Operation Desert Storm, selective dunnage (wood and steel I beams) was removed from containers, used as overhead cover for fighting positions, and never recovered. A large part of these munitions were not expended. An extensive retrograde operation for a lengthy period of time was required to recover, restore, and prepare these munitions for return to depots in the CONUS and preposition storage sites in other theaters.

PURPOSE AND SCOPE

5-1. Retrograde operations must be included during the initial planning of every exercise and operation, not when the exercise/operation is drawing to a close. Planning and responsibility for retrograde operations depends on the theater. Based on the mission requirements and characteristics of the force to be supported, responsibility can range from an ammunition group to a platoon. Retrograde operations of munitions are a major logistics challenge. Prevention of soldier casualties from improper handling and repackaging of munitions is a leader responsibility. Leaders often fail to enforce discipline during the unpacking, restoration, and reconstitution of ammunition.

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5-2. This chapter provides information on what leaders must do to return ammunition to a serviceable condition upon termination of a conflict. Well before the operation ends, leaders must develop plans outlining retrograde procedures. These plans must identify the tasks required to return ammunition to its original packing configuration.

REDEPLOYMENT AND RETROGRADE

5-3. Upon completion of combat operations or stability and support operations, the tedious job of identifying, preparing, repackaging, requisitioning, collecting, loading, and shipping ammunition begins. These tasks constitute the redeployment process and signal the start of the munitions retrograde program within the ammunition supply system. FM 4-30.13 provides detailed instructions on the munitions retrograde program.

5-4. Tremendous resources are needed to restore and repackage ammunition. Planners may consider the use of indigenous assets, and contractor and HNS assets. Before a redeployment begins and while combat operations are raging, logistical planners monitor the levels of munitions in the theater and estimate the packing materials needed to retrograde munitions to a CONUS depot. During retrograde operations, munitions units continue to provide munitions to security forces while relocating the excess to a CSA or TSA. To support forward units, CSAs stock limited amounts of munitions behind with selected combat forces or security forces.

RETROGRADE PLANNING

5-5. Operational planning incorporates a vast array of critical issues and concerns. One of the key issues planners must address during the initial phase is how to recover and retrograde ammunition remaining after the operation or exercise ends. Redeployment plans differ significantly from the deployment plans established before leaving the CONUS. Personnel, time, equipment, and materiel become more important when the main effort is directed at returning personnel and equipment to the CONUS, or other theaters, as quickly as possible. At a minimum, planners should consider the following:

- Begin planning before the last battle.
- Develop a retrograde system that consolidates materiel at various stages (for example at the unit level to return to an ATP area).
- Assign condition codes as far forward as possible. Also, make decisions about which ASP should get certain items for further consolidation or reconditioning.

5-6. For planning purposes, assume the following about the condition of munitions in the unit's or soldier's possession:

- Munitions have been removed from original packing.
- Packing materials have not been retained by the users.
- Munitions will require a serviceability or classification inspection.

5-7. At all levels, plans must incorporate retrograde operations. These plans should include—

- Retrograde responsibilities of HQ.
- Obtaining and providing empty storage containers.
- Structuring retrograde planning cells.
- Identifying special requirements for classified, Category I, or critical sensitive items.
- Contacting the USALC to request specialized teams or personnel to assist in retrograde.
- Assigning responsibilities for the recovery of packing materials.

5-8. During the various stages of build-up and actual conflict, arrangements must be established for the recovery and storage of packing materials. These materials can occupy an extraordinary amount of space. Plans must be implemented to backhaul packing materials to a central location or they must be stored in a separate area near the CSA, or in any other area having the capability and capacity. The following factors should be considered before actual retrograde operations begin:

- Existing logistical support: facilities, transportation assets, road networks, communications requirements, and so forth.
- Shipping point from theater.

- Available HNS.
- Available LOGCAP support.

5-9. Visibility and accountability must begin at the returning unit level. The SPBS-R is the system used to gain accountability of munitions that have been issued to units. If the ammunition is not accounted for on the SPBS-R, accountability must begin at the ATP/ASP level. This is particularly true with Category I (GMLRs) and serial-numbered items. Accountability problems increase during war; however, as much as possible, the accountability of packing materials must be maintained. If this is done successfully, shortages will be easier to identify and correct.

5-10. Generally, packing materials used by opposing forces should not be used; they can be misidentified and usually are not of the proper size or quality for U.S. items. However, they can be used for retrograde of captured enemy items. A quality assurance specialist, ammunition surveillance (QASAS) or other qualified person must make condition code decisions. Munitions must be inspected to determine their serviceability, and every effort should be made to provide packing materials as early as possible in the retrograde process. If the munitions are in serviceable condition but have no lot number, a local lot number may be assigned. These munitions are considered as serviceable. During retrograde operations, unserviceable munitions are typically destroyed. The responsible ammunition company must request disposition instructions through the MMC to the USALC before destroying the munitions.

Retrograde Turn-In

5-11. Using units normally return munitions identified for retrograde to the ASA that provides their ammunition support. However, because of the changing requirements of the modern battlefield, units may be directed to turn in the identified ammunition and explosives to the nearest ASA. ASAs collect, consolidate, and ship this ammunition as directed.

Captured Enemy Munitions

5-12. Captured enemy ammunition (CEA) must be kept separate from U.S. munitions; however, it must be accounted for, stored, and guarded using the same criteria that applies to U.S. munitions. If contractor/HNS is used for retrograde operations, it must be negotiated early in the operation. During retrograde operations, leaders must ensure safety policies and procedures are carefully observed. These operations can be particularly hazardous for the following reasons:

- Careless attitudes may prevail. During Operation Desert Storm numerous casualties occurred to coalition forces as a result of mishandling captured and UXO.
- Collection of battlefield souvenirs may include dangerous UXO.
- Taking dangerous shortcuts may result in serious injury.

CAPTURED ENEMY AMMUNITIONS STORAGE

5-13. Enemy ammunition found is considered excess and treated as such. AR 381-26 requires that one of three options be taken when there is excess ammunition on the battlefield: use, destroy, or secure and retrograde. Except for use, all of these options apply to CEA. CEA includes all types of munitions. Assessing the serviceability of CEA will require the support of the QASAS.

5-14. The ammunition company will require close support of EOD prior to any CEA handling operation to ensure safety of munitions personnel in accordance with FM 4-3.13, chapter 12. This mission requires TECHINT support out of INSCOM.

5-15. When an enemy ammunition cache is found or captured, the commander must assess the combat situation. He must decide whether to destroy the CEA because of the situation, or to secure it and request EOD support. If the commander notifies EOD, he must provide the following information:

- Grid coordinates.
- Estimated quantity of munitions.
- Initial estimate of the different types of CEA in the cache.

5-16. EOD analyzes and identifies the types of munitions in the cache and determines the following:

- If the munitions present a hazard to friendly forces (booby-trapped or nuclear, biological, chemical [NBC]).
- If the items are safe to transport.

5-17. EOD then evaluates CEA for possible technical intelligence exploitation. If any of the munitions are identified for technical exploitation, EOD forwards a technical intelligence report to the assistant chief of staff (intelligence) (G2/J2). The G2/J2 coordinates the evacuation of any CEA identified for exploitation. Also, civilian or military ammunition inspectors may assist in inspecting the cache after EOD has determined there are no extraordinary hazards (booby-traps, time-delay devices, and/or armed munitions). All hazardous enemy ammunition should be segregated and disposed of by trained personnel.

5-18. If the cache is to be retrograded, ammunition units in the corps are tasked to provide QASAS, MHE, and ammunition handlers to inspect, segregate, and load the captured stocks. Also, corps transportation assets are tasked to move the CEA. Working together, these corps assets load and transport the CEA to the designated ASA. Once the CEA arrives at the ASA, it is stored in a designated secure area separate from the area containing U.S. munitions. Regardless of its condition, CEA cannot be intermingled with U.S. munitions stocks.

5-19. CEA certified or cleared by EOD, QASAS, or military inspectors must be receipted, inspected, and accounted for in the same way as U.S. munitions. Once the CEA is identified as accurately as possible, it is entered into the SAAS-MOD for accountability and control. This procedure must be performed as soon as possible after receipt. Reporting and disposition instructions for CEA are the same as for friendly munitions. Close control of CEA is required.

5-20. Positively identified and serviceable CEA may be compatible for use in U.S. or allied forces weapon systems. These munitions can greatly ease the burden on the ammunition supply system. Also, CEA can be used as a substitute for bulk explosives during demolition operations. See FM 4-30.13 for more information.

DESTRUCTION OF AMMUNITION

5-21. Commanders must follow applicable environmental regulations when destroying munitions. Failure to obey environmental laws and regulations may subject commanders to fines and/or imprisonment. AR 200-1, AR 200-2,

FM 3-100.4, and TC 3-34.489 provide detailed information on environmental laws and guidelines that must be followed by commanders and their subordinate personnel. Munitions that have delay devices or anti-disturbance mechanisms are sometimes used and could cause incidents. These munitions include—

- Unexploded bombs, shells, torpedoes, and other devices.
- Improvised munitions.
- Mines and booby-traps (EOD personnel do not have to dispose of mines and booby-traps, but they may be asked to assist).
- UXO in downed aircraft.
- Unexploded missiles and sabotage devices.
- Hazardous explosive materials in fires and explosions.
- False reports on all of the above munitions.

FM 9-15 contains detailed information on EOD missions and responsibilities during destruction of UXO.

5-22. The two categories of ammunition destruction are "routine" and "emergency." The destruction of ammunition is based on the METT-TC considerations. However, a general plan for the destruction of unserviceable ammunition and a cost effective analysis (CEA) must be prepared for every storage activity. The destruction site should be carefully selected so explosive fragments, debris, and toxic vapors do not become a hazard to personnel, materiel, facilities, or operations. For more information on selecting a destruction site, see FM 5-250 and FM 4-30.13.

5-23. Ammunition personnel must receive permission from their chain of command before destroying unserviceable ammunition. Ammunition destruction should be supervised by a QASAS. For information on the emergency destruction of storage sites, see FM 4-30.13 and TM 43-0002-33. At the segregation area, unexpended ammunition is identified and segregated by type and lot number, checked for non-standard or hazardous conditions, and repacked or palletized and stored in accordance with distances outlined in established theaters of operations.

5-24. Surveillance activities are controlled by QASASs; they inspect and classify ammunition and its components during movement, storage, and maintenance operations. Also, they inspect equipment, facilities, and operations. An 89B sergeant first class (SFC) or above, or a QASAS, visually inspects all opened ammunition, and determines the serviceability of both the ammunition and its containers. Also, inspectors must check for compatibility and ammunition in a hazardous condition. TB 9-1300-278 identifies added precautions that must be taken when handling ammunition containing depleted uranium (DU).

Emergency Destruction

5-25. Emergency destruction of ammunition, as outlined in TM 43-0002-33, prevents the ammunition from being captured by enemy forces. Only division commanders and above have the authority to order the emergency destruction of ammunition. This authority may be delegated to subordinate commanders. If it is necessary to conduct emergency destruction operations, the ammunition must be rendered unserviceable. When possible, emergency destruction should be planned and conducted to impede enemy troop movements without creating hazards to friendly troops. The first priority for emergency destruction is classified ammunition and its associated

documents. The second priority is ammunition the enemy could immediately use against friendly forces, such as hand grenades or land mines, and any ammunition the enemy could use in their weapons.

Routine Destruction

5-26. The destruction of ammunition is based on METT-TC. However, a general plan for the destruction of unserviceable ammunition and CEA must be prepared for every storage activity. FM 5-250 and FM 4-30.13 provide extensive information on site selection and destruction procedures. TB 9-1300-278 provides guidance on handling ammunition containing DU. TM 43-0002-33 provides guidance on emergency destruction of ammunition.

AMMUNITION MAINTENANCE

5-27. Maintenance must sometimes be performed after the ammunition is inspected to ensure it is returned to a high state of readiness. Maintenance operations include minor packaging and preservation (P&P) operations:

- Cleaning
- Minor rust and corrosion repair.
- Repair and replacement of boxes and crates.
- Restenciling of containers.
- Desiccant replacement.

5-28. Maintenance may also include major operations, such as complete renovation. Ammunition units will perform P&P operations as required to prevent further ammunition deterioration. All units that have ammunition on-hand, including using units, perform organizational maintenance with technical assistance from ammunition units. Ammunition units perform maintenance operations, as required, to prevent further ammunition deterioration. If additional maintenance is required, it will be accomplished as determined by operational support command (OSC). All maintenance operations are performed under the supervision of a qualified ammunition inspector as approved by the commander.

TRAINING MUNITIONS

Forecasting and Managing Training Ammunition

5-29. Units are authorized (by AR 5-13) to use conventional ammunition during readiness training for combat. The Army training goal is a combat-ready force prepared to mobilize and deploy on short notice, and to fight and defeat the enemy. The training ammunition management information system (TAMIS) provides allocation and authorization data for training ammunition.

Training Standards and Strategies

5-30. The Standards in Weapons Training Commission (STRAC) was established in 1982. Its mission is to determine quantities and types of munitions required for soldiers, crews, and units to attain and sustain weapon proficiency relative to readiness levels. Weapon committees (such as Air Defense, Armor, Aviation, Engineer, Field Artillery and Infantry) develop weapon training standards and strategies that are reviewed and approved by the STRAC Steering Committee. DA Pam 350-38 and DA Pam 350-39 discuss training strategies for weapons. These pamphlets contain policy and procedures for planning, resourcing, and executing training. They include weapon qualification standards, suggested training programs, and

ammunition requirements for the attainment and sustainment of weapon proficiency. The programs also incorporate training devices and simulators.

5-31. Training strategy tables reflect generic requirements. DA Pam 350-38 and DA Pam 350-39 contain requirements computation data for training ammunition. Figures are based on the number of weapon systems assigned, readiness levels, and quantities of ammunition needed to sustain weapon readiness standards. Factors affecting annual authorizations for training ammunition include—

- STRAC strategies.
- Budgetary constraints.
- Unit priority.
- Historical expenditures.
- War reserves.

Forecasting Training Ammunition

5-32. Forecasting training ammunition requirements is a peacetime procedure. It is based on data in the pamphlets cited above and on projected training events, such as individual weapon qualification, field training exercises (FTXs), and crew weapon qualification. Training ammunition requirements are determined using DA Form 5514-R (*TAMIS Training Ammunition Forecast Report*). AR 5-13 describes how major Army commands (MACOMs) modify and provide requirements to Headquarters, Department of the Army (HQDA) before the beginning of each fiscal year. To get ammunition for training, units must prepare training ammunition forecasts in accordance with DA Pam 710-2-1 and submit them as directed by the MACOMs. Timeframes for submitting forecasts are also prescribed by the MACOMs. Generally, the process is predicated upon the following considerations and activities incorporated into the unit annual training plan. They may consists of, but are not limited to, the following:

- Soldier and crew proficiency.
- Historical and actual ammunition consumption data from previous training exercises.
- Training objectives.
- Equipment/weapon system availability.
- Range time.
- Determining planned training requirements for each of the next 12 months.
- Determining the DODIC and the quantity needed for each training requirement.
- Ensuring quantities remaining on the authorized allocation for the current fiscal year are not exceeded.
- Coordinating with the S3/S4, G4, or DOL to ensure forecasted quantities are not excessive.
- Using DA Form 5514-R to record the total for each DODIC.
- Submitting the completed forecast to the next higher HQ.

Managing Training Ammunition

5-33. Units that request and receive ammunition from an ASA must maintain training ammunition management and control documents. The following documents are used to manage training ammunition and missile authorizations:

- DA Form 5203 (*DODIC Master/Lot Locator Record*).
- DA Form 581 or automated equivalent.
- DA Form 581-1 (*Request for Issue and Turn-In of Ammunition [Continuation Sheet]*).
- DA Form 3151-R.
- DA Forms 5515 (*Training Ammunition Control Document*).
- DA Form 2064 (*Document Register for Supply Actions*).

5-34. The TAMIS-R authorization report is used to maintain a running balance of the annual training authorization by deducting, from the initial authorization, issues from the ASA. The G3 training or installation DOL usually manages this computer-based report. Refer to the TAMIS-R end user manual for additional information on the system capability to manage training ammunition. Units should plan for training ammunition when they are deployed to contingency operations.

Physical Security and Amnesty Programs

5-35. Upon departure from the ASA, the receiving unit must provide physical security for ammunition in accordance with AR 190-11 and DA Pam 710-2-1. At the discretion of their MACOMs, active component (AC) and Army National Guard (ARNG) units located OCONUS are authorized home storage of training ammunition. The same storage and inventory procedures that apply to basic load ammunition apply to training ammunition. AR 190-11 outlines construction requirements for ammunition storage rooms and magazines. DA Pam 710-2-1 provides guidance on field storage and use of residue items for training. See DA Pam 710-2-1 for more guidance on establishing an amnesty program.

5-36. The physical security requirements for ammunition during combat operations and following the end of hostilities is consistent with the physical security of training ammunition. The enemy threat changes when the war is over. Even though the enemy has been officially defeated, there may be pockets of resistance, guerrilla units, or terrorists that want to continue the fight. Leaders must keep this in mind and develop effective physical security plans to prevent the capture or destruction of munitions stocks. AR 190-11 and FM 3-19.30 provide detailed guidance for the physical security of ammunition and explosives.

5-37. Commanders of ammunition units must ensure their unit has developed an effective security plan based on applicable regulations, command directives, and the tactical situation. At a minimum, the plan must include the following:

- Unit mission.
- Current tactical situation.
- Level of threat expected.
- Available resources.
- Unit vulnerability.

5-38. The security plan must consider all aspects of physical security. These include—

- Access control.
- Guard force operations.
- Personnel screening.
- Document and materiel accountability.
- Emergency actions.

5-39. Category I and II munitions items require special consideration in accordance with AR 190-11. Category I items include non-nuclear missiles and rockets in a "ready-to-fire" configuration. They also include explosive complete rounds for these missiles, such as the Stinger, light antitank weapon (LAW), and AT-4. Category II items include highly explosive and white phosphorous hand and rifle grenades, antitank and antipersonnel mines with an unpacked weight of 50 pounds or less, and demolition explosives.

Transportation and Storage

5-40. When transporting or storing ammunition and explosives for retrograde, follow the same precautions and procedures used for munitions during the theater build-up phase. Theater/corps trucks retrograde munitions stocks to designated locations. The CMCC/transportation movement control center (TMCC) regulate all highway movement during the retrograde operation. It identifies evacuation routes, publishes movement schedules, and designs a battlefield circulation plan. The theater/corps transportation system will be severely taxed by the movement of units, supplies, and equipment, and the CMCC/TMCC may need to request additional transportation from HN or theater transportation assets. The ASCC, theater movement control agency (TMCA), and Transportation Command (TRANSCOM) coordinates with HQDA agencies and the NICP for instructions on relocating ammunition to the CONUS or other theaters for subsequent operations.

Containers and Packing Materials

5-41. ASAs normally are the primary consolidation hubs for turned-in or backup ammunition storage containers and packing materials. Also, materials for building or repairing pallets and storage containers are consolidated at ASAs.

Chapter 6
Environment, Safety, Risk Management, Maintenance, and Surveillance Operations

Arming the force is perhaps the most important of the five basic CSS functions. Effective and efficient distribution of munitions within a theater of operations could be the decisive factor in a battle, or the war. Incorporating the environmental ethic and stewardship principles in day-to-day operations and ensuring compliance may seem at odds with this focus. What must be remembered, however, is that where we operate and fight today may be where we work or live tomorrow.

Munitions and Army operations have the potential to cause considerable damage to the environment. Thus, the Army has become a national leader in the areas of environmental and natural resource stewardship. This role is an integral part of the Army mission for both present and future generations. Concurrent with this responsibility is the continuing need to exercise extreme caution to prevent accidental damage to the environment.

STEWARDSHIP IN THE OPERATIONAL ENVIRONMENT

6-1. In day-to-day CONUS operations, or when coordinating operations within a HN or coalition scenario OCONUS, commanders must promote and inspire a keen awareness of the environment. Many Federal, state, local, and HN laws hold commanders legally responsible for environmental damage caused by inadequate planning or supervision of operations and training. Penalties can include fines or imprisonment, or both. To avoid adverse environmental impact when planning or executing operations, leaders must comply with the provisions of AR 200-1, AR 200-2, FM 3-100.4, 40 CFR, and guidance for unit leaders contained in other applicable manuals.

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6-2. Providing ammunition in the theater of operations is essential. When doing so, leaders must follow applicable provisions of the Resource Conservation and Recovery Act (RCRA), to include the military munitions rule. The RCRA establishes the framework for managing hazardous wastes. It sets the standards for hazardous waste identification, classification, transportation, storage, treatment, and disposal. When munitions or munitions operations fall under RCRA purview, full compliance includes requirements for permits and storage. The operational commander determines the need for, and environmental impact of, the destruction of

ammunition or other explosives to prevent capture by the enemy, or injury to military or civilian personnel. Operational requirements must be applied and environmental considerations should be followed when time permits, especially if imminent and substantial danger to the environment exists.

6-3. Environmental damage occurring as a result of enemy actions or accidents involving munitions should be repaired. Containment, cleanup, and restoration of the immediate area allows the area to be used for future operations. Commanders must follow guidance in applicable publications and use environmental risk assessment matrices to assess possible damage. Such assessments allow leaders to minimize environmental damage while optimizing performance and mission completion. TC 5-400, chapter 5, discusses risk management in depth and provides instructions on using the risk-assessment matrix.

SAFETY RESPONSIBILITIES

6-4. Safety, including risk assessment and accident reporting, is an inherent responsibility of commanders at all levels. Its importance is intensified for units and personnel engaged in munitions-related activities. The following discussion provides guidance on both general and munitions-related safety issues.

6-5. Munitions handlers must be alert to the danger associated with depleted uranium rounds. Since these rounds present a potential radiological hazard, proper storage and handling are critical. See TB 9-1300-278 for information on the hazards and appropriate safety measures.

MAINTENANCE AND SURVEILLANCE OPERATIONS

MAINTENANCE

6-6. Maintenance of munitions includes all actions necessary to ensure that stocks are serviceable, or that unserviceable stocks are restored to a serviceable condition. Maintenance responsibilities are assigned to ammunition units based on the unit's primary mission and the availability of personnel, skills, time, tools, equipment, and supplies.

6-7. Maintenance operations for ammunition units are based on METT-TC considerations. The preservation, packaging, marking, and minor spot painting of items are standard. Situations calling for more than minor maintenance are handled and coordinated through command channels.

6-8. Ammunition maintenance planning must be aligned closely with the operational needs of the supported units. Maintenance planners must consider the availability of supplies and maintenance resources. A decrease in ammunition maintenance increases the amount of ammunition needed from the supply system. The maintenance planner must recognize the interdependence of maintenance and munitions support.

CONCEPTS

6-9. Combat units must have serviceable ammunition. Maintenance of munitions is a necessary and vital task that must be performed to maintain a high state of readiness. Maintenance includes minor operations (such as cleaning and rust removal) and major operations (such as complete

renovation). Provisions must be made to conduct as much maintenance as possible at the storage location.

6-10. In some cases, ammunition must be evacuated for maintenance. However, since the movement of ammunition consumes transportation assets, it is inefficient to adopt a maintenance program geared totally toward evacuation.

6-11. Modular ammunition units may initiate and conduct maintenance operations and programs when operating in the corps and theater areas. In these forward areas, maintenance functions are limited to maintenance operations (such as replacing broken banding or minor pallet repair or replacement).

SURVEILLANCE

6-12. Ammunition surveillance is the observation, inspection, and classification of ammunition and its components during movement, storage, and maintenance operations. This definition also covers inspection equipment, facilities, and operations. Surveillance activities are conducted by all theater activities that store, maintain, dispose of, or ship ammunition and its components. Surveillance ends only when the ammunition is expended or destroyed.

6-13. The theater support command (TSC) is responsible for supervising ammunition surveillance in the theater of operations. The CSB or CSG closely supervises this function in its command. In established theaters of operations, surveillance activities are under the control of DA civilian (DAC) QASAS assigned to MACOM HQ. In theater ammunition units, surveillance is performed by attached civilians and assigned military inspectors.

6-14. The commander of any ammunition battalion must administer a QA ammunition surveillance program that covers all ammunition operations assigned to that command. The QASAS in charge has the overall responsibility for the program and reports directly to the commander. Since QASAS training is much more extensive than that of the military inspector, the QASAS performs the more complicated inspections and most functional tests. The QASAS certifies the results of any inspections or tests performed by the military inspectors. In some commands, certain inspection results and functional test reports can be signed only by a QASAS. When in an immature or developing theater, all surveillance functions are performed by 89Bs in a modular ammunition company.

UNSERVICEABLE AMMUNITION STORAGE

6-15. Unserviceable ammunition may have been manufactured with defects or made unserviceable by improper storage, handling, packaging, or transportation. Shipments of ammunition received from other supply facilities should be inspected for serviceability. When it is not possible to inspect the ammunition at the time of receipt, unit turn-ins should be stored in a segregated area for later inspection. Ammunition specialists should be familiar with indications of unserviceability and report them.

6-16. Unserviceable ammunition must be segregated from serviceable ammunition for safety reasons and to reduce re-handling. Also, inspectors must segregate the ammunition by the DODIC and lot number, followed by serviceability classification. Ammunition that cannot be positively identified by lot number is automatically classified as pending disposition (condition

code K). Exceptions may be made based on METT-TC and the type, quantity, and condition of the ammunition.

6-17. The same safety precautions and principles used for storage of serviceable ammunition are used for the storage of unserviceable ammunition. Proper records must be maintained on all unserviceable items stored at a supply facility.

6-18. Ammunition that requires maintenance should be segregated and marked to prevent issuing. Minor preservation and packaging are performed at field locations, TSAs, CSAs, or ASPs. Extensive maintenance is usually performed at a depot storage facility.

6-19. The unit packages and preserves the ammunition, if that is the only requirement. If time permits, unserviceable ammunition that is reparable is retrograded for repair. Ammunition abandoned by using units is treated as unserviceable until it is inspected. The procedures that apply to unit turn-ins also apply to abandoned ammunition. Unserviceable ammunition is reported through proper channels for disposition instructions. Hazardous, unserviceable ammunition is reported immediately through proper channels to EOD companies for destruction. A demolition area is designated and cleared for the safe destruction of ammunition.

SUSPENDED AMMUNITION STORAGE

6-20. Specific lots of ammunition and components are withdrawn from issue when they are determined to be unsafe or otherwise defective. Storing ammunition by lot number enables the rapid withdrawal from issue of those items that are unsafe, defective, or suspected of being defective.

6-21. The authority to suspend any lot of conventional ammunition is vested in the commander, OSC. However, a local suspension may be placed on a suspected lot of ammunition by the installation or area commander. A preliminary report, and later, a detailed report, is forwarded through the supporting MMC to the ARFOR. The ammunition remains in local suspension unless its status is changed by higher HQ. See TB 9-1300-385 for instructions in preparing suspension reports. TB 9-1300-385 lists suspended lots of conventional ammunition and components. Added notices of suspensions or restrictions are produced as supplemental changes to TB 9-1300-385.

6-22. Ammunition lots that are stored and later placed under suspension need not be moved to a segregated area unless the suspension notice so orders. Stacks of suspended ammunition must be clearly marked on all sides. This is accomplished by using DD Form 1575 (*Suspended Tag—Materiel*) and DA Form 3782 (*Suspended Notice*), or facsimile-formatted documents (taped to the materiel) to show the items have been suspended or restricted from issue. When foreign nationals are employed, locally-produced bilingual tags should be used. Suspended or restricted-issue items returned by the firing units, or items received from other supply facilities, should be segregated upon receipt. These items should be marked using the forms mentioned above and stored in the segregation area. DA Form 3020-R (*Magazine Data Card*), or a facsimile-formatted document, (taped to the materiel) should be posted showing the suspension date, suspension number, and authority.

Chapter 7
Force Protection

The Achilles' heel of the U.S. Army is the CS and CSS personnel and units. This support is also the aorta of the theater force. General MacArthur once said that nine times out of ten the reason an army is annihilated is that they are cut off from their logistics support. Our enemies learned, once again, in Operation Desert Storm that it is unhealthy to confront the combat formations of the U.S. Army.

But the attack on the USS Cole and the World Trade Centers has also taught them that we, as a nation, can be hurt when they attack our soft underbelly. This is not only true of the United States as a nation but it is also true of our forces on the battlefield. Why attack our powerful combat formations when potentially more harm can be done attacking our CS and CSS assets? Indeed, U.S. Army doctrine now tightly embraces this concept.

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Until the Mid-1980s the U.S. Army had no published doctrine concerning the security of the rear areas of a combat formation. Our adversary planned on focused attacks on service support and unprotected soldiers. Threat forces preyed on soldiers poorly trained in basic infantry skills. Ambushes could be expected while conducting resupply operations or moving in poorly guarded convoys. It was not until we learned that our old enemy, the USSR, was targeting this very weakness that we began to experiment and develop tactics to address this serious threat. Doctrine was written for the linear combat formations of the AOE force. However, the CS and CSS units found it hard to implement. The lack of combat power and reliable communications among support units were the two major reasons impeding implementation. Further, the "warfighters" were hesitant to commit combat forces to the security of the rear area when front line tactical units where already outnumbered.

With the advent of Force XXI, the combat formations have gotten even stronger; however, securing the rear remains, and arguably, has become a larger problem. First, because the combat units have become more powerful, they are an even less desirable target for our adversaries. Second, the non-contiguous battlefield leaves our CS and CSS forces even more open to attack. It is true that, with less of a footprint, there will be

less CS and CSS resources to secure, but a decreased footprint brings decreased redundancy, so even small losses of CS or CSS forces will cause serious harm to the force as a whole.

Unfortunately, the solution to the problem is very complex. It involves a delicate balance of providing adequate CS and CSS support without unnecessarily impeding either the support or security mission.

ORGANIZING FOR DEFENSE OF THE REAR AREA

7-1. CS and CSS units have no assets with an expressed combat mission but they are expected to provide a level of defense while maintaining their primary support mission. Providing this defense begins with organization.

REAR OPERATIONS CENTER

7-2. Every echelon having a significant amount of CS and CSS resources will have a rear operations center (ROC). The division or separate brigade is usually the first organization to have a formal ROC. In each case, the ROC HQ is built around the highest-level logistics element of that command, for example, the DISCOM, COSCOM or TSC. The overall commander is usually the general officer with overall support responsibility for that command, such as the assistant division commander for support (ADC-S).

7-3. This HQ structure is much like that of a maneuver element TOC because its functions are very similar. For example, it will have a fully staffed fire coordination cell with the responsibility to develop and coordinate the overall fire plan for the AOR. The ROC will also have a robust intelligence operations section (G2/S2) because, with the lack of combat power, CS and CSS units can ill-afford to be surprised and not be prepared to defend themselves. Further, based on METT-TC, the ROC should also be given its fair share of combat and construction engineers and air defense artillery assets; as with the field artillery, these assets should come with the appropriate planning and liaison resources.

7-4. Though the ROC is structured around a senior logistics unit, it assumes the terrain management mission in its capacity as an operational/tactical HQ. In this role, the ROC actually assigns units to specific areas and keeps track of these units as they come, go, and move within the AO. It is a particularly difficult role because the ROC must consider the best location for that unit-specific mission and which organic weapons it has that can best complement its defense and that of other units within its proximity.

BASES AND BASE CLUSTERS

7-5. CS and CSS organizations are further organized into base clusters made up of separate units called bases. The clusters, usually battalion-size units, report to the ROC and the bases report to the cluster commander. The cluster commander is usually the highest echelon commander within the cluster, but some consideration should be given to combat training and experience.

7-6. Base cluster commanders are responsible for coordinating the activities and fires of their constituent bases to enhance mutual security. They are also responsible for constituting and employing a quick reaction force (QRF). Further, cluster commanders must ensure individual bases implement basic self-defense measures (such as establishing a perimeter with appropriate checkpoints, using proper communications security measures—challenges

and passwords, having a quick reaction plan, and at a minimum, having designated fighting positions with range cards for all crew-served weapons).

7-7. Base commanders must have trained all personnel to be competent, not only in their MOS, but also in basic infantry fighting skills. This should include individual weapon proficiency, basic patrolling techniques, cover and concealment, and small unit tactics. Once employed, the base commander must employ the unit to—

- Fulfill the assigned support mission.
- Provide for self-defense.
- Contribute to the defense of the cluster.
- Be able to shift priority efficiently between missions as METT-TC dictates.

DEFINING THE THREAT

7-8. Before a response to a threat can be formulated, the threat must be defined. Within the context of rear security, the threat is defined as Level 1, Level 2, or Level 3.

Level 1 threat involves the activities of agents, saboteurs, and terrorists. Bases and/or base clusters are expected to defeat this level of threat.

Level 2 This threat involves sabotage, raid, ambush, and reconnaissance operations usually conducted by special purpose, unconventional, or lightly armed reconnaissance forces. Response forces, typically military police with supporting fires, are tasked to defeat this threat. They will usually work under the command of the cluster commander.

Level 3 threat originates from air assault, airborne or penetrations by major enemy forces, many times the expressed mission is the destruction of CS and CSS units of U.S. forces. The response is the commitment of combat formations and assets. Generally, specific combat forces will be assigned an on-call mission to assist in the defeat of a Level 3 threat. However, if METT-TC dictates, the ROC will have assigned combat units employed to protect the rear. In this scenario, the combat unit will be centrally located within the area of highest threat on an MSR and use aggressive patrolling techniques to find the enemy before damage occurs in the AO. When combat units are employed, command in the area of conflict reverts to the maneuver commander; the base cluster commander concentrates on protecting the cluster and supporting the scheme of maneuver, as required.

RESPONDING TO THE THREAT

7-9. The primary mission of CS and CSS units is to provide support for combat units. When CS and CSS units are distracted from their support mission, that mission is degraded. Therefore, it is important that CS and CSS units are not involved with the threat any more than what is necessary to maintain the support mission. Rarely will they be offensively-minded; rather they will maintain a passive defensive posture employing only the force necessary to provide for their defense. A series of three protective postures (PPs) have been established to aid units to quickly and efficiently react to a changing threat level.

- PP-1. Crew-served weapons are emplaced and manned; hasty individual fighting positions are prepared but not manned; the QRF is designated; and checkpoints are established at vehicular points of egress with no perimeter wire.
- PP-2. Same as above with the QRF assembled and ready to fight.
- PP-3. Same as above with individual hasty fighting positions manned and perimeter wire installed. As time permits, all fighting positions will be constantly improved. This task is well suited to HNS or contract labor.

SECURITY TYPES

7-10. CS and CSS units perform three types of security: point, main supply route (MSR), and activity. The declared threat level will determine the intensity of these actions.

- Point security involves continuously securing HQ and the actual perimeter of CS and CSS units.
- Route security involves securing the MSRs, freeing convoys and support vehicles of the threat of ambush and/or damage to bridges and similar structures. The intensity to which this is accomplished can vary from active patrolling to simply debriefing drivers, depending on the threat level.
- Activity security involves temporary activities performed at specific replenishment or support locations outside a support unit's perimeter. A forward area refueling point (FARP), logistics release point (LRP), or ATP are activities requiring temporarily heightened security until the action is completed.

INTELLIGENCE GATHERING AND DISSEMINATION

7-11. The importance of intelligence to the successful execution of the force protection mission cannot be exaggerated. An inaccurate logistics estimate can either unnecessarily involve support personnel in a heightened security role or result in needless damage to scant CS or CSS resources, because of lack of preparedness. In either case, the enemy's goal of disrupting the support mission is achieved. Therefore, the processing of data to produce an accurate and timely intelligence picture, and disseminating this information to subordinate units accompanied with a declaration of the correct threat level is a priority mission.

7-12. When developing an accurate intelligence estimate, there must be a seamless flow of information from higher to lower and visa versa. The higher HQ will have access to high-tech non-line of sight command, control, communications, computer, intelligence, surveillance, and reconnaissance (NLOS-C4ISR) resources. This information must be quickly disseminated to

subordinate units through the FBCB2 system and other communications resources. Just as important, subordinate units must use similar means to pass intelligence information, primarily human intelligence (HUMIT), up to higher HQ to ensure this valuable data is processed, and contributes to the intelligence estimate and the declaration of the proper threat level. HUMIT can come from many sources:

- Patrols/checkpoints.
- Driver/convoy debriefings.
- Military police.
- Local populace/civilian informants.
- Host nation sources.

7-13. Having the correct intelligence picture will be invaluable in developing a common operational picture (COP) from which situational understanding (SU) can be achieved. As has been said before, achieving a sound SU allows all commanders to understand the threat level and, therefore, make sound decisions as to the proper PP in relation to the ongoing CS and CSS mission. Dedicating excess assets to protection limits the unit's ability to accomplish the CS/CSS mission.

7-14. SU also plays a role in determining which means of support are available and which are not. For example, in a high man-portable air defense system (MANPADS) threat environment, aerial delivery of supplies could be limited; if the threat involved lightly-armed reconnaissance forces capable of ambushes, aerial delivery would be a better choice than truck convoys.

OPERATIONAL SECURITY

7-15. The goal of operational security is to keep the enemy guessing as to friendly activities and intentions. Avoid activities that signal upcoming events or, when unavoidable, minimize the threat's reaction time between the signal activity and the ensuing event. Vary convoy start times, routes, composition, and security hand-off locations. Vary the frequency and push order sustainment to the brigades. Vary the method used to push sustainment to the brigades; inserting the occasional aerial delivery can mitigate the negative effect of a limited number of routes for convoy operations. Hide the nature of the cargo on vehicles; high payoff cargo, such as ammunition and bulk fuel, are priority targets for destruction or hijacking. Disperse valuable cargo throughout the convoy and equip the convoy with weapons and escorts consistent with the threat level. Brief all drivers and other personnel as to actions on contact. Vary the locations requiring activity security; occupy them as close to the time they are to be used as practicable; and vacate them as soon afterwards as possible.

SPECIAL FORCE PROTECTION ISSUES IN DESERT AND MOUT ENVIRONMENTS

7-16. In the desert, the openness of the terrain and ease of observation makes site selection a primary issue. Since force protection for CS and CSS units is passive/defensive in nature, they must blend in with the surrounding terrain. Their operations must conform to the local ground patterns and avoid regular spacing, straight lines, right angles, and vertical stacks, all of which signal human activity and are visible for considerable distances. When possible, select sites along, and confine vehicle operations to, existing trails and tracks to avoid telegraphing the existence of new or increased activity.

7-17. Many times the openness of the desert will encourage a unit to spread out its operation, making it more difficult for the enemy to cause critical damage; however, it also results in a large perimeter difficult to defend with minimum personnel. An extensive perimeter in the desert also requires many crew-served weapons because of the multiple high-speed avenues of approach; unfortunately, CS and CSS units have few of these particular weapons.

7-18. Military operations in urban terrain (MOUT) present the opposite environment but the same result. Desert terrain is characterized by a scarcity of features, whereas urban terrain presents an overabundance of features in the form of buildings and other structures, and adds the dimensions of subterranean and vertical elements. Such features present opportunities to increase efficiencies, protect personnel and equipment from the inclement weather, and conceal/blend SPT OPS within the urban environment. However, there are negative tradeoffs. For example, the perimeter requires large numbers of personnel to defend because of the multiplicity of access routes. In addition, an urban environment can cause critical assets to be overly concentrated, thus providing a high payoff target. Further, the large number of civilians in cities makes it difficult to identify the enemy and OPSEC becomes more complex due to the close proximity of civilians to military operations.

7-19. Navigating and convoy operations in both the desert and MOUT can be difficult; again the environment is different but the result is the same. Because of featureless terrain, map reading and following a course in the desert can be impossible without high-tech instruments (such as GPS). The many features in an urban environment can also make navigating difficult. The best of locally-procured street maps can become worthless when the effects of civil disturbances and combat damage alter the landscape.

7-20. The desert and MOUT, with their opposing environments, can also make defending convoys complicated. In the desert, the openness of the terrain provides extended ranges for both observation and direct fire weapons. Therefore, more terrain must be defended to allow for a convoy's safe passage. MOUT provides congested terrain but opportunities for observation and ambush are numerous. Further, MOUT allows a greater probability for MSRs. This can hinder the enemy's convoy interdiction attempts, but can also make it more difficult to defend because of the increased number of routes that must be secured and maintained.

Navigating the Urban Landscape

On the surface, the urban landscapes encountered by U.S. troops in Mogadishu, Somalia (1992-1994) and Russian troops in Grozny, Chechnya (1994-1996 and 1999-2000) seem profoundly different. Mogadishu epitomized the lowest tier of third world cities—warrens of low, rambling structures crowding narrow, dusty streets—while Grozny was the proto-typical Soviet-style city—downtown, a mixture of older, elegant buildings and newer, drab office buildings; the suburbs, ranks of similar 10- to 12-story apartment blocks lining broad avenues. Mogadishu had a small seaport, an airport, a soccer stadium and only a handful of industrial facilities—all in disrepair, as were its limited utility systems. Grozny, at least prior to December 1994, was a reasonably intact, modern city. It had a wide variety of industrial and commercial installations and functioning, large-scale utility systems. Like most Soviet-era cities, Grozny suffered from a lack of re-investment to maintain and upgrade its systems, but, by and large, everything functioned.

Despite these differences, the remarkably similar feature these two cities shared—the tie that binds all cities together for forces attempting military operations—is the tremendous difficulty they present to the task of getting from point "A" to point "B," especially when the indigenous population or an opposing force is actively working to thwart that effort. Simply knowing the locations (no matter how precisely) of "A" and "B" and dispatching convoys along likely routes between them are not guarantees of success. Rather, getting and using real-time knowledge and understanding of route conditions, threat/local populace activity and their likely intentions, and applying weapons, equipment, tactics, techniques and procedures appropriate to the situation, are keys to success.

FRATRICIDE

7-21. Fratricide, the unintentional killing or wounding of friendly personnel by friendly firepower (Blue on Blue), can be a serious problem among CS and CSS units, largely because of the general lack of basic individual infantry skills such as—

- Weapon proficiency.
- Use of challenge and passwords.
- Use of range cards.
- Calls for fire support.

7-22. Further, the staffs of ROCs, base clusters, and bases are not trained to function in the same fashion as a maneuver unit in basic areas (such as coordination and fire support planning). This lack of training can also result in large numbers of friendly casualties. For example, if soldiers do not know the maximum range of the weapon employed and/or the trace of the neighboring unit's perimeter, friendly-on-friendly fire fights can easily occur. Even if this information is known but range cards are not used (or perhaps misused), the result can be the friendly-on-friendly fire fights. Inaccurate calls for fire are particularly troubling because they fall on unsuspecting personnel who have not taken measures to protect themselves and, therefore, the result can be particularly devastating. Calls for fire can also be very dangerous if locations of units (or ongoing support activities) are not generally disseminated throughout a base cluster; this may result in friendly activity (for example an LRP) being mistaken for enemy action. This lack of information could also allow aviation assets flying through the "white space" looking for targets of opportunity to fire inadvertently on FARPs, ATPs, and even friendly convoys.

7-23. Training and coordination is the primary solution to the serious problem of fratricide. Individual infantry skills are a must, and CS and CSS ROC-related staffs must function as their tactical counterparts. A combat brigade S3 staff is a model from which necessary ROC-related skills can be

determined and training developed to improve the tactical skills of CS and CSS staffs.

UNEXPLODED ORDNANCE (UXO)

7-24. UXOs are hazards whether on the battlefield or in designated impact areas. UXO includes ordnance items that have been fired, projected, dropped, or placed in such a way that they could become armed and detonate. Whether in an area by design or accident, these items have not yet functioned. Whatever the reason, UXO poses the risk of injury or death to all personnel.

7-25. In wartime there are two types of UXO threat, passive and active. The passive threat refers to any ordnance found by personnel as they move across the battlefield. The active threat refers to any ordnance that remains in the area after a direct attack on a position. All units must be able to react to both types of UXO threats to survive on the battlefield. Guidance and procedures for preparing and reacting to UXO are outlined in FM 21-16 (FM 4-30.11). Commanders at all levels must incorporate measures and plan conducting unit operations fully aware of the UXO threat.

Appendix A

Standard Army Ammunition System—Modernized

The SAAS is a computer-based information system used at the operation and management levels in a theater of operations and at installations. It provides an integrated ammunition management and control capability for ammunition support operations. The primary purpose of the system is to satisfy the conventional ammunition tactical information requirements of commanders in wartime conditions. It provides information processing support for conventional ammunition logistical support applications at installations, divisions, corps, and EAC. FM 4-30.13 and the SAAS end user manual (EM) provide detailed information on the SAAS.

The SAAS is a management system designed for conventional ammunition, GMLRs, and related C&P materials. SAAS procedures are designed to provide accurate, near real-time stock status for ammunition on hand and in transit to a theater of operations. The SAAS is the management tool used to provide TAV and stock record accounting for ammunition at the retail level. It provides data to the worldwide ammunition reporting system (WARS), the CCSS, the CSSCS, and the TAMIS. Each SAAS operating level (theater MMC, CMMC, ASP, or DAO) functions within its own definition. However, when communications or the supporting next higher level are not available, the SAAS can operate independently of the next level.

The SAAS provides formal stock record accountability, asset visibility, management control, and automatic reporting capabilities for ammunition stored at the retail level. Management functions supported include basic load, war reserve, and operational stock management. The SAAS supports Class V conventional ammunition missions for units ranging from a brigade-size TF to a theater. The SAAS provides timely and accurate Class V management information in support of wartime operations, automation and procedural standardization for Class V management, and the ability to test wartime scenarios on existing databases without disrupting real-time accountability. The SAAS also provides all interfaces between the NICP and the DS/GS supply level.

OPERATING ENVIRONMENT

A-1. The SAAS-MOD allows commanders and ammunition managers to produce accurate, timely, and near real-time Class V information during peacetime and contingency operations, as well as wartime operations on a highly mobile battlefield. It provides management and stock control for conventional ammunition, GMLR, and C&P materials. The SAAS-MOD operates at all of the following functional levels in the theater of operations:

- Corps and theater MMCs (or MACOM-equivalent).
- DAO and ATP.

- ASA (TSA, CSA, or ASP).
- Installation ASA.

SAAS AREA FUNCTIONS

A-2. The SAAS-MOD supports ammunition managers at three functional levels in a theater of operations (MMC, ASP, and DAO) by providing the capability to pass and receive near real-time data. System functions are divided into the following ammunition management areas:

- General core operations.
- Materiel management.
- Requirements management.
- Primary operations.
- Ammunition surveillance management.
- SAAS interface.

GENERAL CORE OPERATIONS

A-3. General core operations are performed at the three functional levels of the SAAS to ensure the system produces accurate and timely information. They cover establishment and maintenance of the military organizational structure: facility resources; reference data; and ammunition requirements, authorizations, and assets for all functional levels within a theater or corps. These operations include—

- Organization management.
- Security management.
- Information support.
- System administration.
- Maintenance resources.
- Accounting functions.

MATERIEL MANAGEMENT

A-4. Ammunition materiel management functions are performed only at theater and corps MMCs. These functions relate to the overall management of authorizations, requirements, and redistribution of ammunition assets within the theater. They may be performed at a lower level but only when authorized. Materiel management functions include—

- Identifying excesses and shortages.
- Requisitions.
- Directives.
- Background processes.

REQUIREMENTS MANAGEMENT

A-5. The functions of managing ammunition requirements are performed at the DAO and ATP. They include maintaining ammunition requirements, and visibility and distribution within the division. The DAO is responsible for distributing ammunition, verifying unit requirements, and tracking ammunition coming into the division. Requirements management functions described include—

- Task force support.
- Requirements in wartime operations.
- Requirements in peacetime operations.

PRIMARY OPERATIONS

A-6. Primary operations functions, also referred to as ammunition asset management, are normally performed at the ASP. They are used to receive, store, issue, and account for ammunition in a retail ammunition stock record account. The account may be located at an ammunition DS/GS company or the responsible installation organization. Functions include—

- Stock control processes.
- Storage management.

AMMUNITION SURVEILLANCE MANAGEMENT

A-7. On-site ammunition inspectors perform ammunition surveillance management functions. These tasks are associated with acquiring and maintaining the records of ammunition quality and safety at ATPs or ASPs. QASAS management functions are normally performed by the on-site ammunition surveillance inspectors. These tasks deal with acquiring and maintaining the records of ammunition quality and safety at ATPs or ASPs. The QASAS also assists in developing and administering the explosive and fire safety program, and the equipment operations and safety program for vehicles transporting ammunition. Detailed information on surveillance actions is contained in chapter 5.

SAAS COMMUNICATIONS

A-8. The SAAS-MOD receives and transmits data from/to several systems at each functional level. The SAAS-MOD uses magnetic media, remote access service (RAS), and communications networks to accomplish all interfaces. SAAS interfaces are identified in paragraph A-12.

SYSTEM PERFORMANCE

A-9. The SAAS-MOD provides a standard ammunition management tool capable of the following actions:

- Maintain current status of all ammunition within the command ASAs and ATPs.
- Provide data used by the manager to determine redistribution of assets.
- Maintain data on U.S. and foreign munitions for use in determining Q-D, and new computations and weapon systems interoperability.
- Support surveillance stockpile management.
- Support ad hoc query, including data imported and exported to other systems.
- Theater support command materiel management center (TSCMMC) requisitions from the NICP; if a CMMC is acting as the theater MMC, it requisitions from the NICP.
- Maintain asset visibility aboard transport vehicles passing data.

INTERFACES

A-10. The SAAS-MOD receives and sends data to several systems. When the communications link is down, operators can input data manually if it is received off-line. All data received by communications is normally batch-processed after the communications portion of the interface is complete. All

SAAS activities within a theater provide data for each other. The SAAS-MOD contains the following interfaces:

- The SPBS-R provides major end item data at the battalion level and above, and basic load information. The SPBS-R provides on-hand quantities at the unit. This system is also used for accountability when the ammunition is issued by the ATP to the using unit.
- The ULLS-S4 passes ammunition requests to the SAAS-MOD (this interface is presently a manual mode of operations).

Note: SPBSR and ULLS-S4 will be replaced by the Property Book and Unit Supply Enhanced (PBUSE) System.

- The CCSS acts on SAAS-MOD daily reportable transactions that are passed to the standard depot system (SDS).
- The logistics support activity (LSA) provides catalog data to the SAAS-MOD via the Defense logistics information service and Federal Logistics (FEDLOG).
- The WARS processes SAAS-MOD transaction data.
- The TAMIS forwards training ammunition requests and forecasting requirements to the SAAS-MOD (currently, this interface is a manual mode of operations).
- The CSSCS provides automated support for the dual role of the CSS commander:
  - It supports the C2 of subordinate organizations as they support operations.
  - It also provides critical CSS resource information to the tactical-level commander for decisionmaking and battle planning processes.
- The CSSCS provides important C2 information to the TSC, and other commanders and their staffs based on data received from the SAAS-MOD.
- The Department of the Army Movements Management System-Redesign (DAMMS-R)/Transportation Coordinator Automated Information for Movements Systems (TC-AIMS II):
  - The DAMMS-R provides highway scheduling, convoy planning, and communications data.
  - The DAMMS-R will be replaced and its functions incorporated into TC-AIMS II.
  - The TC-AIMS II will provide movement control organizations within a battlespace with an automated capability to forecast the arrival of personnel and inter-theater cargo and containerized shipments, and to maintain visibility of command-interest cargo throughout the theater.

MOVEMENT TRACKING SYSTEM

A-11. Although the MTS does not interface with the SAAS-MOD, the MTS is a critical logistics in-transit information node and supports distribution management through the full spectrum of military operations (figure A-1). The system integration with the TC-AIMS II and GCSS-A provides commanders and distribution managers with improved movement tracking,

control, and management capability. It provides near real-time information on the location and status of distribution platforms using cabin console-mounted hardware and satellite technology. The MTS incorporates various technologies including GPS AIT, vehicle diagnostics, and non-line-of-sight communication and mapping.

REQUIRED HARDWARE

A-12. The non-developmental item (NDI) hardware required to operate the SAAS is purchased through a DOD computer contract that provides complete systems. The user gets the most modern equipment available on the contract at the time of purchase and installation. The equipment is tailored for each of the three functional levels and to the site that operates it. Quantities of hardware at each location (see figures A-2, A-3, and A-4) are based on unit missions and are outlined in the BOIP capstone for the SAAS. The equipment described in this paragraph is subject to change because of improvements in technology.

- Theater/corps.
- Division ammunition office/ammunition transfer point.
- Ammunition supply point.
- Contingency requirements.

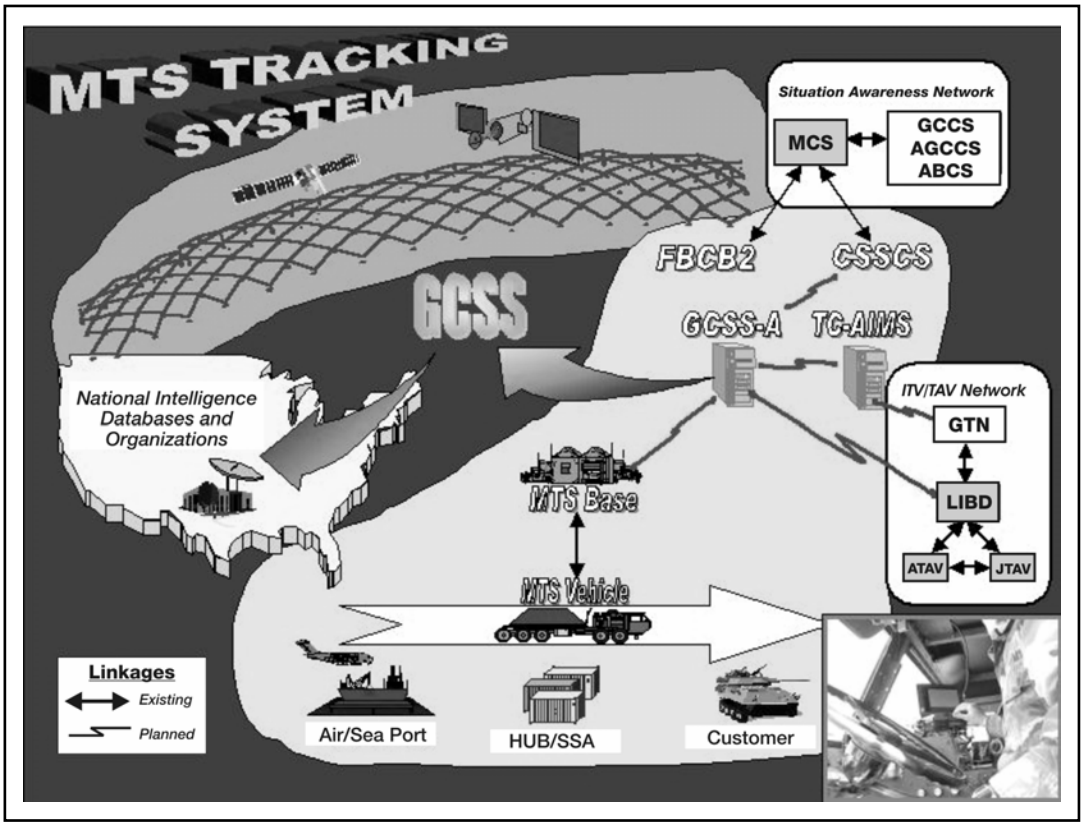

Figure A-1. MTS Information Distribution

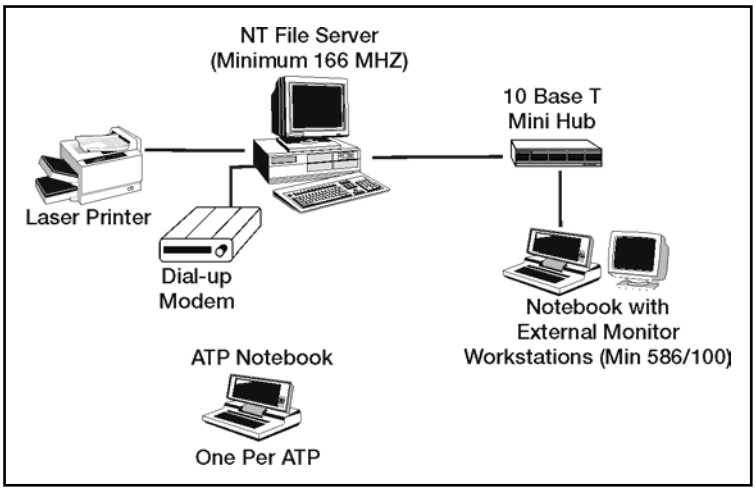

Figure A-2. Division Level/ATP Configuration

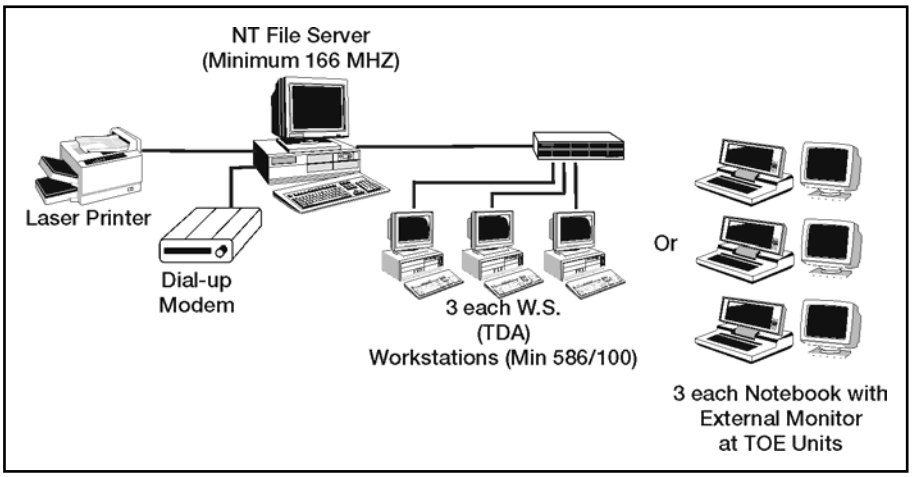

Figure A-3. ASP Configuration

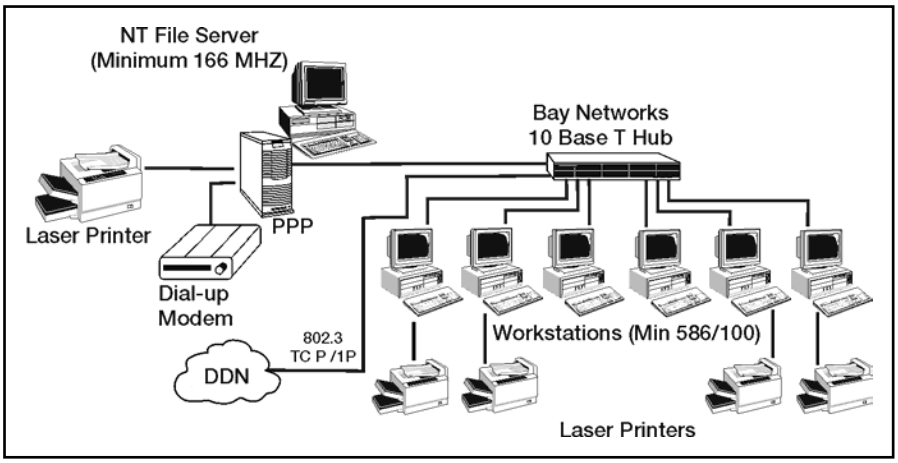

Figure A-4. Theater/Corps MMC Configuration

REQUIRED SOFTWARE

A-13. The SAAS end user manual and the system administrator manual can be viewed and downloaded at http://www.gcss-army.lee.army.mil/saashdbk/default.htm. This manual identifies all software required to operate or continue operations in an emergency. See the system administrator manual for more information on software requirements.

PROBLEM REPORTS

A-14. All SAAS-MOD users are responsible for identifying and reporting problems and submitting recommended changes on an engineering change proposal—software (ECP-S) for software enhancements. Automated or manual control logs are maintained by all system operators and units submitting problem reports and ECP-S. Report formats are contained in FM 4-30.13 and the SAAS EM.

Glossary

AB	aviation brigade
ABCS	Army battle command system
ABL	ammunition basic load
AC	active component
ACC	Army component commander
ADC-S	assistant division commander for support
AIN	ammunition information notice
airhead	designated location in an area of operations used as a base for supply and evacuation by air
AIS	automated information system(s)
AIT	automated information technology
AMC	Army Materiel Command
AMCOM	Aviation and Missile Command
ammo	ammunition
ammunition basic load	quantity of conventional ammunition authorized and required to be on hand in a unit to meet combat needs until resupply can be accomplished; specified by the TA and expressed in rounds for ammunition items fired by weapons and in other units of measure for bulk allotment
ammunition supply point	area designated to receive, store, and issue Class V materiel; normally located at (or near) the division area and operated by the corps direct support ammunition company
ammunition support activity	one of the storage areas (CSA/TSA/ASP) whose primary mission is to receive, store, issue, and maintain theater conventional ammunition stocks
ammunition transfer holding point	designated site where ammunition is transferred and temporarily stored
ammunition transfer point	designated temporary site where munitions are transferred from corps transportation to issuing unit vehicles; forward ATP is normally located in the brigade area, operated by either the supply company, the FSB in a heavy division, the forward supply company of the S&T battalion in a light division, or the S&T company of the support battalion of a separate brigade; the rear ATP is normally located in the division area, operated by the ordnance company, ammunition (DS)
AO	area of operations
AOR	area of responsibility
APOD	aerial port of debarkation
APOE	aerial port of embarkation
APS	Army prepositioned stocks

AR	Army regulation
ARDEC	Armament Research, Development, and Engineering Center
ARFOR	Army Force ARFOR consists of the senior Army headquarters and all Army forces assigned or attached to a combatant command, subordinate joint force command, joint functional command, or multinational command
Army G3	Assistant Chief of Staff, Operations
Army G4	Assistant Chief of Staff, Logistics
ARNG	Army National Guard
ASA	ammunition support activity
ASCC	Army service component commander
ASG	area support group
ASIS	ammunition surveillance information system
ASL	authorized stockage list
ASP	ammunition supply point
AST	ammunition support team
AT	antitank
ATAV	Army total asset visibility
ATHP	ammunition transfer holding point
ATP	ammunition transfer point
attainability	focus of the CSS effort before an operation begins
AV	asset visibility
BAO	brigade ammunition officer
BB	breakbulk
BB/CON	breakbulk/container
BCT	brigade combat team
bde	brigade
bn	battalion
BOIP	basis of issue plan
BRP	battalion release point
BSA	brigade support area
C2	command and control
C4ISR	command, control, communications, computers, intelligence, surveillance, and reconnaissance
C&P	component and packaging
CA	combat arms
CAIK	CROP aircraft interface kit
CASCOM	U.S. Army Combined Arms Support Command
cbt	combat

CCSS	commodity command standard system
CEA	captured enemy ammunition; cost effective analysis
CHU	container handling unit
CL	configured load
CMCB	corps movement control battalion
CMCC	corps movement control center
C/MHE	container/materiel handling equipment
CMMC	corps materiel management center
co	company
COMMZ	communications zone
configured load	load of supplies built to anticipated or actual needs and intended for maximum throughput
controlled supply rate	rate of ammunition consumption that can be supported, considering availability, facilities, and transportation; expressed in rounds per unit, individual, weapon, or vehicle per day. The TA announces the CSR for each item of ammunition; in turn, the commander of each subordinate unit determines the CSR for the unit. A unit may not draw ammunition in excess of its CSR without authority from its next higher HQ
CONUS	continental United States
conv	conventional
convoy	group of vehicles organized for the purpose of control and orderly movement with or without escort protection
COOP	continuity of operations plan
COP	common operational picture
corps storage area	site established to store and issue the ammunition requirements of the assigned or attached corps combat units; operated by one or more GS ammunition companies; at least one CSA is needed to support a tactical division using the ASP and ATP network
COSCOM	corps support command
CP	command post
CROP	containerized roll-on/-off platform
CS	combat support
CSA	corps storage area
CSB	corps support battalion
CSG	corps support group
CSR	controlled supply rate
CSS	combat service support
CSSCS	combat service support control system
CTIL	commander's tracked items list
CTOC	corps tactical operations center

CWT	customer wait time
DA	Department of the Army
DAAS	Defense Automated Addressing System
DAC	Department of the Army civilian
DAMMS-R	Department of the Army Movement Management System – Redesign
DAO	division ammunition officer/office
DASB	division aviation support battalion
DD	Department of Defense (form)
Department of Defense identification code	alphanumeric designation used to identify a specific item or component part of Class V materiel (for example, D544 is the DODIC for 155-mm projectile, HE)
dev	development
dir	director
DISCOM	division support command
div	division
DLA	Defense Logistics Agency
DMC	distirbution management center
DMMC	division materiel management center
DOD	Department of Defense
DODAAC	Department of Defense activity address code
DODIC	Department of Defense identification code
DOL	Directorate of Logistics
DOS	days of supply
DOTMLPF	doctrine, organization, training, materiel, leadership, personnel, and facilities (U.S. DOD)
DPG	Defense planning guidance
DS	direct support
DSA	division support area
DSB	division support battalion
DTO	division transportation officer
DTOC	division tactical operations center
DTSB	division troop support battalion
DU	depleted uranium
EAB	echelon above brigade
EAC	echelon above corps
EAD	echelons above division
economy	providing the most efficient support to accomplish the mission
ECP-S	engineering change propsoal – software
EDS-A	enhanced delivery system – air

EM	end user manual
EOD	explosive ordnance disposal
EODCT	explosive ordnance disposal control team
EODTIC	explosive ordnance disposal technical information center
EUCOM	European Command
FARP	forward area refueling point
FBCB2	Force XXI battle command brigade and below
FCS	future combat system
FEDLOG	Federal logistics
flexibility	adapting CSS structures and procedures to changing situations, missions, and concepts
FM	field manual
FMTV	family of medium tactical vehicles
FRAIK	flatrack aircraft interface kit
FSB	forward support battalion
FSC	field support command
FTTS	future tactical truck system
FTX	field training exercise
G2/J2	Assistant Chief of Staff (Intelligence)
G3	Assistant Chief of Staff (Operations and Plans)
G4	Assistant Chief of Staff (Logistics)
GCSS-A	global conbat service support system – Army
GMLR	guided missile and large rocket
GPS	global positioning system
GS	general support
HAZMAT	hazardous materiel
HDC	headquarters distribution company
HEMTT	heavy expanded mobility tactical truck
HEMTT-LHS	heavy expanded mobility tactical truck – load handling system
HHC	headquarters and headquarters company
HHD	headquarters and headquarters detachment
HHT	handheld terminal
HLP	heavy lift platoon
HN	host nation
HNS	host nation support
HQ	headquarters
HQDA	Headquarters Department of the Army
HUMIT	human intelligence
HSC	headquarters supply company
IAW	in accordance with

ICM	improved conventional munitions
IED	improvised explosive device
integration	coordination with, and mutual support among Army, joint, multinational, and interagency CSS organizations
IPB	intelligence preparation of the battlefield
ISB	intermediate staging base
ISO	International Standardization Organization
ITV	in-transit visibility
JFC	joint force commander
JTAV	joint total asset visibility
JTF	joint task force
k	kilometer
LAN	local area network
LAW	light antitank weapon
LHS	load handling system
lift	(of ammunition) the use of MHE to pick up ammunition and put it down, with each pickup and put-down constituting one lift. When containerized ammunition is received at the CSA or TSA, it is off-loaded with a rough-terrain container crane. The ammunition is unloaded with a variable-reach forklift and placed in a storage location. When issued, the ammunition is picked up by a rough-terrain forklift and placed on a vehicle. Each of these movements constitutes a lift, for a total of three lifts to receive, rewarehouse, and issue the ammunition
LL	lift load (ABL carried on the unit's organic vehicles; not part of the TAT or turret load; one CL and LL is equivalent to one ABL)
LOC	lines of communication
LOGCAP	Logistics Civilian Augmentation Program
LOGSA	logistics support activity
LOGSITREP	logistics situation report
LOGSTAT	logistics status
LOTS	logistics over-the-shore
LPB	logistics preparation of the battlefield
LPT	logistics preparation of the theater
LRP	logistics release point
LSA	logistics support area
LSE	logistics support element
MACOM	major Army command

maneuver-oriented ammunition distribution system	ammunition supply system designed to provide 100 percent of combat units (infantry, armor, field artillery, combat aviation, combat engineers, air defense artillery) ammunition requirements through the ATP network. Corps transportation (ground and air) is allocated and operates in a DS role to support ammunition shipments from the CSA to ASPs and ATPs, and from ASPs to ATPs.
MANPADS	man-portable air defense system
MATO	materiel office/officer
MCA	movement control agency
MCC	movement control center
MCL	mission-configured load
MCO	movement control officer
MCT	movement control team
METT-TC	mission, enemy, terrain and weather, troops and support available, time available, civil considerations
mgmt	management
MHE	materiel-handling equipment
MHP	munitions history program
MILSTAMP	Military Standard Transportation and Movement Procedures
MILSTRIP	Military Standard Requisitioning and Issue Procedures
mission-configured load	"preplanned load" of supplies built for a specified mission or purpose to meet anticipated or actual needs intended for maximum throughput
MITLA	microchip technology in logistics applications
MLP	medium lift platoon
MMC	materiel management center
MMR	military munitions rule
MOD	modernization
MOG	maximum on the ground
MOOTW	military operations other than war
MOS	military occupational specialty
MOUT	military operations in urban terrain
MP	military police
MRO	materiel release order
MSB	main support battalion
MSE	mobile subscriber equipment
MSR	main supply route
MSS	mission staging site; munitions survivability software
MTS	movement tracking system
MTW	major theater war
NATO	North Atlantic Treaty Organization

NBC	nuclear, biological, chemical
NCO	noncommissioned officer
NDI	nondevelopmental item
NEPA	National Environmental Policy Act
NICP	national inventory control point
NLOS	non-line of sight
NMP	national maintenance point
O&S	operating and support
OCONUS	outside continental United States
ODSS	offensive, defensive, support, and stability
OPCON	operational control
OPLAN	operation plan
OPLOG	operational logistics
OPORD	operation order
ops	operations
OSC	operational support command
P&P	packaging and preservation
pam	pamphlet
PBUSE	Property Book and Unit Supply Enhanced
PL	public law
PLL	prescribed load list
PLS	palletized loading system
POC	point of contact
POD	port of debarkation
POL	petroleum, oils, and lubricants
PP	packaging and preservation; protective posture
push/pull system	*push system:* automatic resupply of ammunition consumed by the user; consumption rate is calculated by the type and quantity of ammunition issued to the user from stocks on hand at the issuing facility. Issues are reported through daily transaction reports to the CMMC by the issuing activity (such as an ASP, an ATP, or DAO). That quantity along with any new or additional requirement is pushed into the supply pipeline at the CSA or TSA to replenish or add to mission stocks forward *pull system:* uses DAO requests for Class V by type and quantity to satisfy mission requirements
QA	quality assurance
QASAS	quality assurance specialist (ammunition surveillance)
QC	quality control
QRF	quick reaction force
RAOC	rear area operations center

RAS	remote access service
RC	Reserve Component
RCRA	Resource Conservation and Recovery Act
required supply rate	tactical commander's estimate of the required quantity of ammunition expressed as rounds per weapon per day for ammunition items fired by weapons; as other units of measure per day, for bulk allotment and other items required to sustain operations of any designated force without restriction for a specified period
responsiveness	providing the right support in the right place at the right time
RF	radio frequency
ROC	rear operations center
ROD	report of discrepancy
RPAD	roller platform for air deployment
RRAPDS	Remote Readiness Asset Prognostic/Diagnostic Systems and Ammunition
RSR	required supply rate
S3	operations and training officer
S4	supply officer
SBCT	Stryker brigade combat team
SAAS	standard army ammunition system
SAAS-MOD	standard army ammunition system—modernized
SB	supply bulletin
SDS	smart distribution system; standard depot system
SF	standard form
SFC	sergeant first class
short ton	equivalent of 2,000 pounds (0.907 metric ton) of weight
simplicity	standardized procedures increase efficiency and contribute to simplicity
SITREP	situation report
sling out	ammunition loaded into cargo nets and rigged beneath a helicopter. Sling out operations are conducted primarily for emergency resupply of units not accessible by ground transport or when time or security is a critical factor
SOP	standing operating procedure
SOUMS	safety of use messages
SOW	statement of work
SPBS-R	standard property book system—redesign
SPOD	seaport of debarkation
SPOE	seaport of embarkation
spt	support
SRC	standard requirement code

SRS	sustainment replenishment site
STON	short ton
STAMIS	standard ARMY information system
STANAG	standardization agreement
standardization agreement (NATO)	record of an agreement among several member nations to adopt like or similar military equipment, ammunition, supplies, and stores and operational, logistic, and administrative procedures; national acceptance of a NATO allied publication issued by the Military Agency for Standardization may be recorded as a standardization agreement
STRAC	Standards in Weapons Training Commission
SU	situational understanding
SUPCOM	support command
survivability	ability to protect support functions from destruction or degradation
sustainability	ability to maintain continuous support during all phases of campaigns and major operations
svc	service
TA	theater Army
TACOM	U.S. Army Tank-Automotive Command
TAT	to accompany troops
TAMCC	theater Army movement control center
TAMIS	Training Ammunition Management Information System
TAMIS-R	Training Ammunition Management Information System—Revised
TAT	to accompany troops
TAV	total asset visibility
TB	technical bulletin
TC	training circular
TC-AIMS II	Transaportation Coordinator's—Automated Information for Movements System II
TC TK	transporattion container transfer kit
TDMMC	theater distribution materiel management center
tech	technical
TF	task force
theater storage area	within the COMMZ, operated by one or more ordnance companies ammunition (GS); receives, stores, issues, and maintains the theater conventional ammunition reserves; should be linked with air, road, rail, and seaborne networks and facilities when possible
TM	technical manual
TMCA	theater movement control agency
TMCC	transporation movement control center

TMMC	theater materiel management center
TOE	table(s) of organization and equipment
TPFD	time-phased force deployment
TRADOC	U.S. Army Training and Doctrine Command
TRANSCOM	Transportation Command
TSA	theater storage area
TSC	theater support command
TSCMMC	theater support command materiel management center
turret	ammunition basic load that is uploaded onto combat vehicles (tanks, Bradleys)
UA	unit of action
UBL	unit basic load
UCL	unit configured load
UE	unit of employment
ULLS-S4	unit-level logistics system – S4
UPS	uninterruptable power supply
U.S.	United States (of America)
USACAA	U.S. Army Concepts Analysis Agency
USALC	U.S. Army Logistics Command
USAMC	U.S. Army Materiel Command
USAREUR	United States Army in Europe
USSS	United States Secret Service
UXO	unexploded ordnance
VRFL	variable reach forklift
VIP	very important person
WARS	worldwide ammunition reporting system
WD	weapons density
WHNS	wartime host nation support

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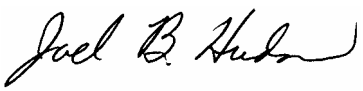

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