



FM 4-30

ORDNANCE OPERATIONS

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HEADQUARTERS, DEPARTMENT OF THE ARMY

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Ordnance Operations

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Preface

This field manual (FM) 4-30 provides fundamental guidance for the employment of United States Army ordnance maintenance operations, munitions operations and explosive ordnance disposal operations in support of unified land operations and warfighting functions. *Unified land operations* are how the Army seizes, retains, and exploits the initiative to gain and maintain a position or relative advantage in sustained land operations through simultaneous offensive, defensive, and stability operations in order to prevent or deter conflict, prevail in war, and create the conditions for favorable conflict resolution (ADRP 3-0).

The principal audience for FM 4-30 is all members of the profession of arms. Commanders and staffs of Army headquarters serving as a joint task force (JTF) or a multinational headquarters should also refer to applicable joint or multinational doctrine concerning the range of military operations as well as joint or multinational forces. Trainers and educators throughout the Army will also use this publication.

Commanders, staffs, and subordinates ensure their decisions and actions comply with applicable United States, international, and in some cases, host-nation laws and regulations. Commanders at all levels ensure their Soldiers operate in accordance with the law of war and the rules of engagement. (See FM 27-10.)

FM 4-30 uses joint terms where applicable. Selected joint and Army terms and definitions appear in both the glossary and the text. Terms for which FM 4-30 is the proponent publication (the authority) are italicized in the text and are marked with an asterisk (*) in the glossary. Terms and definitions for which FM 4-30 is the proponent publication are boldfaced in the text. For other definitions shown in the text, the term is italicized and the number of the proponent publication follows the definition.

FM 4-30 applies to the Active Army, Army National Guard of the United States, and United States Army Reserve unless otherwise stated.

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Introduction

The purpose of the ordnance corps is to support the development, production, acquisition and sustainment of equipment- including weapons systems and munitions- and to provide explosive ordnance disposal (EOD), during peace and war, to provide superior combat power to the United States (U.S.) Army. The ordnance corps has a rich and robust history of supporting the force dating back from the American Revolution to present day. The future of our nation and Army will continue to be engaged in an era of “persistent conflict” a period of protracted confrontation among states, non-state, and individual actors increasingly willing to use violence to achieve their political and ideological ends. The ordnance corps must evolve and remain the indispensable sustainment warfighting function in order for the Army to successfully execute simultaneous and protracted operations.

The Army sustainment concept is based on the integration of people, systems, material, health services, and other support that links sustainment to the operations process. *Sustainment* is the provision of logistics, personnel services, and health services support necessary to maintain operations until mission completion (ADP 4-0). The ordnance corps plays a vital role in supporting the sustainment warfighting function through the sub function of logistics as referenced in Army doctrine reference publication (ADRP) 3-0 *Unified Land Operations*. *Logistics* include the planning and executing the movement and support of forces. It includes those aspects of military operations that deal with: design and development, acquisition, storage, movement, distribution, maintenance, evacuation, and disposition of materiel; movement, evacuation, and hospitalization of personnel; acquisition or construction, maintenance, operation, and disposition of facilities; and acquisition or furnishing of services (JP 4-0). Today modularity requires the ordnance corps to anticipate, analyze, and tailor available resources for effective and timely maintenance, munitions, and EOD support. Adaptive planning and increased options for decision makers now necessitate maintenance, munitions, and EOD managers to embrace change, innovation, and flexibility at all levels. The ordnance corps success is measured by how well it supports unified land operations with the elements of maintenance, munitions and EOD support.

FM 4-30 contains four chapters:

Chapter 1 covers a summative history of the ordnance corps and outlines the core competencies of the ordnance corps and their strategic relevance in sustaining the Army’s unified land operations function.

Chapter 2 discusses the tactical and operational mission of ordnance munitions operation as a major factor in determining the outcome of offensive, defensive, stability, support, protection and other combat operations.

Chapter 3 discusses EOD operations, organizational structure, their command and support relationships and how they support unified land operations.

Chapter 4 discusses the two levels of maintenance concept and how maintenance support is provided above and below the brigade level. Chapter 4 also identifies the command and support relationships between the U.S. Army Materiel Command (USAMC) maintenance sustainment organizations and the operational Army in the conduct of unified land operations.

Chapter 1

The Ordnance Corps

The ordnance corps has a proud tradition dating back to colonial America. In 1629, Samuel Sharpe was appointed as the first Master Gunner of Ordnance for the Massachusetts Bay Colony. The American Revolution established the general outlines of the future Ordnance Department. During the war Colonel Benjamin Flower and Ezekiel Cheever, a civilian, provided ordnance support in the manufacturing of arms and equipment and supplied support to the army in the field. During the War of 1812, the Secretary of War recognized the need for a distinct branch to manage the procurement, research, and maintenance of ordnance materiel. On May 14, 1812, Congress officially established the Ordnance Department and appointed Colonel Decius Wadsworth as the first Chief of Ordnance. This chapter provides an introduction to the ordnance corps, its four functions, and how the ordnance corps supports the Army's operational concept of unified land operations by operating within the context of the sustainment warfighting function.

THE ORDNANCE CORPS MISSION

1-1. The ordnance corps mission is complex and multi-faceted, providing munitions, maintenance, and EOD support to generate and maintain combat power and to provide protection to Army, joint, intergovernmental, interagency and multinational forces. This support begins at the very inception of operations and continues, unabated, until operations are complete.

1-2. Ordnance corps support begins within the continental U.S. at the industrial base. This support is projected globally to any military area of responsibility and is consistent throughout the generating, operating, and tactical force structures. Support at the industrial base is achieved through the development, production, acquisition of materiel to include repair parts and munitions. This support includes participation by strategic Department of Defense (DOD) partners and organizations that will be discussed in later sections of this field manual.

1-3. Ordnance corps' support to the operational force includes various table of organization and equipment units designed, manned, and equipped to perform a specific ordnance function. These units are assigned personnel in the proper quantities with military occupational specialties carefully developed and trained in the skills required to perform the related tasks in each ordnance function. These organizations are equipped with the latest materiel enablers that give ordnance Soldiers the means to perform their tasks. Ordnance organizations are allocated based on the mission, operational requirements, and are located at every level of operation from strategic to tactical.

ORDNANCE FUNCTIONS

1-4. The four functions of the ordnance corps are munitions, maintenance, EOD, and explosive safety. Each of these functions has a critical role ensuring operational commanders and forces have the required combat power for mission accomplishment. These functions provide for equipment serviceability, munitions availability, readiness, and protection that directly support the foundations and tenets of unified land operations.

MUNITIONS

1-5. The ordnance munitions function provides the correct type and quantity of munitions from the industrial base to the tactical point of need with minimal handling and reconfiguration.

1-6. Munitions support is a supply function that provides supply class V to units and is similar in many ways to other supply support functions, *supply* being the process of providing all items necessary to equip, maintain, and operate a military command (ADRP 1-02). The supply commodity, unlike others, directly provides the lethality to combat operations. Its limited quantities, immediacy of need, and special transportation and storage requirements present unique challenges to logistics planners and operators.

1-7. Effective munitions management and distribution requires deliberate planning to achieve a clear understanding of the munitions requirements, understanding of the limitations on meeting those requirements, communication, and proper allocation of ordnance ammunition units. Units must effectively and efficiently handle, store, secure, distribute, and account for munitions at every level while ensuring adequate explosives safety guidelines are met. Army munitions planners and organizations must also consider support to joint and multi-national partners as dictated by operational requirements.

MAINTENANCE

1-8. The Army maintenance function generates/regenerates combat power and preserves the capital investment in weapons systems and equipment. Maintenance is the logistics function that directly provides equipment serviceability and operational readiness to commanders for mission accomplishment. Maintenance occurs at every level of operations and is performed by either assigned maintenance capability or by units specifically designed to provide maintenance support to units that have no assigned capability.

1-9. Army maintenance is a two-level system consisting of field and sustainment maintenance and also includes the management and distribution of supply class IX. Field maintenance is performed by operational units, usually found in a brigade support battalion (BSB) or sustainment brigade, and is focused on rapidly returning unserviceable equipment to a serviceable state as quickly and as close to the point of failure as possible. Sustainment maintenance is performed by strategic organizations, usually emanating from the USAMC, and is normally focused on rebuilding and resetting severely damaged equipment to a national military standard and returning it to the supply system.

1-10. Effective maintenance management includes anticipating maintenance requirements, tracking, and analyzing maintenance reports, proper identification and diagnosis of maintenance faults, application of the appropriate maintenance capability, and class IX management. As in the munitions function, proper allocation of maintenance units is essential in ensuring adequate maintenance support is provided to the force. Army maintenance organizations support joint and multi-national partners during operations as required.

EXPLOSIVE ORDNANCE DISPOSAL

1-11. The EOD function provides integrated and layered protection support to forces, civil authorities and critical infrastructure in support of unified land operations. Ordnance EOD detects, identifies, conducts on-site evaluations, renders safe and conducts exploitation, disposal or other disposition of explosive ordnance, including weapons of mass destruction (WMD). Additionally EOD provides support to joint, interagency, intergovernmental and multinational operations as required and is tasked to render safe all types of explosive hazards to include improvised explosives. EOD is a combat multiplier that facilitates decisive operations and provides Army operational commanders at every echelon freedom of action in the operational environment. The *operational environment* is the composite of the conditions, circumstances, and influences that affect the employment of capabilities and bear on the decisions of the commander (JP 3-0).

EXPLOSIVE SAFETY

1-12. The Army's ordnance corps is the proponent for explosive safety and has established it as a fourth core competency. Munitions and explosive safety is a priority consideration for all Soldiers and leaders. Reducing the probability and limiting damage caused by unintended initiation of munitions requires disciplined application of explosive safety procedures and adherence to explosive safety rules. Explosive safety rules can be found at the end of the munitions chapter in this publication.

ORDNANCE CORPS AND THE SUSTAINMENT WARFIGHTING FUNCTION

1-13. As part of the operational construct the Army developed warfighting functions as a way to conceptualize capabilities of combat power. A warfighting function is a group of tasks and systems (people, organizations, information, and processes) united by a common purpose that commanders use to accomplish missions. Commanders use the warfighting functions to help them exercise mission command and to assist their staffs to exercise control to accomplish missions and meet operational objectives. *Mission command* is the exercise of authority and direction by the commander using mission orders to enable disciplined initiative within the commander's intent to empower agile and adaptive leaders in the conduct of unified land operations (ADP 6-0).

1-14. The *sustainment warfighting function* is the related tasks and systems that provide support and services to ensure freedom of action, extend operational reach, and to prolong endurance (ADRP 3-0). Therefore, all ordnance operations must be accomplished by planning and executing missions within the context of the sustainment warfighting function and by applying the principles of sustainment when executing the ordnance functions in support of unified land operations. This implies a need to understand and embrace the sustainment warfighting function and its tasks. Throughout operations, ordnance commanders must evaluate the performance of support provided to the force and determine if it meets the intent of the sustainment warfighting function. When approached from this perspective, and properly executed, the ordnance functions ensure commanders at all levels have the appropriate freedom of action, extended operational reach, and prolonged endurance needed to assure mission accomplishment.

1-15. Ordnance operations are planned and executed by applying principles of sustainment. When applied properly, the principles of sustainment provoke thought and allow commanders and staffs to use their knowledge, experience, and judgment to employ their capabilities more effectively. Application of the principles of sustainment should be considered throughout planning, reevaluated during, and reviewed following operations. The principles of sustainment are:

- Integration is combining all of the sustainment elements within operations assuring unity of command and effort.
- Anticipation is the ability to foresee operational requirements and initiate necessary actions that most appropriately satisfy a response without waiting for operations orders or fragmentary orders.
- Responsiveness is the ability to react to changing requirements and respond to meet the needs to maintain support.
- Simplicity relates to processes and procedures to minimize the complexity of sustainment.
- Economy is providing sustainment resource in an efficient manner that enables the commander to employ all assets to the greatest effect possible.
- Survivability is all aspects of protecting personnel, weapons, and supplies while simultaneously deceiving the enemy.
- Continuity is the uninterrupted provision of sustainment across all levels of war.
- Improvisation is the ability to adapt sustainment operations to unexpected situations or circumstances affecting a mission.

1-16. Refer to Army doctrine publication (ADP) 4-0 and ADRP 4-0 for further explanation of the principles of sustainment.

ORDNANCE SUPPORT TO LOGISTICS

1-17. There are three major elements to the sustainment warfighting function: logistics, personnel services, and health service support. The ordnance corps functions support the logistics element of the sustainment warfighting function.

1-18. Ordnance organizations specifically support maintenance and supply.

- Ordnance organizations perform field maintenance and sustainment maintenance to support operations.

- Ordnance organizations perform supply management, distribution, and replenishment of class V and class IX.
- Ordnance sustainment maintenance organizations repair components and major end items for return to the supply system.
- EOD organizations support all commanders by providing explosive safety advice and disposal capabilities.

1-19. Although the ordnance corps is the EOD proponent, most EOD tasks fall under the protection warfighting function. The primary role of EOD is to protect life and property or priority assets. EOD personnel provide commanders the ability to quickly respond to explosive ordnance threat situations as they occur.

ORDNANCE SUPPORT TO UNIFIED LAND OPERATIONS

1-20. Unified land operations is the Army's operational concept and the Army's contribution to unified action. An important consideration is that commanders of all types of organizations, at all echelons, and in all environments, lead and conduct operations within the context of unified land operations. Ordnance leaders must assess the execution of ordnance functions to ensure they fully support the foundations and apply the tenets of unified land operations. The foundations of unified land operations are initiative, decisive action, the Army core competencies, and mission command.

- Initiative: Ordnance operations must ensure commanders have the ability to seize, retain, and exploit the initiative to achieve decisive results.
- Decisive action: Ordnance operations must allow the continuous, simultaneous combinations of offensive, defensive, and stability or defense support of civil authorities' tasks.
- Army core competencies: Successful application of the ordnance corps core functions are critical to maximizing combat power available to leaders to implement the full array of combined arms maneuver and wide area security.
- Mission command: Ordnance operations must provide commanders the means to exercise the art of command and science of control.

1-21. The tenants of unified land operations describe the Army's approach to generating and applying combat power. The tenets are very closely aligned with and complement the eight principles of sustainment. The tenants are mutually supporting, occur simultaneously, and overlap in execution. The six tenants are:

- Flexibility - Commanders employ a continually adapting and versatile mix of capabilities, formations, and equipment as knowledge increases throughout operations.
- Integration - Army forces must be able to operate within the larger efforts of unified action, often with joint and multiservice partners.
- Lethality - Physical destruction is the foundation of all military capabilities and the basic building block for military operations.
- Adaptability - The ability to adjust formations and techniques to the specific situation being faced.
- Depth - The extension of operations in time, space, or purpose to prevent threats from operating outside the reach of friendly forces.
- Synchronization - The ability to execute multiple related and mutually supporting tasks in different locations at the same time, producing greater effects than executing each in isolation.

SUMMARY

1-22. Ordnance organizations provide support to generate and maintain combat power to support combatant commander's mission accomplishment. This is accomplished through the functions of munitions, maintenance and EOD, each of which provides critical aspects of logistics and protection. Ordnance commanders, staffs, and Soldiers must understand the sustainment warfighting function and how it enables operations by assuring freedom of action, extended operational reach, and prolonged endurance leaders. Skillful consideration of these tasks and application of the sustainment principles aid ordnance

leaders to achieve the desired outcomes. Concurrently, ordnance commanders must understand the Army operational concept of unified land operations, support to its four foundations and application of its tenets. This allows the generation of adequate combat power to defeat the enemy and to establish conditions to achieve the combatant commander's end state.

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Chapter 2

Munitions Operations

Munitions consist of various components and are categorized as supply commodity class V. Munitions support is a complex and interrelated process composed of planning, requirements determination, resourcing, acquisition, storage, maintenance, quality evaluation, transportation, retrograde, explosives safety, and disposal. Effective munitions support is integral to all Army operations and includes a wide range of organizations and personnel. This chapter discusses the mission of munitions organizations; munitions support to the Army, joint, and multi-national forces; staff roles and responsibilities; retrograde operations; and explosive safety. EOD is a separate function of ordnance, not a part of the munitions function, and will be discussed in chapter 3.

MUNITIONS MISSION

2-1. The ordnance corps munitions mission is to provide the correct type and quantity of munitions from the industrial base to the tactical point of need with minimal handling and reconfiguration. Class V munitions includes fixed cartridges for small arms, cannon and main battle tanks; separate projectiles, propellant charges, rockets and missiles, and fuses for artillery; projectiles and charges for mortars; grenades, missiles, rockets, bombs, and explosives. Ordnance corps munitions organizations must effectively and efficiently handle, store, secure, distribute and account for munitions in support of operations to joint or multi-national partners when directed. Throughout operations, strict explosives safety guidelines must be applied to ensure adequate safety to all personnel. Munitions support must be executed within the context of the sustainment warfighting function. Leaders must apply the principles of sustainment throughout munitions operations planning and execution to balance competing mission requirements against available assets and resources. Effective munitions operations at all echelons support the combatant commander's desired end state and his ability to effectively seize, retain, and exploit the initiative.

MUNITIONS SUPPORT

2-2. Munitions are one of the most complex commodities used by the operational Army during combat operations. A ***munition*** is a complete device charged with explosives, propellants, pyrotechnics, initiating composition or chemical, biological, radiological or nuclear material, for use in operations, including demolitions. Lethality is one of the tenets of unified land operations and is the very building block of all combat operations. Munitions are the commodity that provides combatant commanders the ability to direct lethal action against an enemy force during decisive action. Regardless of a force's ability to arrive and maneuver on a battlefield, without munitions it is an incapable force. Although fundamentally a supply commodity, munitions have a number of management attributes that do not apply to general supplies. Specialized storage, handling, transportation, inventory control, and explosives safety are some of the special considerations.

2-3. Like petroleum and subsistence supplies, munitions are consumable items that must be replenished periodically. Unlike other consumables, the immediacy of need of munitions requires very prompt and effective action at all supporting echelons. Because of its specialized nature most munitions cannot be procured on the open market and resupply must come from existing or prepositioned stocks until resupply from the U.S. industrial base can be accomplished. Support from the industrial base often involves long lead times.

2-4. These aspects of munitions support makes it imperative that all stakeholders in the munitions support process act promptly, effectively, and in a fully integrated manner. All stakeholders, from strategic to tactical, must fully understand the requirements and the actions required by them for effective support. Strategic and joint interfaces include DOD agencies, DOD services, and commands that link the national base to the theater.

2-5. U.S. Army munitions organizations and staff planners may be called upon to support joint operations or multinational partners to carry out missions, including all aspects of military operations, joint training, and logistics (Title 10, United States Code, Section 164).

MUNITIONS SUPPORT STRUCTURE AND STAKEHOLDERS

2-6. Most Soldiers and units in the Army have a munitions requirement at one point or another. The type of munitions required and the urgency of need will vary widely based upon the current mission and operational environment. This section will describe agencies and organizations with their associated munitions role from planning, procurement, production, and distribution at the strategic level to the tactical point of need. There are no finite limits or boundaries between these levels. The depth of each will vary depending on the current mission. This section will help commanders visualize a logical arrangement of operations, allocate resources, and assign tasks to the appropriate command (joint publication [JP] 3-0).

2-7. Every entity in this support structure, from the individual Soldier to a strategic partner, is a stakeholder in the process. Each is deeply involved in the process and each is affected by the actions of others. No one is more affected than the individual Soldier since his combat effectiveness ultimately contributes to the combatant commander's mission accomplishment.

STRATEGIC AND JOINT PARTNERS

2-8. Strategic partners are those generating force organizations and agencies that support and enable munitions operations from the national/strategic level. Munitions operations for U.S. forces begin at the strategic level where the DOD interacts with the industrial base to coordinate the development, production, and distribution of munitions required to meet strategic-level objectives. The industrial base is both government-owned and civilian-owned entities capable of producing and maintaining materiel necessary to support national military objectives. These organizations provide support from the continental U.S. (CONUS) but the effectiveness, or ineffectiveness, of their operations has a direct if not immediate impact on tactical combat operations. There are a number of organizations that interface with strategic/national level partners through operational level organizations to the tactical point of need. It is important for leaders and managers to understand the roles, relationships, and capabilities these agencies possess to more efficiently incorporate those capabilities into plans to successfully sustain operations.

2-9. These partners provide products and services that are essential to mobilize, deploy, and sustain military operations. For the purposes of this chapter, the focus will be with U.S. DOD organizations and their role related to munitions only. Several DOD agencies play a role in munitions support to operations.

ASSISTANT SECRETARY OF THE ARMY (ACQUISITION, LOGISTICS, AND TECHNOLOGY) – PROGRAM EXECUTIVE OFFICE - AMMUNITION

2-10. The Assistant Secretary of the Army for acquisition, logistics and technology (ASA(ALT)) has the responsibility for a broad set of acquisition, logistics, technology and other overarching tasks. Assistant Secretary of the Army for Acquisition, Logistics and Technology is responsible to the Secretary of the Army for acquiring, developing, delivering, supporting, fielding, and sustaining capable and affordable systems and services, including munitions, ensuring Soldiers:

- Dominate the battle space, safely and securely.
- Achieve first look, first strike advantage with speed and accuracy.

2-11. The ASA(ALT) serves as the Army acquisition executive, the senior procurement executive, the science advisor to the Secretary of the Army, and the senior research and development official for the DA. ASA(ALT) accomplishes these missions through oversight of a number of entities including national and Army level directorates, a direct reporting unit, program executive offices supported by project and

program managers (PM), and through other relationships with the Army Science Board, the Medical Research and Materiel Command and the Chemical Materials Agency to name a few.

2-12. Program executive office - Ammunition (PEO - Ammo) is a subordinate program of the ASA(ALT). PEO - Ammo is responsible for life-cycle acquisition management of all conventional ammunition including, acquisition strategies, research and development, and life-cycle management across all ammunition families. PEO - Ammo is not an ordnance corps organization but plays a vital role in munitions support. It ensures that the correct types and quantities of munitions are acquired and placed in the Army munitions support system.

2-13. PEO - Ammo is comprised of four project management offices: PM Close Combat Systems, PM Maneuver Ammunition Systems, PM Combat Ammunition Systems, PM Towed Artillery Systems, and two project director offices; Project Director Joint Services and Project Director Joint Products.

- PM Close Combat Systems provides networked munitions, shoulder launched, handheld grenades, signals, simulators, flares, legacy mines, demolitions, and non-lethal munitions support to the Army.
- PM Combat Ammunition Systems equips Soldiers with all precision, tube launched, indirect fire munitions, mortar weapons and fire control systems for Army and other services.
- PM Maneuver Ammunition Systems provides direct fire combat and training ammunition to the Army, other Services, and government agencies to support dismounted Soldiers, combat vehicles, and helicopters.
- PM Towed Artillery Systems provides the warfighter with direct, reinforcing, and general support towed artillery fires to maneuver forces.
- Project Director for Joint Services integrates the single manager for conventional ammunition (SMCA) mission, providing all services with conventional ammunition and demilitarization.
- Project Director for Joint Products

THE U.S. ARMY MATERIEL COMMAND

2-14. The USAMC is the Army's lead materiel integrator and provides technology, acquisition support, materiel development, logistics power projection, and sustainment support. Like the ASA(ALT), USAMC and its subordinate organizations are not ordnance corps organizations but play critical roles in munitions support. USAMC is the DOD Executive Agent for chemical weapons and conventional ammunition, operating research and development engineering centers, the Army Research Laboratory, depots, arsenals, ammunition plants, and other facilities while maintaining the Army's prepositioned stocks (APS) on land and afloat.

2-15. The USAMC is also the proponent of the Quality Assurance Specialist (Ammunition Surveillance) (QASAS) program, responsible for fielding QASAS support personnel to DOD installations, activities, and commands that receive, store, maintain, issue, use, and dispose of munitions in accordance with Army Regulation (AR) 702-12 *Quality Assurance Specialist (Ammunition Surveillance) Program*.

THE JOINT MUNITIONS & LETHALITY LIFE CYCLE MANAGEMENT COMMAND

2-16. The Joint Munitions & Lethality life cycle management command (LCMC) manages research, development, production, storage, distribution, and demilitarization of all conventional ammunition within DOD. Its overarching objective is to deliver the best munitions to meet combatant commanders' needs. The Joint Munitions & Lethality LCMC consists of three component organizations: the PEO - Ammo, Joint Munitions Command, and the Armament Research, Development and Engineering Center (ARDEC). Joint Munitions & Lethality LCMC also oversees a nationwide network of installations and facilities that produce and store conventional ammunition under the direction of Joint Munitions Command.

2-17. PEO - Ammo is an ASA(ALT) organization brought together with the resources and expertise of Joint Munitions Command and ARDEC under an initiative known as centralized ammunition management. PEO - Ammo develops and procures conventional munitions to increase available combat firepower. Through four project management and two Project Director Offices, PEO - Ammo executes the total ammunition, networked, force protection, and close battle systems acquisition requirements for the Army

and other military services. In this capacity, PEO - Ammo serves as the Army's SMCA executor, helping to integrate those functions.

2-18. The SMCA Executor mission reflects the Army's role as executive agent for class V ammunition across all of the military services.

JOINT MUNITIONS COMMAND

2-19. The Joint Munitions Command is a subordinate command of USAMC that manages the production, storage, issue, and demilitarization of conventional ammunition for all U.S. military services. Joint Munitions Command serves as the DOD's field operating agency in the SMCA role providing support to all branches of the U.S. military, to selected non-DOD customers, and to other U.S. agencies and allied nations as directed.

2-20. Joint Munitions Command provides combatant commanders and their staffs with accurate information on the status of munitions to make the most effective use of existing ammunition stockpiles.

2-21. Joint Munitions Command operates a nationwide network of installations and facilities where conventional ammunition is produced and stored. Specialists from Joint Munitions Command often work alongside units in the field and accompany them on deployments to assure the reliability, quality, and safety of ammunition stockpiles.

2-22. Joint Munitions Command manages the Army's 14 ammunition arsenals. Joint Munitions Command also serves as the logistics and readiness arm of the LCMC, ensuring munitions are delivered to support unit training and deployments.

U.S. ARMY ARMAMENT RESEARCH, DEVELOPMENT, AND ENGINEER CENTER

2-23. U.S. Army ARDEC is the Army's principal researcher, technology developer, and sustainer of munitions systems for the LCMC. ARDEC technology enhancements improve already fielded items, transitions technology to the program executive officers to continue development, maintains a strong armament technology base in government, industry, and academia and provides technical support to Soldiers in the field.

THE DEFENSE AMMUNITION CENTER

2-24. A subordinate of the Ordnance School within the Sustainment Center of Excellence, the Defense Ammunition Center (DAC) serves a unique role in the areas of training, explosives safety, logistics engineering, and operational reviews of ammunition support activities. Ammunition support activities will be described in further detail later in this chapter. A multi-faceted interdependent organization, the DAC's major missions are:

- Explosives safety support to the DOD.
- QASAS support.

2-25. The DAC accomplishes its major missions through a number of related sub functions. These sub functions contribute to greater safety and increased efficiency in handling, transporting, and storage of munitions. Some of the sub functions or tasks the DAC undertake are:

- Provides support for collection of worldwide environmental data; evaluates new technologies for modernization of ammunition operations; and performs evaluations of ammunition operations.
- Provides ammunition-related training for DOD military and civilian personnel. Offer a variety of training through on-site mobile training teams, regional training site facilities, and distance learning products.
- Designs standardized unit, pallet and storage procedures for DA and SMCA and designs methods and procedures for the outloading, blocking, and bracing of ammunition for rail, road, and ship transportation.

2-26. The DAC is the lead DOD agency for explosives safety. DAC's purpose is to promote and assure safe and efficient operations involving ammunition and explosives from the time it enters the stockpile inventory from manufacture through use in training, wartime, or demilitarization.

THE U.S. ARMY SUSTAINMENT COMMAND

2-27. The U.S. Army Sustainment Command (ASC) sustains Army and joint forces in support of combatant commanders. As the USAMCs executing agent for lead materiel integration, ASC is the single integrator to ensure Soldiers have the right materiel support to accomplish their missions. ASC maintains and accounts for APS munitions stocks. These stocks include munitions and supplies at land and sea based positions strategically located around the globe.

OPERATIONAL MUNITIONS STAKEHOLDERS

2-28. Operating forces are those forces whose primary missions are to participate in combat and their integral supporting elements. Operational munitions support involves multiple headquarters, both operational and sustainment, and various support organizations. All have vital roles in managing munitions requirements, readiness, and support. Sustainment headquarters at this level have commodity organized staff sections to synchronize and array sufficient munitions resources across the area of operations. Logisticians must be prepared to conduct support operations in a variety of complex operational environments while encountering adaptive adversaries. Support to joint and multi-national partners continues at this level and requires communication amongst headquarters to reduce redundancy and inefficiencies.

OPERATIONAL HEADQUARTERS AT ECHELONS ABOVE BRIGADE

2-29. The operational headquarters above brigade, Army Service component command (ASCC), corps, and division, all play a major role in munitions support. As the headquarters organizations providing mission command to various subordinate commands within the force, they must all be fully aware of munitions requirements and status of subordinate organizations. They must also understand the munitions organizations available to provide support and the capabilities of each. These headquarters must integrate munitions support into all planning and effectively communicate, coordinate, and cooperate with the various sustainment headquarters and support organizations.

2-30. The ASCC is the senior Army command in an area of responsibility (AOR) responsible for all sustainment support requirements established under Title 10 United States Code. The ASCC can be tailored and augmented to the specific requirements of the AOR it supports while providing a long term presence supporting Army forces in unified land operations and to joint forces in the joint operations area (JOA). Responsibilities of the ASCC include communicating capabilities to the geographic combatant commander (GCC), coordinating with the industrial base, overseeing common user logistics, conducting Army executive agent responsibilities, coordination with joint or multi-national partner theater-level components, supporting multiple JOAs, and to conduct theater level planning.

2-31. Embedded within the ASCC are staff elements which play a vital role providing staff oversight of ammunition supply, storage, reporting, and safety within the AOR. The assistant chief of staff, operations (G-3) and assistant chief of staff, logistics (G-4) are the primary staff at the ASCC level concerned with munitions. Additionally, the staffs develop and consolidate all munitions requirements for the stockage objective and develop munitions policies for the theater Army. Theater level ammunition situational awareness occurs between the ASCC and the theater level logistics headquarters.

2-32. Army operational level commands corps headquarters and their associated logistics headquarters. Theater sustainment command (TSC) and expeditionary sustainment command (ESC) and division headquarters staff provide the mission command structure and capabilities necessary to direct operational level missions. The staff structure of corps and division headquarters are similar and responsibilities are relatively the same. Where they differ is in their respective scope of responsibilities determined by their force structure. The G-3 of each determines requirements and consolidates reports while the G-4 monitors status and communicates requirements through support channels.

2-33. The corps is the Army's largest tactical unit and the instrument by which joint forces conduct operational-level maneuver. The Army corps headquarters is the organization best suited for commanding and controlling land forces or transitioning to a JTF or joint force land component commander headquarters for major operations.

2-34. The division headquarters, the echelon of command below corps, is capable of performing mission command of multiple brigade combat teams (BCTs) and other functional and multifunctional brigades engaged in unified land operations. The BCTs may be of a habitual/historical mission command relationship or they may be task organized and assigned, as needed, for particular missions. Division headquarters no longer have a habitual sustainment headquarters assigned. The division headquarters staff has responsibilities to plan for munitions requirements supporting operations, as well as receive, consolidate, monitor, and communicate munitions data during operations. However, the actual function of providing logistical support to facilitate munitions on the battlefield rests with sustainment organizations. Ammunition materiel management functions are now performed at the TSC, ESC, and sustainment brigade headquarters. Sustainment headquarters will provide input as required for ammunition support plans.

SUSTAINMENT HEADQUARTERS AT ECHELONS ABOVE BRIGADE

2-35. Sustainment headquarters allocate resources in order to meet operational requirements and priorities for ammunition support. It is imperative that the operational and sustainment headquarters maintain close coordination and cooperation with each other to ensure complete understanding of the situation, ammunition support priorities, and capabilities.

Theater Sustainment Command

2-36. The TSC is the senior Army sustainment headquarters within an AOR. The TSC is attached to and receives mission command from the ASCC in support of the GCC. It provides centralized mission command and enables decentralized sustainment operations throughout the AOR/theater. The TSC provides the sustainment needed by Army forces to extend operational reach, enable freedom of action, and prolong endurance. The TSC is focused on strategic and operational sustainment management, acting as a bridge between the strategic and operational levels of logistics by coordinating with national level providers, and directing subordinate logistics commands in the AOR.

2-37. The TSC has three operational responsibilities to forces in theater: theater opening, theater distribution, and sustainment. The TSC provides munitions sustainment support by directly managing the requirements, stockage objectives and distribution of munitions in the assigned area of responsibility. The munitions branch within the TSC support operations (SPO) staff section coordinates with subordinate ESCs or other subordinate headquarters as necessary.

2-38. The TSC assistant chief of staff, SPO focuses on detailed planning to sustain the force in accordance with the GCCs commanders' intent. Within the SPO staff section there is distribution management center (DMC) responsible for supervising supply, maintenance, hazardous waste management, field services, transportation, and movement control activities associated with support to the force (FM 4-94). Within the DMC is the munitions branch where the details of munitions operations are synchronized.

2-39. The TSC DMC Munitions Branch:

- Maintains stock control visibility on all class V supplies in theater.
- Establishes and manages class V reporting parameters.
- Monitors requisitions for stockage objectives, establishes mandatory stockage levels, and verifies accuracy of unit basic loads.
- Advises the sustainment command commander and staff on class V status and coordinates munitions actions on both available and in-transit stocks.
- Recommends controlled supply rates (CSR) for different combat operations to ASCC G-3.
- Coordinates special transportation and airdrop requirements for munitions.
- Responds to requests for statistical analysis and management by exception actions and requests.

2-40. Each logistics echelon with a munitions branch is resourced with standard army ammunition system-modernization suite and munitions personnel. TSC is the authority to establish the munitions automation support architecture in theater.

2-41. The TSC can deploy an ESC when the TSC commander or the GCC determines a forward command is necessary. When required, the TSC employs ESC(s) to provide forward mission command within an area

of operation (AO) to improve span of control or conduct mission command of/for a specified function. The TSC may employ multiple ESCs within the theater.

Expeditionary Sustainment Command

2-42. Positioned to provide a regional focus, the forward deployment of the ESC facilitates agile and responsive support by placing the ESC in relative proximity to the supported force and its operational environment. The ESC is similar in structure and purpose to a TSC with primary differences in scale and scope of responsibility. The ESC is capable of operating as the senior logistical command within a theater or AOR independent of a TSC or as a subordinate command of the TSC, depending on a number of factors.

2-43. The ESC is regionally focused on synchronizing operational-level sustainment to meet the day-to-day and projected operational requirements. There are also differences in capabilities in their respective planning horizons and materiel management. The TSC maintains oversight of sustainment operations within the AO or JOA through direct coordination with the ESC and its sustainment information systems. This capability provides the TSC commander with the regional focus necessary to provide effective operational-level support to Army or JTF missions. Identification of responsibilities and authority for each echeloning element provides clarity and direction with respect to the exercise of authority and continuity in the conduct of on-going operations.

The Army Field Support Brigade

2-44. The Army field support brigade (AFSB) is assigned to the ASC. During operations it will normally be under the operational control (OPCON) of a TSC or ESC. *Operational control (OPCON)* is the authority to perform those functions of command over subordinate forces involving organizing and employing commands and forces, assigning tasks, designating objectives, and giving authoritative direction necessary to accomplish the mission (JP 1-02). The *Army field support brigade* is an organization which provides integrated and synchronized acquisition logistics and technology support, less medical, to Army operational forces (ADRP 1-02). AFSBs leverage USAMC national-level provider capabilities and assist in the coordination of acquisition, logistics, and technology (ALT) support plans, coordinate special ALT munitions support, and manage ALT related retrograde operations in theater.

2-45. The AFSB is capable of deploying ammunition support teams who coordinate the off-loading of APS stocks to storage areas from the port of debarkation from the ammunition supply point. For more information on the AFSB refer to ATP 4-91, *Army Field Support Brigade* (INCL C1), 15 December 2011.

Sustainment Brigade

2-46. Sustainment brigades provide mission command of operational missions of the TSC and ESC. The sustainment brigade is a flexible, tailorable organization that performs theater opening, theater distribution, and sustainment missions, often simultaneously and is capable of supporting joint and multinational operations. Each sustainment brigade is a multifunctional organization, tailored and task organized to provide support for multiple brigade-sized or smaller units using its subordinate battalions, companies, platoons, and teams to perform specific sustainment functions.

2-47. With an assigned munitions role the sustainment brigade continuously manages and distributes stocks in the AO providing operational reach to maneuver commanders. The sustainment brigade accomplishes its munitions mission by coordinating and integrating personnel, equipment, commodities, facilities, communications, and procedures to support the maneuver commander's intent. The sustainment brigade munitions branch manages all levels of munitions operations to include:

- Operating ammunition support activities (ASAs) in the AO/ JOA. ASAs will be explained in further detail later in the chapter.
- Establishing ammunition supply and maintenance procedures consistent with appropriate directives.
- Enemy ammunition, inspection, processing, and shipment.
- Retrograde activities.

Combat Sustainment Support Battalion

2-48. Combat sustainment support battalions (CSSB) are modular, tailorable, task organized building-block organizations that perform functional missions in support of sustainment brigade missions. A CSSB can typically perform mission command of eight companies. The CSSB is capable of performing oversight of all munitions operations such as distribution, ammunition storage point establishment, explosive safety reporting, and coordination with division and/or BCT staff for munitions support.

2-49. The CSSB is attached to the sustainment brigade and provides ammunition support to units on an area basis. The munitions branch within the CSSB directly manages assigned ASAs, coordinates directly with the supported units, and also monitors reports from various brigade ASAs. A modular ammunition company or a platoon from a modular ammunition company will be attached to or placed under OPCON of the CSSB to operate the designated ASA.

Ordnance Battalion (Ammunition)

2-50. In a deployed environment an ordnance battalion (ammunition) is assigned to the TSC and subsequently attached to a sustainment brigade. The ordnance battalion provides mission command of modular ammunition units at the operational level including staff planning and technical supervision of subordinate ammunition operations.

Modular Ordnance Company (Ammunition)

2-51. The modular ammunition ordnance company provides adaptive and flexible munitions support to units on an area basis. The modular ammunition company receives munitions; maintains theater, corps, and division stocks; conducts operational-level reconfiguration; and distributes munitions throughout the theater. The concept of the modular ordnance company permits assignment of modular platoons tailored for specific functions deployed to support forces or other munitions units as required. The modular ordnance company support structure provides a flexible munitions distribution system that meets the needs of the GCC or senior sustainment commander.

2-52. Modular ammunition companies operate ASAs at theater, corps, and other levels as required by the tactical situation. Designed with similar tables of organization and equipment, one company is capable of operating any level of ASA.

2-53. Modular ammunition platoons and rough terrain container handler augmentation teams are normally attached to a CSSB to provide echelons above brigade munitions support. Alternately, the company or platoons may be attached to a TSC, ESC, sustainment brigade, or an ammunition battalion. Under the munitions modularity concept, only the number of companies and platoons needed to support the force are deployed. Modular ammunition units have a general support relationship with units operating within their supported area.

BRIGADE LEVEL MUNITIONS OPERATIONS

2-54. At the tactical brigade level there are a number of different brigade formations that require unique munitions support and capabilities. The BCT, fires brigade, and the combat aviation brigade (CAB) are supported by assigned support battalions with organic munitions support capability. *Organic* are those forces assigned to and forming an essential part of a military organization as listed in its table of organization for the Army, Air Force, and Marine Corps, and are assigned to the operating forces for the Navy (JP 1-02).

2-55. The BCT is the modular forces warfighting mission command headquarters at the tactical level. There are a number of variations of BCTs and units within the various BCTs, and units within the various BCTs each with slightly different ammunition requirements. Each BCT is assigned a BSB, tailored to support a specific type of brigade. While most BSBs are designed with essentially the same structures and capabilities, the exact capabilities in each vary based on the type of supported brigade. For example, the CAB contains an aviation support battalion (ASB) that is different from other types of BSBs.

2-56. The brigade and battalion staffs have ammunition reporting and planning responsibilities while the BSBs have the assets to provide logistics support to the maneuver forces. Within the BCT is the *ammunition transfer and holding point (ATHP)*, a designated site operated by a brigade support battalion distribution company where munitions are received and transferred to supported units within a brigade combat team and may also temporarily hold or store munitions as required (ADRP 1-02).

2-57. The **brigade ammunition officer (BAO) is the multifunctional officer assigned to the BSB ammunition officer position within the SPO section and serves as the principal munitions staff officer for the brigade.** The BAO functions as the primary munitions advisor to the brigade commander, provides mission guidance to lower echelon ammunition organizations/entities and sets priorities for the ATHP, normally located within the brigade support area (BSA). The BAO provides centralized, integrated, and automated command, control, planning, preparation, and execution of all support operations within the brigade. The BAO manages ATHP operations and maintains direct liaison with the brigade operations officer (S-3) and brigade logistics officer (S-4). The BAO consolidates munitions requirements and coordinates issue and resupply operations for units operating in the brigade AO. The BAO forecasts operational needs, maintains accountability of assets within the ATHP and reports shortages to the sustainment brigade. The BAO tracks and maintains visibility of ammunition assets within the BCT AO and monitors and directs explosive safety, storage and transportation actions for all units. The BAO validates and processes unit requests to the ammunition supply point and the ATHP and the BAO support staff provides technical assistance for unit issue and turn-in. The BAO represents the brigade and its subordinate battalion commanders on all munitions-related matters. The BAO operates the Standard Army Ammunition System in order to consolidate brigade munitions requirements and maintain liaison with the DMC, the ASAs and the munitions staff officers at the sustainment brigade, and TSC/ESC.

2-58. Basic brigade and battalion staff responsibilities for munitions operations include:

- Brigade and battalion S-3 ammunition responsibilities:
 - Determining brigade ammunition requirements based on input from subordinate units and knowledge of upcoming tactical operations.
 - Determining the consolidated brigade required supply rate (RSR) and submitting it to the brigade S-4.
 - Planning the security for the ATHP.
- Brigade and battalion S-4 ammunition responsibilities:
 - Consolidating and forwarding daily ammunition requirements to the BAO.
 - Coordinating an issue schedule between with the SPO, BSB, and modular ammunition company ATHP (The CSSB/ sustainment brigade modular ammunition company).
 - Providing a unit issue priority list to the BAO.
 - Forwarding the consolidated unit ammunition requirements to the BAO.
 - Providing subordinate battalion S-4s with their allocation of the brigade CSR. (This information is also provided to the BAO so battalion units do not exceed their authorizations when trans-loading at the ATHP).
- SPO responsibilities:
 - Coordinate munitions materiel management with supporting CSSB or sustainment brigade.
 - Maintain asset visibility of all assigned munitions within the BCT.
 - Coordinate transportation assets to support class V movement requirements.
 - Maintain munitions common operational picture through total asset visibility/in transit visibility.
 - Manage munitions flow within the BCT, coordinates with ammunition storage activities.
 - Oversee munitions retrograde operations.
 - Direct the BAO regarding the brigade CSR breakout and unit priority for munitions resupply.
 - Provide forecasted critical shortages and changes in requirements to the BAO.

2-59. The BSB is the organic support element to the BCT (Armor, Stryker, and Infantry) plus other functional brigades, and receives mission command from the brigade commander. The BSB commander is

the primary logistics advisor to the brigade commander. The BSB SPO BAO is the principle staff officer within the BCT for matters relating to munitions. The distribution company located in the BSB contains an ammunition platoon that operates the brigade's ATHP.

2-60. The BSB distribution company is under the mission command of the BSB/ASB commander. The distribution company is employed in the BSA with subordinate elements operating throughout the area of operations. The distribution company supply platoon operates the ATHP and provides munitions support to the brigade units and other units operating in the brigade AO.

2-61. Munitions at the tactical level are supplied to the BCT through its organic ATHP. The ATHP is established and operated by the distribution company that is organic to the BSB/ASB. The ATHP is an operation established to facilitate the receipt and transfer of all types of ammunition from echelons above brigade ammunition storage activities to units within a brigade. Under most circumstances the ATHP is a temporary operation located in the BSA to facilitate rapid receipt and issue of ammunition to the users. Functions of the ATHP include:

- Ammunition receipt.
- Ammunition issue.
- Ammunition storage.
- Ammunition inspection.
- Ammunition maintenance.
- Transloading.
- Operation of the Standard Army Ammunition System ATHP.

2-62. At the ATHP, ammunition should be immediately transloaded to the supported units with minimal reconfiguration or holding. There are circumstances, however, in which the ATHP might be required to reconfigure loads to meet mission requirements or to temporarily hold ammunition pending issue to the brigade. The quantity of ammunition received and issued by an ATHP is dependent upon the type of brigade supported, CSR (if any), and the ongoing operation.

2-63. When operating for long periods in a static environment such as stability operations, the ATHP section may be required to store quantities of ammunition for extended or indefinite periods of time. *Stability operations* is an overarching term encompassing various military missions, tasks, and activities conducted outside the United States in coordination with other instruments of national power to maintain or reestablish a safe and secure environment, provide essential governmental services, emergency infrastructure reconstruction, and humanitarian relief (JP 3-0). In this situation the ATHP operation must assume expanded holding or storage responsibilities. Actual quantities stored can vary widely and, as such, the ATHP section must be prepared to receive and issue larger quantities. The time at which the ATHP must begin storage operations is dependent on the stage of the operation and the number and types of units supported. The need to store ammunition at an ATHP must be determined through analysis by the brigade and BSB commanders and supporting staff to include the brigade S-3, S-4, and BAO. Additional responsibilities and associated resources that must be considered include but are not limited to:

- The requirement for additional ammunition reconfiguration.
- Ammunition surveillance and maintenance.
- Inventories/accountability.
- Increased security.
- Storage safety and risk assessment.
- Additional equipment requirements.
- Additional transportation requirements for displacement.
- Status reporting.
- Echelons above brigade support requirements.
- Additional personnel requirements due to increased workload or man hour demands.

2-64. The location of the ATHP is determined through coordination between the BSB SPO, brigade S-4, brigade S-3, BAO, and the distribution company commander. The location should optimize the ability to

receive, hold, issue, and retrograde ammunition. Planning considerations include proximity to a main supply route, proximity to supported units, security and terrain.

2-65. Ammunition replenishment can occur two ways; preferably pushed to the supported units using the BSB distribution company or supported units forward support company (FSC) can draw ammunition from the ATHP.

2-66. The BSB has organic FSC that provide direct support to each of the BCT maneuver battalions. Each FSC is organized to provide munitions support to a specific type of maneuver battalion or squadron. For a detailed discussion of an FSCs command relationship with the BSB or maneuver battalion, refer to paragraph 4-47 of this manual.

2-67. In a BCT, the FSCs distribution platoon contains an ammunition/class V section. The intent of the class V section is to conduct replenishment operations (distribute ammunition) to the supported battalion. The class V relationship between the BSB distribution company and the FSC class V operation is a transloading operation; the distribution company pushes the class V to the FSC and the FSC distribution platoon pushes the ammunition to the maneuver battalion.

2-68. The CAB has an assigned ASB which provides organic munitions support to the CAB while receiving mission command from the CAB commander. The ASB commander is the primary logistics advisor to the aviation brigade commander. The size and structure of each ASB munitions /class V section will vary slightly depending upon the composition and mission of the supported CAB.

2-69. The ASB SPO is the principle staff officer within the CAB for matters relating to munitions. The distribution company located in the ASB contains an ammunition platoon which operates the aviation brigade's ATHP and forward arming and refueling point (FARP). FSCs are assigned to and employed in the respective supported battalion's AO. The CAB FSC contains an ammunition section which carries one combat load for the CAB's maneuver battalions and squadrons.

AMMUNITION SUPPORT ACTIVITIES

2-70. The term *ammunition support activity (ASA)* is a term describing **locations that are designated to receive, store, maintain, and provide munitions support to Army forces**. The primary mission of an ASA is to receive, store, issue, and maintain conventional munitions stocks. Additionally, ASAs configure munitions into mission combat loads for distribution to other munitions storage areas. Regardless of the location or designated headquarters organization all ASAs perform the same basic functions and are operated by modular ordnance companies, platoons, or sections depending on the size and scope of support. Contracted and host nation support are options that may be explored when allowed by regulations or law to augment organic capability or to provide support where there's a need.

2-71. ASAs are part of the munitions distribution system and are used to consolidate receipts, reconfigure them, and prepare them for movement to the next support location or to a supported unit. ASAs located near a port of debarkation will receive munitions from strategic sources and may be tasked to maintain theater reserve munitions and receive retrograde munitions for return to the CONUS or transfer to another theater or JOA/AO.

2-72. ASAs maintain a stockage objective of munitions to meet routine surge and emergency requirements for supported units. ASA (sustainment brigade) stockage levels are based on tactical plans, availability of munitions, and threat to the resupply operations and are considered throughout mission analysis.

2-73. ASAs should be located near main supply routes to include water and rail (if feasible) to allow easy access for theater and corps transportation assets. It is essential that ASAs have good road networks that can support heavy vehicle traffic.

FORWARD ARMING AND REFUELING POINT

2-74. A FARP is a temporary location, event, or mission that is organized, equipped, and deployed as far forward, or widely dispersed, as tactically feasible. The FARP provides fuel and ammunition necessary for the sustainment of aviation maneuver units during decisive operations. The general support aviation battalion FSC is responsible for accomplishing the FARP mission.

2-75. FARPs are normally employed in support of aviation operations when the distance covered or endurance requirements exceed normal capabilities of the aircraft. FARPs may be employed during rapid advances when field trains are unable to keep pace.

AMMUNITION REQUIREMENTS DETERMINATION

2-76. The authorization and allocation of ammunition within an AO is determined by using two ammunition supply rates: the RSR and the CSR.

2-77. To sustain tactical operations for specific periods, all units, starting at the lowest level, determine their ammunition requirements and submit a RSR report to the next higher headquarters. The **required supply rate is an estimated amount of ammunition needed to sustain tactical operations, without ammunition expenditure restrictions, over a specified time period.** The RSR is expressed as rounds per weapon per day, or as a bulk allotment per day or based on mission. The **controlled supply rate is the rate of ammunition consumption that can be supported, considering availability, facilities, and transportation.** It is expressed in rounds per unit, individual, or vehicle per day

2-78. RSRs can be computed using manual or automated procedures. Weapons density and mission are vital to determining RSR. Determine RSR using the following formula:

$$\text{Total Rounds} = \text{Weapon Density} \times \text{Expenditure Rate} \times \text{Days}$$

2-79. RSR computation and routing is not a logistics function. RSRs are developed by maneuver leaders and submitted to the next higher headquarters through operational staffs to the ASCC. Logistics staffs should be consulted in the process. Each level of command will review, adjust, and consolidate RSR information and forward it through command channels.

2-80. . The ASCC commander announces the CSR for each item of ammunition, and in turn the commander of each subordinate tactical unit announces a CSR to his commanders at the next lower levels. A unit may not draw ammunition in excess of its controlled supply rate without authority from its next higher headquarters (FM 4-30.1).

2-81. At the ASCC level, the total, unrestricted ammunition requirements are compared against total ammunition assets available, either on hand or expected, to develop the CSR. Several factors limit the amount of ammunition available for an operation (for example stockage or distribution capabilities). Accordingly, ammunition issues will be limited by the CSRs. When a particular type of ammunition is in short supply the CSR may be very low. Commanders will determine the allocation of critical ammunition based upon unit mission and situation.

2-82. The CSR is disseminated to units through an operations/fragmentary order and may vary from unit to unit based on the mission objectives and priorities of each, the projected threat, and ammunition availability. Ammunition items in the Army inventory that are unique to other services or coalition members must be considered in supply rate computations.

DISPOSITION AND RETROGRADE

2-83. Disposition of munitions may be required at various times throughout operations. A QASAS or other qualified person may be engaged/employed to make condition code decisions which will determine disposition protocol.

2-84. Before operations end, leaders must develop plans outlining munitions retrograde. Upon completion of operations, munitions must be identified, prepared, repackaged, collected, loaded, and shipped. Using units normally return munitions identified for retrograde to the ASA that provide their ammunition support. ASAs collect, consolidate and ship this ammunition as directed. At a minimum, planners should consider the following:

- Develop a retrograde system that consolidates materiel at various stages (for example at the unit level to return to an ATHP).
- Assign condition codes as far forward as possible.

- Make decisions about which ASAs should receive designated items for further consolidation or reconditioning.

2-85. 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.

2-86. At all levels, plans must incorporate retrograde operations. These plans should include:

- Retrograde responsibilities of headquarters.
- Obtaining and providing empty storage containers.
- Structuring retrograde planning cells.
- Identifying special requirements for munitions physical security measures. All U.S. munitions are assigned to one of four risk categories and are assigned a Controlled Item Code in accordance with applicable regulations. These categories and codes establish associated levels of risk and are adhered to when determining physical security measures in distribution and retrograde. (AR 190-11, AR 708-1, DA Pamphlet [PAM] 385-64).
- Request specialized teams or personnel to assist in retrograde.
- Assigning responsibilities for the recovery of packing materials.

2-87. Refer to FM 4-30.1, *Munitions Distribution in the Theater of Operations*, for additional retrograde information.

2-88. Found or captured enemy ammunition is considered excess and treated as such. AR 381-26, *Army Foreign Materiel Exploitation Program*, requires that one of three options be taken when there is excess ammunition on the battlefield: use, destroy, or secure. Assessing the serviceability of captured enemy ammunition will require the support of a QASAS representative.

2-89. Captured enemy ammunition are all ammunition products and components produced for or used by a foreign force that is hostile to, or that is or was engaged in combat against the U.S. in the custody or control of a U.S. military force or DOD component. Captured enemy ammunition includes confined gaseous, liquid, and solid propellants; explosives; pyrotechnics; chemical and riot control agents; smokes and incendiaries; chemical warfare agents; chemical munitions; rockets; guided and ballistic missiles; bombs; warheads; mortar rounds; artillery ammunition; small arms ammunition; grenades; mines; torpedoes; depth charges; cluster munitions and dispensers; demolition charges; and devices and components of this list. Captured enemy ammunition can also include North Atlantic Treaty Organization or U.S. manufactured munitions that may not have been under U.S. custody or control.

EXPLOSIVES SAFETY

2-90. The Army's Ordnance Corps is the DOD proponent for explosive ordnance safety. Munitions and explosives safety is a priority consideration shared across the DOD. The primary focus of munitions and explosives safety is to reduce the probability and limit damage caused by unintended initiation of munitions. Application of explosives safety techniques is based on effective risk management. This includes the functions and skill-sets of the munitions logistics planners/managers, modular munitions units, Army civilians, contractors, technical munitions safety experts and the EOD units.

2-91. The most basic and important fundamental of the munitions function is to take all measures possible to minimize risk to personnel, material, facilities and stocks. Personnel must ensure they adhere to the munitions and explosive cardinal rule of exposing the minimum number of people, to the minimum amount of explosives, for the minimum amount of time consistent with safe and efficient operations.

2-92. The following explosives safety rules apply to all munitions storage and handling operations:

- Understand explosives safety responsibilities.
- Know explosives safety points of contact and how to contact them.

- Train personnel to properly perform their munitions missions; have policies/procedures/standard operating procedures in place that cover your munitions missions.
- Ensure munitions locations are properly sited and have current licenses; prepare certificate of risk acceptance to authorize any explosives storage safety deviations.
- Know where you can find maps depicting munitions locations with associated quantity distance arcs, exclusion and/or clear zones.
- Know the outcome of the most recent internal and/or higher headquarters explosives safety assessment; institute corrective measures.
- Be aware of any new construction or modification plans that impact explosive safety clear zones.
- Know local policies/procedures for munitions amnesty program (location of collection points, responsibilities for collection, and frequency of collection).
- Know proper response procedures in the event of a munitions mishap (notification, evacuation procedures, personnel accountability, unexploded explosive ordnance (UXO), EOD support, accident reporting, and malfunction reporting).
- Learn what munitions risks exist that could adversely affect mission capability and mitigate those risks.

SUMMARY

2-93. Sustainment commanders must ensure a seamless and responsive munitions support structure. At each operational headquarters proper coordination and communication are critical. There must be a continual flow of requirements data from the consuming units through operational channels to the GCC.

2-94. Munitions are one of the most critical commodities distributed to Army units during operations. Munitions are the one commodity of combat power that cannot be substituted, locally purchased or fabricated. Munitions operations integrate strategic munitions support, operational and tactical munitions organizations and assets while supporting joint and multinational operations in unified land operations. Army sustainment organizations are structured to provide munitions management to every echelon. The most basic and important fundamental of the munitions function is the shared mission for the safety of explosive ordnance items.

Chapter 3

Explosive Ordnance Disposal Operations

Explosive ordnance disposal (EOD) is the detection, identification, on-site evaluation, rendering safe, exploitation, recovery, and final disposal of explosive ordnance. EOD is a key asset in the protection of military and civilian personnel, critical assets, infrastructure, and public safety. Explosive ordnance threats may be present during all phases of unified land operations. Commanders can manage the risk posed by explosive ordnance at the lowest level by integrating EOD during the planning and execution of unified land operations.

EXPLOSIVE ORDNANCE DISPOSAL MISSION

3-1. The mission of EOD is to support unified land operations by detecting, identifying, evaluating, rendering safe, and performing final disposition of all explosive ordnance. This includes improvised explosive devices (IED), UXO, and WMD. Ordnance EOD has four functional areas:

- Render Safe – The application of special explosive ordnance disposal methods and tools to provide for the interruption of functions, or separation of essential components of UXO, to prevent an unacceptable detonation.
- Technical Intelligence - Collection, processing, analysis, and exploitation of data and information pertaining to foreign ordnance and IEDs.
- Protection – Preservation of the effectiveness and survivability of mission-related military and nonmilitary personnel, equipment, facilities, information, and infrastructure.
- Disposal – Final disposition of explosive ordnance and components, which may include detonation or a controlled burn.

3-2. The six warfighting functions provide commanders a common framework which link EOD functions and their respective capabilities to unified land operations. EOD support crosses all of the warfighting functions, particularly through protection, intelligence and sustainment.

3-3. EOD capabilities primarily support the protection warfighting function. EOD companies providing direct support to maneuver units provide commanders a rapid response force which has the capability to render safe, exploit, and dispose of all explosive ordnance. Due to the likelihood of encountering explosive hazards, EOD teams may be integrated into all operations regardless of type.

3-4. Results of on scene exploitation conducted by the EOD team after the rendering safe of UXO or an IED are immediately reported to and utilized by the on scene commander as appropriate. EOD teams operating in a specific AO are the best providers of information related to explosive hazards due to the frequency that the team is employed and the wide area to which the teams provide support. ***Explosive hazards present a condition where danger exists because explosives are present, and that may react in a mishap, with potential unacceptable effects to people, property, operational capability, or the environment.***

3-5. Theater level labs exploit first seen foreign ordnance, ordnance items of interest, and IEDs to develop weapons technical intelligence. Ordnance items requiring a higher level of exploitation are forwarded to CONUS based labs which develop tools, equipment, and render safe procedures for EOD technicians. Weapons technical intelligence developed by these labs are recorded in the Automated EOD Publication System which is disseminated to all service EOD units. EOD units integrate technical intelligence with the appropriate intelligence activity for further analysis and production. EOD elements in a combined JTF normally process intelligence through the Defense Intelligence Agency liaison officer to support dissemination throughout joint intelligence channels.

3-6. In the homeland, EOD provides protection support to local, state, tribal and federal authorities by providing on-call EOD teams to respond to explosive threats. Civil and federal authorities may become overwhelmed from attacks involving explosives and could require military EOD support. EOD does not perform law enforcement actions when supporting civil and federal authorities. The EOD company may also provide technical assistance to civil and federal authorities regarding all types of explosive ordnance. EOD companies are dispersed throughout the U.S. and are assigned to allow for a timely response. In cases where military munitions are encountered by civil authorities, an EOD team will respond to recover the munition.

3-7. The EOD group and battalion provide command and control of EOD and counter-IED assets within a theater of operations. The group or battalion may also be designated to perform mission command of a specialized combined JTF, such as a counter-IED combined joint task force. The combined JTF provides support through the intelligence warfighting function by synchronizing the information collection efforts conducted during site exploitation operations, developing intelligence based on collected information and the distribution of intelligence to support targeting and tactics, techniques, and procedure adjustments.

3-8. Sustainment support provided by EOD enables commanders to maintain operational momentum. From timely response to the removal of stuck rounds and downloading of misfired munitions from weapons systems, both enemy and friendly. The EOD company will also advise commanders on safe locations and appropriate establishment of ammunition supply points.

3-9. Explosive ordnance may be encountered throughout all phases of a campaign. If a unit locates explosive ordnance that has not been primed for use it is considered recovered. **Recovered explosive ordnance are devices retrieved in the operational environment, from field storage sites and licensed storage areas that contain explosives, propellants, pyrotechnics, initiating composition, or nuclear, biological or chemical material for use in operations, including demolitions which when salvaged have not been primed for use and may or may not be in their primary or logistic packaging.** The EOD commander will provide assistance in the proper handling, storage and disposition when maneuver units recover explosive ordnance. For more information on EOD operations refer to ATP 4-32, *Explosive Ordnance Disposal (EOD) Operations*, 30 September 2013.

EOD ORGANIZATION

3-10. Commanders and EOD leaders synchronize EOD functions and capabilities within the warfighting functions to support decisive action operations. Commanders at all echelons should be aware of EOD organizational structures to better understand and employ EOD support. Due to limited EOD forces available planning, coordination and integration of EOD operations at all echelons is critical. Table 3-1 illustrates the EOD organizations and their rules of allocation.

Table 3-1. Explosive Ordnance Disposal rules of allocation

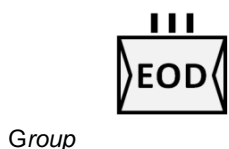
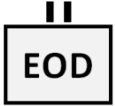
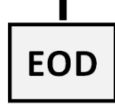
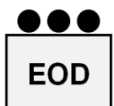
<i>Explosive Ordnance Disposal (EOD) Organization</i>	<i>Supported Organization</i>	<i>Modeling Rule of Allocation</i>
	theater army corps joint task force combined joint task force	1 per theater army 1 per corps 1 per joint task force 1 per combined joint task force 1 per homeland defense/ defense support of civil authorities 1 per 2 - 6 EOD battalion

Table 3-1. Explosive Ordnance Disposal rules of allocation

<i>Explosive Ordnance Disposal (EOD) Organization</i>	<i>Supported Organization</i>	<i>Modeling Rule of Allocation</i>
Battalion 	theater army corps division joint task force combined joint task force EOD group	1 per theater army 1 per corps 1 per division 1 per joint task force 1 per combined joint task force 2 per homeland defense/ defense support of civil authorities 1 per 2 - 7 EOD company
Company 	brigade combat team (BCT) maneuver enhancement brigade* Special Forces (SF) group ranger regiment EOD battalion	1 per BCT 1 per maneuver enhancement brigade 1 per SF group 1 per ranger regiment 8 per homeland defense/ defense support of civil authorities 1 per 1-5 EOD platoon
Platoon 	maneuver battalion SF battalion ranger battalion EOD company	3 per committed BCT 1 per SF battalion 1 per ranger battalion 24 for homeland defense/ defense support of civil authorities 1 per every 3-4 EOD team

Note: The EOD group and battalion commands and staffs may exercise synchronized command of Army, joint, and multinational EOD forces. Senior EOD personnel provide the expertise to plan, prepare, execute, assess and integrate external EOD formations into the supported unit.

*Support provided to the maneuver enhancement brigade when assigned an area of operation

ECHELONS ABOVE BRIGADE

3-11. The EOD group and battalion are normally employed at echelons above the brigade and perform theater-level EOD planning, integrating, coordinating and tasking functions. The EOD group and battalion exercise synchronized mission command of Army, joint, and multinational EOD forces as well as provides mission command for counter-IED assets within a theater.

EOD Group

3-12. The EOD group is a functional mission command headquarters for EOD operations. The group conducts staff planning and technical control of all EOD assets in a theater and provides EOD staff liaison to the ASCC. The EOD group is capable of conducting EOD mission command for two to six EOD battalions. The EOD group is attached or placed OPCON, to coordinate counter-IED and weapons technical intelligence operations, to a theater army, corps, or JTF in support of a specific operation, operation order, operation plan, or concept plan. The group may also form the core of a specialized combined JTF with mission of various protection and exploitation enablers such as counter-IED, exploitation, or counter-WMD task forces. The group can also provide enabling support, analysis, and advisement to execute targeting efforts, theater exploitation, and counter-WMD in order to provide maneuver support and force protection in all operational environments

EOD Battalion

3-13. The EOD battalion reports directly to the EOD group. It may deploy with its assigned EOD group or be placed OPCON to a separate EOD group. The EOD battalion is also a functional mission command headquarters for EOD operations and may conduct staff planning for counter-IED assets within a division's AO. The EOD battalion is capable of conducting EOD mission command of EOD operations for two to seven EOD companies.

Army National Guard

3-14. Army National Guard EOD assets are located within several states and the Commonwealth of Puerto Rico. Administered by the National Guard Bureau (a joint bureau of the departments of the Army and Air Force), the Army National Guard has both a federal and state mission. The dual mission, a provision of the U.S. Constitution and U.S. Code, results in each Soldier holding membership in both the National Guard and in the US Army.

EOD Staff Officer/Non-Commissioned Officer

3-15. The EOD staff officer and noncommissioned officer (NCO) are a key link between the corps or division commanders and EOD forces integrated into tactical level operations. The officer and NCO must understand joint and Army EOD doctrine and articulate capabilities, constraints and limitations of EOD units.

- The EOD officer provides information about resourcing, integration and reallocation of EOD capability into the corps or division AO.
- The EOD NCO has a technical focus; offering guidance on the render safe procedure and exploitation expertise EOD Soldiers possess.

BRIGADE LEVEL EOD ORGANIZATIONS

3-16. The EOD company headquarters oversees platoons and teams. Decentralized execution of mission orders is executed at the EOD team level. EOD company leadership should maintain a physical presence in the supported brigade's command post in order to maintain continuous integration into brigade planning and operations. Leaders should understand EOD capabilities and limitations to ensure effective utilization of the EOD company, platoons, and teams.

EOD COMPANY

3-17. The EOD company oversees one to five EOD platoons. It also provides administrative company level planning and support determined by level of employment including augmenting BCTs with a special staff element. The EOD company provides EOD service throughout the theater AO and direct support to designated BCT, brigade and special forces groups.

EOD Platoon

3-18. The EOD platoon is normally employed at the battalion level and provides leadership, supervision and technical guidance for three to four EOD teams, typically consisting of three personnel. The EOD platoon provides the capability to eliminate and reduce explosive, chemical, biological, and nuclear hazards, including IEDs and conventional U.S. and foreign UXO. The platoon provides support to the U.S. Secret Service and Department of State in protection of the President, Vice President and other dignitaries as directed.

EOD Company (CONUS Support)

3-19. The EOD company (CONUS Support) is under the mission command of an EOD battalion and employed based on the concept of support requirements. The company provides EOD service in the reduction and elimination of hazardous munitions and explosive devices to federal, state, and local

governments and agencies on an area basis. The EOD company is dependent on an ordnance battalion for administrative and supply services/support.

EOD Company (WMD)

3-20. The EOD company (WMD) provides highly technical EOD operations and containment procedures for WMD in support of joint or interagency operations. It has the ability to respond anywhere in the world with two fully capable eight Soldier platoons as part of the joint technical operations team. The unit has the capability to provide four WMD platoons to support the Army or other U.S. agencies in support of missions to defeat or mitigate WMD directed against the U.S. or areas of national interest.

JOINT OPERATIONAL PHASING CONSTRUCT

3-21. The phased construct is utilized in campaign planning to provide intermediate goals in order to accomplish the overall objective of a successful campaign (JP 5-0). Phases are distinct in time, space, and/or purpose from each other and represent a natural progression. Though the phases are designed to be conducted sequentially, EOD mission sets, like other activities, may begin in a previous phase and continue into subsequent phases. EOD Support descriptions are found in Army Techniques Publication (ATP) 4-32, *EOD Operations*.

PHASE 0: SHAPE

3-22. Joint and multinational operations, including normal and routine military and interagency activities, which are performed to dissuade or deter potential adversaries and to assure or solidify relationships with allies. EOD missions and capacities that support Phase 0 operations include the following:

- Humanitarian de-mining support.
- Military to military engagements.
- Support to foreign internal defense and security force assistance activities.
- Joint prisoner of war/missing in action accounting command support.

PHASE I: DETER

3-23. Demonstration of capabilities and the resolve of the joint force to deter undesirable adversary action. This includes activities to prepare forces and set conditions for deployment and employment if deterrence is not successful. EOD mission and capabilities that support Phase I operations include the following:

- Habitual training relationships with conventional and special operations forces.
- Technical intelligence activities.
- Counter WMD support operations.

PHASE II/III: SEIZE INITIATIVE / DOMINATE

3-24. Phase II/III involves application of appropriate force capabilities to seize the initiative and break the enemy's will for organized resistance. EOD missions and capabilities that support Phase II/III operations include the following:

- EOD render safe/disposal of explosive ordnance, IEDs, and homemade explosives.
- Render safe, disposal and exploitation of recovered explosive ordnance.
- Removal of stuck rounds and downloading of misfired munitions.
- Management of special programs.
- Support to special operations (special operations force core operations and activities).

PHASE IV: STABILIZE

3-25. Stabilization includes performance of limited local governance, integrating all joint, interagency, intergovernmental and multinational participants until legitimate local governmental entities are functioning. EOD missions and capabilities that support phase IV operations include the following:

- Perform battlefield clearance.
- Captured material exploitation.
- Mission command of functional task forces (counter-IED, WMD elimination, asymmetric threats).
- Department of State Diplomatic Security Service support.

PHASE V: ENABLE CIVIL AUTHORITY

3-26. Joint force support to legitimate civil governance in theater enables the viability of the civil authority and its provision of essential services. EOD units help build indigenous military and police EOD and exploitation capability. EOD support to Phase V is a continuation of missions performed in previous phases.

SUMMARY

3-27. Ordnance EOD supports the commander's mission through its four functional areas; render safe, technical intelligence, protection support, and disposal. These four basic EOD functions also directly support various Army warfighting functions. EOD staff officers and NCOs participate in their supported command's mission analysis to determine the EOD capabilities, task organization, and support relationships necessary to accomplish the mission. Coordination and integration of EOD operations at all echelons is critical due to limited EOD forces and assets. EOD assets may be task organized with a variety of units and organizations, including multinational forces. While EOD operations are inherently dangerous, catastrophic risk can be mitigated through strict adherence to applicable safety precautions, techniques, principles, and by careful analysis and implementation of lessons learned.

Chapter 4

Maintenance Operations

This chapter provides an overview of the Army's maintenance system, the ordnance organizations that perform maintenance functions, and describes the maintenance roles and responsibilities at various command levels. Maintenance support begins at the U.S. industrial base with strategic partners and is projected forward in to the area of responsibility by operational maintenance units. This chapter discusses the relationships between the various strategic partners and operational organizations from strategic level to the tactical point of need.

SECTION I – MAINTENANCE FUNDAMENTALS

4-1. The primary purpose of maintenance is to generate and sustain combat power and when properly planned, resourced, and executed is the logistics function that delivers readiness and equipment serviceability to the commander. All logistics functions contribute to the overall success of an operation. Equipment serviceability is a major indicator of a unit's combat readiness and a fully mission capable fleet of equipment is essential to unified land operations. Maintenance operations also protect the vastly expensive equipment investment capital by ensuring that all weapons systems, platforms, and equipment meet their intended purpose for the duration of their programmed service life.

4-2. Maintenance does not occur just on the battlefield. It is a very wide reaching function that begins at the U.S. industrial base, including various strategic partners, and continues deep into the AOR to the tactical point of need. Across this span, commanders, staffs, Soldiers, and maintainers work together to monitor maintenance status, communicate maintenance needs, and perform maintenance functions to ultimately keep the force ready to perform its mission.

4-3. Maintenance operations perform two broad functions to support Army operations: it keeps equipment mission capable and ready to support commander's operational needs and it keeps a ready pool of serviceable equipment in the supply system to replace severely damaged equipment. These are accomplished through the Army's two-level maintenance system. Maintenance operations also support the force through management and distribution of supply class IX repair parts. Class IX management originates at the industrial base with strategic partners and is distributed into the AOR with management conducted by staffs and maintenance units at all echelons down to the tactical point of need.

TWO-LEVEL MAINTENANCE

4-4. The Army utilizes a tiered maintenance system. **Two-level maintenance is a maintenance system comprised of field and sustainment maintenance.** Two-level maintenance utilizes equipment design, diagnostic and prognostic equipment and tools, mechanic and technician training, information systems and management aids in component repair or replacement taking full advantage of increased reliability, resulting in increased flexibility and depth of capability. At the core of the maintenance process is performance observation and reporting, equipment services, fault repair, and single-standard repair.

FIELD MAINTENANCE

4-5. **Field maintenance is on-system maintenance, repair and return to the user including maintenance actions performed by operators.** It is often performed on or near the unserviceable piece of equipment or weapon system utilizing line replaceable units and component replacement or repair. It is most often performed by the owning unit using tools and test equipment found in the unit. Field maintenance is not limited to simply remove and replace actions. Field maintenance allows for repair of

components or end items on or near the system if the maintainers possess the requisite skills, proper tools, proper repair parts, references, and adequate time. Field maintenance also includes adjustment, alignment, service, applying approved field level modification work orders, fault/failure diagnoses, battle damage assessment, repair, and recovery. Field maintenance is always repair and return to the user and includes maintenance actions performed by operators.

4-6. Most organizations in the Army have field maintenance personnel and equipment assigned to perform field maintenance on the organization's equipment. The extent of a unit's field maintenance capability in terms of trained personnel and tools is determined by equipment type and density. Some units may have a piece of equipment with no trained mechanics or tool kits because the density of that equipment is too small to justify the allocation of personnel and tools kits. In this instance, the unit relies on a designated supporting maintenance organization providing area support for repair of the low-density equipment.

4-7. There are organizations that are assigned limited or no field maintenance capability or capacity. These organizations normally receive field maintenance, field maintenance support, or augmentation from a designated supporting organization that is designed to provide maintenance for that unit. Maneuver battalions in BCTs are examples of organizations without organically assigned field maintenance capability. These organizations receive field maintenance from FSCs assigned to a BSB. Functional brigades lacking maintenance within any equipment or commodity area will normally coordinate for support with a sustainment brigade/ CSSB. The sustainment brigade/ CSSB, through its assigned support maintenance company (SMC), normally provides field maintenance to echelons above brigade units without internal maintenance capabilities.

SUSTAINMENT MAINTENANCE

4-8. ***Sustainment maintenance is off -system component repair and/or end item repair and return to the supply system or by exception to the owning unit, performed by national level maintenance providers.*** National level maintenance providers include the USAMC and installation directorate of logistics maintenance activities. The sustainment maintenance function can be employed at any point in the integrated logistics chain. The intent of this level is to perform commodity-oriented repairs to return items to a national standard, providing a consistent and measureable level of reliability and to execute maintenance actions not able to be performed at the field level of maintenance. Sustainment maintenance supports both operational forces and the Army supply system.

SECTION II – STRATEGIC MAINTENANCE PARTNERS

4-9. Strategic maintenance partners for the Ordnance Corps include elements of the ASA(ALT) and the USAMC.

UNITED STATES ARMY MATERIEL COMMAND

4-10. The USAMC is the Army's materiel provider and plays a major role in maintenance operations and repair parts management. USAMC organizations provide all Army sustainment maintenance support through depots, AFSBs, and through directorates of logistics. USAMC also procures class IX repair parts for distribution to maintenance activities at all levels and echelons.

4-11. The USAMC is the lead for the Army's national-level maintenance and supply programs which are managed and executed by its subordinate LCMC.

LIFE CYCLE MANAGEMENT COMMANDS

4-12. The USAMC life cycle management commands, together with the ASA(ALT), program executive officers, product managers, and PMs ensure support for fielded weapon systems and equipment throughout their entire life cycle. LCMCs also provide support through various logistics assistance representatives attached to AFSBs. The exact organizational make up of each LCMC varies.

- Army Aviation and Missile Command (AMCOM) - AMCOM, together with the related ASA(ALT) program executive officers, PMs, and product managers integrate functions across

their commodities and sustain aviation, missile and unmanned vehicle systems, ensuring weapon systems readiness with seamless transition to combat operations. The AMCOM performs applied research, integrated logistics support, materiel readiness management, and maintenance support for Army aviation and missile systems, subsystems, and associated equipment.

- Communications-electronics command (CECOM)- CECOM, together with the related ASA(ALT) program executive officers and PMs, integrate functions across their commodities and sustains command, control, communications, computers, intelligence, surveillance, and reconnaissance information systems. The CECOM LCMC performs integrated logistics support, materiel readiness management, maintenance support, and provides technical support capabilities to deployed Army forces.
- Tank-automotive and armaments command (TACOM)- TACOM, together with the related ASA(ALT) program executive officers and PMs, integrates functions across their commodities and sustains Soldier and ground support systems for the operating force through the integration of effective and timely ALT. It provides acquisition support of repair parts. It also overhauls, modernizes, and repairs TACOM -LCMC commodity equipment.

ARMY SUSTAINMENT COMMAND

4-13. ASC is a subordinate command of USAMC and is the Army's lead materiel integrator. The ASC is normally focused on CONUS logistics support operations but it also supports the operational maintenance mission through a network of organizations including a distribution management center. ASC is ultimately responsible for ensuring adequate sustainment maintenance force structure is available and for distribution of class IX repair parts to the area of responsibility. ASC executes these functions through subordinate AFSB, and Army field support battalions. The AFSBs and Army field support battalions operate as the link from the ASC CONUS-based operations to the AOR.

Army Field Support Brigade

4-14. AFSBs are assigned to the ASC and are normally regionally aligned to an ASCC. When deployed, the AFSB is normally placed under the OPCON of a TSC or ESC, if employed. The AFSBs mission is to provide the USAMC national-level sustainment support to deployed forces to include sustainment maintenance and class IX repair parts distribution. The AFSB may also provide field maintenance support for deployed forces as required. The AFSB SPO section is responsible for all external sustainment functions and coordination with the appropriate USAMC subordinate command and/or LCMC to meet mission needs.

4-15. The AFSB normally has one or more Army field support battalions attached that increase the span of control of the AFSB. The following are specific AFSB mission responsibilities:

- Oversees assigned or attached Army field support battalions and brigade logistics support teams and their supporting USAMC LCMC staffs.
- Plan for and provide command over USAMC call-forward sustainment maintenance and forward repair activity organizations.
- Manage, maintain, and retrograde designated theater provided equipment.

Army Field Support Battalion

4-16. Army field support battalions are deployable USAMC, table of distribution and allowance organizations that remains under the mission command of the AFSB commander in all operations. Army field support battalions have tailored capabilities that support Army equipment operational readiness through prioritization, integration, and synchronization of USAMCs national-level provider efforts. They also assist in the coordination and synchronization of ALT actions in their designated mission support area. The logistics assistance representatives assigned to the USAMC LCMCs--AMCOM; CECOM, Joint Munitions and Lethality; and TACOM-- are the core of the logistics assistance program and are the central part of the Army field support battalions. The Army field support battalion's primary contingency mission focus is supporting deployed Army weapon systems, support systems, and other Army systems as required.

4-17. The Army field support battalion is also capable, with the requisite augmentation, of providing sustainment maintenance support to deployed units. The Army field support battalion SPO section is responsible for all Army field support battalion external support operations. It is responsible for overseeing materiel management and sustainment-level maintenance for supported units. The SPO also recommends reach back and or call-forward actions from appropriate USAMC subordinate command and or LCMC to meet mission requirements.

4-18. The Army field support battalions are also responsible for managing APS, and selected pre-deployment training equipment. APS include repair parts for Army maintenance activities. Army field support battalions can also be augmented with a variety of USAMC organizations to include equipment support activities, forward repair activities, combat vehicle evaluation teams, and component repair teams.

BRIGADE LOGISTICS SUPPORT TEAM

4-19. The brigade logistics support teams are organized under a specific table of distribution and allowances, based on the type of unit they support. The brigade logistics support teams team chief has direct interface with the BSB SPO and the supported unit S-4 and is responsible for the brigade logistics support teams operations and personnel. There are two types of brigade logistics support teams: (1) BCT/CAB and (2) multi-functional brigades and echelon above brigade units.

- Brigade logistics support teams – BCT/CAB – is a small modular team consisting of the ASC brigade logistics support teams chief and logistics assistance program representatives. They are aligned with each of the active component BCTs (infantry, Stryker, armor) and CAB. Each team is comprised of 8-11 logistics assistance program representative from AMCOM, CECOM, and TACOM and a logistics management specialist from ASC that report to the brigade logistics support teams chief. The brigade logistics support teams provide support to the BCT/CAB and limited area support to other units in their geographical area.
- Brigade logistics support teams echelons above brigade – is a small modular team headed by the ASC brigade logistics support teams chief, aligned with the maneuver enhancement, air defense artillery, signal, theater aviation brigades and special operations forces units. Each team is comprised of 8-11 logistics assistance representatives from AMCOM, CECOM, and TACOM, and a logistics management specialist from ASC that report to the brigade logistics support teams chief. They provide support to these units and limited area support to other units in their geographic area.

4-20. The skill sets within the brigade logistics support teams are dependent on equipment and technology densities being supported. When deployed, brigade logistics support teams are normally attached to an AFSB in accordance with mission, enemy, terrain and weather, troops and support available, time available, civil considerations mission variables. Brigade logistics support teams, with augmentation, can perform limited and short-term split-based operations while the brigade logistics support teams displaces in support of their supported unit. The brigade logistics support teams mission areas and capabilities include but are not limited to:

- Providing logistics assistance representative technical expertise from the appropriate USAMC organization.
- Assisting in coordinating ALT assistance called forward to support their supported unit.
- Providing technical support and reach back capability from their supported unit to the appropriate USAMC command.
- Assisting the AFSB reception, staging, onward movement, and integration cell, and supervising AFSB in the accounting of and deployment assistance of personnel.

SECTION III – ECHELONS ABOVE BRIGADE OPERATIONAL ORGANIZATIONS

4-21. Within an AOR there are normally three operational headquarters organizations at echelons above brigade; the ASCC, the corps, and the division. The commander and staff of each of these headquarters organizations have very similar maintenance and repair parts support responsibilities. All are ultimately

responsible for ensuring that subordinate organizations have adequate maintenance support and equipment readiness.

4-22. The ASCC is the senior Army command in an AOR. It is the headquarters with Title 10, United States Code logistics support responsibilities and is responsible for ensuring adequate logistics support structure, to include maintenance and class IX repair parts support, is available within the AOR for allocation to the corps and division commands. As such, the ASCC commander is responsible for recommending to the GCC the request for and allocation of U.S Army maintenance organizations. The ASCC also recommends how these organizations forces should be allocated and employed. The ASCC provides oversight of the TSC and establishes the TSC priorities for maintenance support throughout the AOR.

4-23. The ASCC, corps, and division commanders and their staffs play an important part in ensuring that subordinate commander's maintenance needs are met. The G-4 on each of the staffs is the primary logistics coordinating staff. At all echelons it receives, consolidates, and analyzes equipment readiness status reports submitted by subordinate commands. Based upon the analysis, the G-4 reports the maintenance status to the commander who ultimately passes the information to the next higher level of command to include recommendations to increase or reallocate maintenance structure to meet readiness needs. Also based upon the assessment of maintenance status, the G-4 staffs formulate policy, procedures, and directives related to the maintenance readiness of the force.

4-24. The ASCC, corps, and division G-4 staffs do not directly manage maintenance or class IX support operations but rather establish priorities that are executed by and are synchronized with the appropriate supporting organizations. The G-4 staffs must continually coordinate with the appropriate sustainment headquarters to ensure that systemic maintenance problems are understood and addressed during materiel readiness reviews.

MODULAR ORGANIZATION MAINTENANCE RESPONSIBILITIES

4-25. At echelons above brigade there are multiple modular organizations that range from detachment to battalion size. Types of modular units include military police, engineer, chemical, air defense, quartermaster, ordnance, transportation, signal, and others. The assigned maintenance and class IX support capability within these organizations varies widely based upon the size and type of organization and the density of its equipment. In many instances the maintenance capability is limited to wheeled vehicles and other common commodities such as small arms or signal equipment. Units that have limited or no maintenance capability or limited to no maintenance capacity rely on designated support maintenance companies operating on an area basis to augment the assigned maintenance capability and capacity of the organization.

4-26. The field maintenance capability within these organizations, especially for units with limited maintenance capability, is normally located within the headquarters and headquarters company, company, or detachment headquarters. Larger units with greater maintenance requirements may have a separate maintenance section or team assigned to the unit. Units with high densities of equipment or units with very specialized equipment may have separate maintenance companies. Examples of these types of units are engineer battalions and air defense artillery units.

4-27. Commanders and staffs of modular organizations operating above brigade level must understand the sustainment organizations in place to provide support to the area within which they operate. Commanders and staffs must take the initiative to establish contact and to coordinate with the supporting organization to ensure adequate maintenance and class IX support is available.

4-28. Sustainment organizations providing area support must be aware of the types and quantity of modular units operating in the supported area. The sustainment organizations must ensure that an adequate number of support maintenance companies are allocated to provide maintenance and class IX support to these units.

SECTION IV – ECHELONS ABOVE BRIGADE SUSTAINMENT ORGANIZATIONS

4-29. Sustainment organizations with maintenance and maintenance management responsibilities above the brigade level include the TSC, ESC, sustainment brigade, CSSB, and the SMC.

THEATER SUSTAINMENT COMMAND

4-30. The TSC is the senior Army sustainment headquarters in an AOR and is ultimately responsible for ensuring that adequate maintenance support capability is available within an AOR to meet the GCC and Army forces desired end state. The TSC receives maintenance priorities from the ASCC and directs subordinate sustainment organizations to execute the maintenance support as required. The TSC must continually coordinate with ASCC, corps, and, if necessary, division headquarters to ensure it stays abreast of maintenance support requirements and systemic maintenance problems. The TSC must direct and allocate maintenance support accordingly. The TSC executes this support through ESCs, if employed, and through sustainment brigades.

4-31. The TSC support operations section is responsible for maintenance management within the AOR. This includes monitoring and allocating adequate maintenance support. The materiel readiness branch within the SPO section is specifically responsible for maintenance management. It includes ground and electronic maintenance sections that monitor mechanical, communications, electronics, armament, materiel handling equipment, special purpose equipment, and construction equipment maintenance.

4-32. The TSC has assigned field maintenance capability within its special troops battalion that provides maintenance support for the TSC headquarters equipment. For more information refer to ATP 4-94, *Theater Sustainment Command*, 28 June 2013.

EXPEDITIONARY SUSTAINMENT COMMAND

4-33. Considering mission, enemy, terrain and weather, troops and support available, time available, civil considerations mission variables the TSC commander may employ one or more ESCs to provide mission command of sustainment operations, to include maintenance, within an AO or JOA. While normally attached to a TSC, the ESC may also be OPCON to a corps headquarters or JTF if required. If employed an ESC is responsible for ensuring adequate maintenance support capability is available within an AO/JOA to meet the corps commander or JTF commander end state. The ESC must continually coordinate with corps, JTF and, if necessary, division headquarters to ensure it stays abreast of maintenance support requirements and systemic maintenance problems. The ESC must direct and allocate maintenance support accordingly. The ESC executes this support through sustainment brigades.

4-34. The ESC SPO section is responsible for maintenance management within the AO/JOA. This includes monitoring and allocating adequate maintenance support. The materiel readiness branch within the SPO section is specifically responsible for maintenance management. It includes sections that monitor mechanical, communications, electronics, armament, materiel handling equipment, special purpose equipment, and construction equipment maintenance.

4-35. The ESC has assigned field maintenance capability within its headquarters company that provides maintenance support for the ESC headquarters equipment.

SUSTAINMENT BRIGADE

4-36. The sustainment brigade is attached to a TSC or an ESC, if employed, and provides maintenance and class IX management and support to Army forces on an area basis. The sustainment brigade coordination requirements differ from the ESC and TSC. The sustainment brigade is the link from echelons above brigade sustainment to the brigade. Therefore the sustainment brigade must continually coordinate with the supported operational headquarters, normally division headquarters, and the supported brigades. This coordination is necessary to ensure the sustainment brigade commander and staff understand maintenance support priorities, maintenance requirements, and allocates maintenance assets properly. The sustainment

brigade executes maintenance support through CSSBs. The sustainment brigade SPO office coordinates maintenance management and support within the supported area. The SPO advises the commander on balancing maintenance support requirements with maintenance capabilities. The SPO section contains a maintenance branch that manages electronic, armament, mechanical, special purpose, and engineer equipment maintenance.

4-37. The sustainment brigade maintenance section has assigned field maintenance capability that supports headquarters equipment. For more information refer to ATP 4-93 *Sustainment Brigade*, 9 August 2013.

COMBAT SUSTAINMENT SUPPORT BATTALION

4-38. The division and corps aligned CSSB is a modular organization that consists of a headquarters company, a multi-capable supply company, a composite truck company, and a SMC capable of providing flexible and responsive sustainment throughout the corps or division AO.

4-39. The CSSB is the headquarters organization to which SMCs are normally attached, mission dependent. The CSSB oversees the SMC and directs their maintenance support efforts. The CSSB ensures that the SMC are properly allocated based upon supported unit density and is capable of commanding up to seven companies. The CSSB does not manage maintenance support to BCT but does manage supply distribution to the BSBs within the BCT.

4-40. The CSSB SPO office conducts maintenance and class IX management and support within its supported area. The SPO office has a maintenance manager and a maintenance control sergeant to oversee maintenance workload, requirements, and to identify systemic maintenance problems. These personnel manage electronic, armament, mechanical, special purpose, and engineer equipment maintenance.

4-41. The CSSB headquarters company has assigned field maintenance capability that supports CSSB headquarters equipment.

SUPPORT MAINTENANCE COMPANY

4-42. The SMC is a modular maintenance company that provides field maintenance support on an area basis to units at echelons above brigade. The SMC is normally attached to a CSSB but may be attached directly to a sustainment brigade headquarters or other headquarters element if dictated by the situation. The SMC is structured to provide maintenance support to a wide variety of organizations and for most types of equipment. The SMC provides allied trades support; wheeled vehicle recovery; armament; wheeled vehicle; communications; electronics; special electronic devices; ground support equipment; power generation equipment; utility equipment; and test, measurement, and diagnostic equipment (TMDE) maintenance and quality control.

4-43. The SMC has maintenance teams that can be tasked to provide support in multiple locations. It is designed to augment the field maintenance capability of modular units operating above the brigade echelon. The SMC is not intended or designed as a source of back up maintenance support for the BSB. The SMC does not have M1 or M2/M3 system maintenance capability. The SMC receives maintenance support priorities from the CSSB.

SECTION V – BRIGADE COMBAT TEAM MAINTENANCE SUPPORT

4-44. BCTs include the infantry BCT, armor BCT, and Stryker BCT. They each have an organic BSB that functions as the primary source of sustainment for the BCT. The BSBs are similar in structure and provide field maintenance support via the field maintenance company (FMC), and have FSCs that provide field maintenance support to the maneuver battalions assigned to the BCT. The BSB SPO and the brigade S-4 coordinate field maintenance support of assigned equipment through their subordinate FSCs and the FMC.

FIELD MAINTENANCE COMPANY

4-45. FMCs are assigned one per BSB and are normally based in the BSA. The FMC is designed to provide maintenance support to the BSB and the brigade headquarters elements. It may also provide

support for low density equipment such as communication and special electronic devices, chemicals and armament that are beyond the FSC capabilities. It also provides additional recovery and machine shop support to the FSCs. FMCs provides support status and information on company operations to the BSB commander and supported organizations.

4-46. The FMC receives commander's intent and guidance from the BSB commander and maintenance tasks from the BSB SPO. The FMC provides direct support to the BSB. The FMC provides maintenance support, within its capabilities, on an area basis to any non-BCT unit attached, OPCON, or otherwise operating within the BCT AO. The FMC maintains some repair parts for shop operations but is dependent on the BSB distribution company for class IX support. Refer to FM 4-90, *Brigade Support Battalion* for additional information. FMCs provide maintenance support for wheeled and tracked vehicles (minus M1 and M2/M3), missile and electronic equipment (radar, special electronic, communication and missile equipment), ground support equipment (power generation, quartermaster and utilities equipment), armament systems (small arms, fire control armament systems), service and recovery to include support maintenance evacuation.

4-47. Although the FMC augments FSC maintenance capability for low-density equipment, the FMC is not designed to operate as back-up maintenance for the armored BCT FSCs or the infantry BCT FSCs. The FMC does however provide support for low density equipment such as communications and special electronics devices, chemical equipment, and armament repair that is beyond an FSC's capabilities.

FORWARD SUPPORT COMPANY

4-48. The BSB has organic FSCs that provide direct support to each of the BCT maneuver and maneuver support battalions. Each FSC is organized to provide maintenance to a specific type of maneuver battalion, maneuver support battalion, or squadron. The FSCs are assigned to the BSB and are normally controlled by the BSB commander. This allows the BSB commander and the BSB SPO to task organize the FSCs and cross level assets among the FSC when it's necessary to weigh the logistic support to the BCT. The FSCs depend on the BSB for administrative support, some logistic support, and technical oversight.

4-49. Depending on the current operation and situation an FSC may be attached or placed under OPCON of the battalion it supports. The decision to establish this type of command relationship and to decide the duration and scope of the command relationship, is made by the brigade commander upon the advice of the BSB commander following a careful and thorough mission analysis. All commanders must understand that this type of command relationship limits the BSB commander's and ultimately the brigade commander's flexibility to support the brigade until the attached/OPCON FSC is fully restored to the operational control of the BSB commander. FSC attachment or OPCON to its supported battalion is generally limited in duration and may be for a specific mission, phase of an operation, or an entire deployment, based on the brigade commander's discretion.

4-50. The FSC may be divided with some elements collocated with the supported battalion and some elements in the BSA. For example, it may be desirable to locate the FSC field maintenance teams with the supported battalion and the remainder of the FSC in the BSA. This type of task organization must be determined by the FSC commander in collaboration with the BSB and maneuver battalion commanders. The FSC is capable of providing allied trades, recovery, class IX, missile, wheeled and tracked vehicle maintenance, armament, and communication and electronic repair.

SECTION VI – COMBAT AVIATION BRIGADE SUPPORT

4-51. The CAB provides attack, general support and assault helicopter support to the operational force. The CAB has an ASB assigned to provide ground field maintenance.

AVIATION SUPPORT BATTALION

4-52. The CAB has an assigned ASB that provides field maintenance support for ground equipment. The size and structure of the ASB maintenance section varies slightly from light, medium to heavy combat aviation brigades.

4-53. The CAB aviation battalion has FSCs assigned to provide field maintenance support. The FSCs each have a maintenance section to support the battalion's ground equipment. The size and structure of the maintenance section varies by the type of aviation battalion, assault, attack, general support, or medical.

HEADQUARTERS AND SUPPORT COMPANY

4-54. The ASB provides command intent and guidance for the headquarters and support company. The headquarters and support company maintenance platoon provides field maintenance on automotive equipment, communication devices, and ground support equipment. This support includes limited lift capability, recovery, allied trades and maintenance evacuation for supported units. The maintenance control section directs, controls and supervises field maintenance activities throughout the company. It also performs maintenance management and production control functions and maintains class IX (ground) repair parts for company ground onsite field maintenance operations.

4-55. The headquarters and support company is not designed to operate as back-up maintenance for the FSC or to provide support for low density equipment that are beyond the FSCs' capabilities.

FORWARD SUPPORT COMPANY

4-56. The FSC is assigned and tailored to a respective aviation battalion. The FSC provides the ground field maintenance support for allied trades, recovery missions, repair parts, armament, communications and electronics, and field level maintenance operations for organic ground equipment. The FSC's maintenance platoon headquarters is responsible for providing the planning and coordination for ground equipment field maintenance support to the supported battalion. This element also performs field level maintenance management, production control and maintains class IX (ground) repair parts for shop operations. The FSCs are dependent on the headquarters and support company ASB for sustainment automation management support. The FSCs also depend on the ASB for supplemental recovery, automation management and ground field maintenance support on the units' assigned vehicles, weapons, and ground support equipment.

SECTION VII – TEST, MEASUREMENT, AND DIAGNOSTIC EQUIPMENT SUPPORT

4-57. TMDE is defined as any system or device used to evaluate the operational condition of an end item or subsystem thereof to identify and/or isolate any actual or potential malfunction. TMDE oversight begins at the TSC level. Commanders at all levels are responsible for their unit's TMDE readiness and will appoint a TMDE coordinator to interact on their behalf with their assigned TMDE support activity.

4-58. Types of TMDE range from torque wrenches in a toolbox to complex equipment supporting sophisticated weapon systems. The Army's TMDE program supports a number of technical parameters such as infrared, electro-optics, direct current, low frequency, microwave, radiation, detection, indication and computation, mechanical, hydraulics, and pneumatics.

4-59. The objective of the Army's TMDE program is to ensure accurate and serviceable TMDE is available for Army use with measurement accuracies traceable to national, international, or intrinsic standards. Highly technical organizations consisting of military, civilian, and contractor personnel are responsible for calibration and repair of Army TMDE. The military area TMDE support team provides the primary table of organization and equipment TMDE mission support.

4-60. TMDE support within an area of responsibility is normally performed by an area TMDE support team which is assigned to SMCs. Each area TMDE support team is capable of providing field level calibration and repair support to any Army unit that owns and/or uses general purpose or selected special purpose TMDE.

SECTION VIII – CONTRACTED MAINTENANCE SUPPORT

4-61. Contracted maintenance support is a method that can be employed to augment organic maintenance capability or to provide maintenance support where none exists. It may be provided as a way of reducing the operational burden on military maintenance forces during combat operations. Contracted maintenance support can be obtained under a theater support contract. Theater support contracts can provide limited maintenance related services based on the regionally available commercial support capabilities. Requiring activities should consult with their supporting AFSB to ensure that other contract venues are not already in place before submitting their maintenance support contract requirement to their supporting contracting organization. All requiring activities must monitor their supporting contracts utilizing contracting officer representatives and receiving officials for contracted logistics commodities. Requiring activities are also responsible to coordinate with the supporting contracting organization to adjust the contract as necessary based on changes to operational requirements. The use of contracted support to meet maintenance requirements must be carefully analyzed.

4-62. The largest and most commonly used external support contract is the logistics civilian augmentation program (LOGCAP). This Army program is commonly used to provide life support, transportation support, and other support functions to deployed Army forces and other elements of the joint force. A sustainment brigade may or may not serve as the requiring activity (the unit responsible for developing the requirements package and assisting in managing specific contract support requirements) for LOGCAP support. If designated by the Army forces commander and/or TSC commander as the requiring activity for a LOGCAP task order support actions, the sustainment brigade would normally be augmented by a USAMC logistic support officer from Team LOGCAP-Forward. The requiring activity/ supported unit will be required to provide contracting officer representatives for contracted logistics services provided in the affected AO.

SYSTEMS SUPPORT CONTRACTED CAPABILITY

4-63. Systems support contracts are pre-arranged contracts by the USAMC LCMCs and separate ASA(ALT) program executive officers and PM offices. Supported systems include, but are not limited to, newly fielded weapon systems, mission command infrastructure, such as logistics information systems and communications equipment. Systems support contractors provide support in garrison and may deploy with the force to both training and real-world operations. They may provide either temporary support during the initial fielding of a system, called interim contracted support or long-term support for selected materiel systems, often referred to as contracted logistic support. The sustainment brigade does not normally have a significant role to play in planning for or coordinating systems support contracts other than coordinating and executing support of systems support contract related personnel.

SUMMARY

4-64. Ordnance maintenance operations are vital to unified land operations at every echelon and in support of every operation that generates combat power. Maintenance is a key logistic function that sustains the Army's equipment. There are ordnance maintenance operations performed by Soldiers, civilians and contractors, occurring in every organization at every echelon in the Army. Ordnance maintenance supports the Army's execution of decisive action in support of unified land operations through an integrated and synchronized multi-level sustainment structure.

Glossary

The glossary lists acronyms and terms with Army or joint definitions. Where Army and joint definitions differ, (Army) precedes the definition. Terms for which FM 4-30 is the proponent are marked with an asterisk (*). The proponent publication for other terms is listed in parentheses after the definition.

SECTION I – ACRONYMS AND ABBREVIATIONS

ADP	Army doctrine publication
ADRP	Army doctrine reference publication
AFSB	Army field support brigade
AMCOM	Army Aviation and Missile Command
ASA(ALT)	Assistant Secretary of the Army for acquisition, logistics and technology
APS	Army prepositioned stocks
AO	area of operation
AOR	area of responsibility
AR	Army regulation
ARDEC	Armament Research, Development, and Engineering Center
ASA	ammunition support activity
ASB	aviation support battalion
ASC	Army Sustainment Command
ASCC	Army Service component command
ATP	Army techniques publication
ATHP	ammunition transfer and holding point
BAO	brigade ammunition officer
BCT	brigade combat team
BSA	brigade support area
BSB	brigade support battalion
CAB	combat aviation brigade
CECOM	communications-electronics command
CONUS	continental United States
CSR	controlled supply rate
CSSB	combat sustainment support battalion
DA	Department of the Army
DAC	Defense Ammunition Center
DOD	Department of Defense
DMC	distribution management center
EOD	explosive ordnance disposal
ESC	expeditionary sustainment command
FARP	forward arming and refueling point
FM	field manual
FMC	field maintenance company

FSC	forward support company
G-4	assistant chief of staff, logistics
GCC	geographic combatant commander
IED	improvised explosive device
JOA	joint operations area
JP	joint publication
JTF	joint task force
LCMC	life cycle management command
LOGCAP	logistics civilian augmentation program
NCO	noncommissioned officer
OPCON	operational control
PEO	program executive office
PM	program manager
QASAS	Quality Assurance Specialist (Ammunition Surveillance)
RSR	required supply rate
S-3	battalion or brigade operations staff officer (Army)
S-4	battalion or brigade logistics staff officer (Army)
SMC	support maintenance company
SMCA	single manager for conventional ammunition
SPO	support operations
TACOM	Tank-automotive and armaments command
TMDE	test, measurement, and diagnostic equipment
TSC	theater sustainment command
U.S.	United States
USAMC	United States Army Materiel Command
UXO	unexploded explosive ordnance
WMD	weapons of mass destruction

SECTION II – TERMS

***ammunition support activity**

Locations that are designated to receive, store, maintain, and provide munitions support to Army forces.

ammunition transfer and holding point

A designated site operated by a brigade support battalion distribution company where munitions are received and transferred to supported units within a brigade combat team and may also temporarily hold or store munitions as required (ADRP 1-02).

Army field support brigade

An organization which provides integrated and synchronized acquisition logistics and technology support, less medical, to Army operational forces (ADRP 1-02).

***brigade ammunition officer**

The multifunctional officer assigned to the BSB ammunition officer position within the SPO section and serves as the principal munitions staff officer for the brigade.

***controlled supply rate**

The rate of ammunition consumption that can be supported, considering availability, facilities, and transportation.

*** explosive ordnance disposal**

The detection, identification, on-site evaluation, rendering safe, exploitation, recovery, and final disposal of explosive ordnance.

*** explosive hazards**

A condition where danger exists because explosives are present that may react in a mishap with potential unacceptable effects to people, property, operational capability, or the environment.

***field maintenance**

On system maintenance, repair and return to the user including maintenance actions performed by operators.

logistics

(DOD) The planning and executing the movement and support of forces. It includes those aspects of military operations that deal with: design and development, acquisition, storage, movement, distribution, maintenance, evacuation, and disposition of materiel; movement, evacuation, and hospitalization of personnel; acquisition or construction, maintenance, operation, and disposition of facilities; and acquisition or furnishing of services (JP 4-0).

mission command

(Army) The exercise of authority and direction by the commander using mission orders to enable disciplined initiative within the commander's intent to empower agile and adaptive leaders in the conduct of unified land operations (ADP 6-0).

*** munition**

A complete device charged with explosives, propellants, pyrotechnics, initiating composition or chemical, biological, radiological or nuclear material, for use in operations, including demolitions.

operational control

The authority to perform those functions of command over subordinate forces involving organizing and employing commands and forces, assigning tasks, designating objectives, and giving authoritative direction necessary to accomplish the mission (JP 1-02).

operational environment

The composite of the conditions, circumstances, and influences that affect the employment of capabilities and bear on the decisions of the commander (JP 3-0).

organic

Assigned to and forming an essential part of a military organization as listed in its table of organization for the Army, Air Force, and Marine Corps, and are assigned to the operating forces for the Navy (JP 1-02).

*** recovered explosive ordnance**

Devices that are retrieved in the operational environment, from field storage sites and licensed storage areas that contain explosives, propellants, pyrotechnics, initiating composition, or nuclear, biological or chemical material for use in operations, including demolitions which when salvaged have not been primed for use and may or may not be in their primary or logistic packaging.

*** required supply rate**

An estimated amount of ammunition needed to sustain tactical operations, without ammunition expenditure restrictions, over a specified time period.

stability operations

(DOD) An overarching term encompassing various military missions, tasks, and activities conducted outside the United States in coordination with other instruments of national power to maintain or

reestablish a safe and secure environment, provide essential governmental services, emergency infrastructure reconstruction, and humanitarian relief (JP 3-0).

supply

The process of providing all items necessary to equip, maintain, and operate a military command (ADRP 1-02).

sustainment

(Army) The provision of logistics, personnel services, and health services support necessary to maintain operations until mission completion (ADP 4-0).

***sustainment maintenance**

Off -system component repair and/or end item repair and return to the supply system or by exception to the owning unit, performed by national level maintenance providers.

sustainment warfighting function

The related tasks and systems that provide support and services to ensure freedom of action, extend operational reach, and prolong endurance (ADRP 3-0).

*** two-level maintenance**

Tiered maintenance system comprised of field and sustainment maintenance.

unified land operations

How the Army seizes, retains, and exploits the initiative to gain and maintain a position or relative advantage in sustained land operations through simultaneous offensive, defensive, and stability operations in order to prevent or deter conflict, prevail in war, and create the conditions for favorable conflict resolution (ADP 3-0).

References

REQUIRED PUBLICATIONS

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

ADRP 1-02, *Terms and Military Symbols*, 24 September 2013

JP 1-02, *Department of Defense Dictionary of Military and Associated Terms*, 8 November 2010

RELATED PUBLICATIONS

These documents contain relevant supplemental information.

JOINT PUBLICATION

Most joint publications are available online: http://www.dtic.mil/doctrine/new_pubs/jointpub.htm.

JP 3-0, *Joint Operations*, 11 August 2011

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None

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RAYMOND T. ODIERNO
General, United States Army
Chief of Staff

Official:



GERALD B. O'KEEFE
Administrative Assistant to the
Secretary of the Army
1404205

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