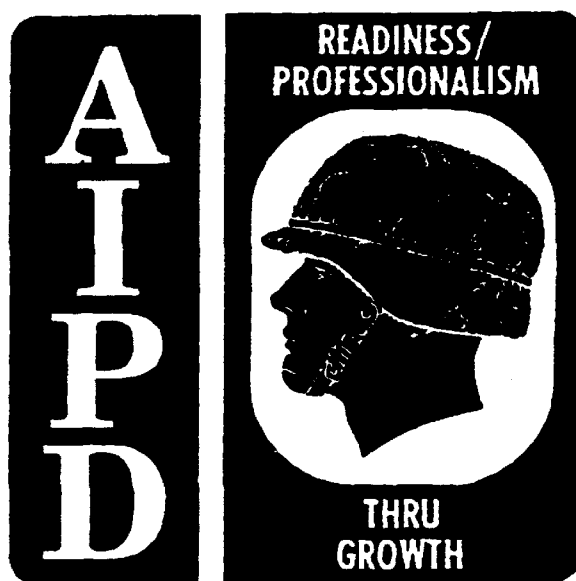


INTRODUCTION TO THE
AMMUNITION FIELD



US ARMY ORDNANCE
MISSILE AND MUNITIONS CENTER AND SCHOOL

THE ARMY INSTITUTE FOR PROFESSIONAL DEVELOPMENT
ARMY CORRESPONDENCE COURSE PROGRAM

INTRODUCTION TO THE AMMUNITION FIELD

Subcourse Number MM0142

EDITION A

Missile and Munitions
United States Army Combined Arms Support Command
Fort Lee, Virginia 23801-1809

4 Credit Hours

Edition Date: September 1992

SUBCOURSE OVERVIEW

This subcourse is designed to provide you with current information relating to the ammunition field.

There are no prerequisites for this subcourse.

This subcourse reflects the doctrine that was current at the time this subcourse was prepared. In your own work situation, always refer to the latest official publications.

Unless otherwise stated, the masculine gender of singular pronouns is used to refer to both men and women.

Terminal Learning Objective

Action: You will learn how the ammunition career field is organized from the Headquarters, Department of the Army (HQ DA) level to the theater ammunition support level.

Condition: In this booklet, you will find all of the information required to complete this subcourse.

Standard: To demonstrate competency of this task, you must achieve a minimum of 70 percent on the subcourse examination.

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LESSON

MANAGEMENT OF THE AMMUNITION PROGRAM

STP 9-91DII 03-4010.01-0002

OVERVIEW

Lesson Description

In this lesson, you will learn the ammunition support structure of the US Army.

Terminal Learning Objective

Action: Describe the ammunition support structure from the Department of Defense (DOD) level down to the user level. Your description should include the mission and objectives associated with the assignment of Single Manager for Conventional Ammunition (SMCA). Explain the wholesale and retail ammunition distribution systems to include the agencies, systems, and programs necessary to manage the distribution of ammunition to the user. You should also be able to provide a description of the different types of ammunition and the requirements associated with transporting and handling ammunition.

Condition: You will have this subcourse booklet and will work without supervision. There are no supplementary requirements for this lesson.

Standard: Description of all facets of the ammunition support structure will be in accordance with this lesson.

References: The material contained in this lesson was derived from AR 380-5, AR 385-64, TM 9-1300-200, TM 9-1300-206, FM 9-6, FM 9-13, and FM 9-38.

INTRODUCTION

As a new ammunition officer, you must have a thorough understanding of the Army's ammunition support program, to include production, depot and field storage, transportation, maintenance, receipt and issue, and the demilitarization and disposal of all ammunitions items.

CLASSES OF SUPPLY

Ammunition is one of the ten commodities within the DOD supply classification system as follows:

- Class I. Subsistence items (all food requirements to support the soldier's nutritional needs).
- Class II. Clothing, tools, and so forth.
- Class III. Bulk petroleum and fuel products (all gasoline, motor oil, and other lubricants required to support the military).

- Class IV. Construction materials.
- Class V. Ammunition of all types.
- Class VI. Personal items (includes all alcoholic beverages; beer, wine, and so forth).
- Class VII. Major end items (vehicles, aircraft, weapons, and so forth).
- Class VIII. Medical materials (all medical supplies and equipment required to support military operations).
- Class IX. Repair parts (all repair parts).
- Class X. Civil affairs (a special category reserved to support military relations with civil governments at home and abroad).

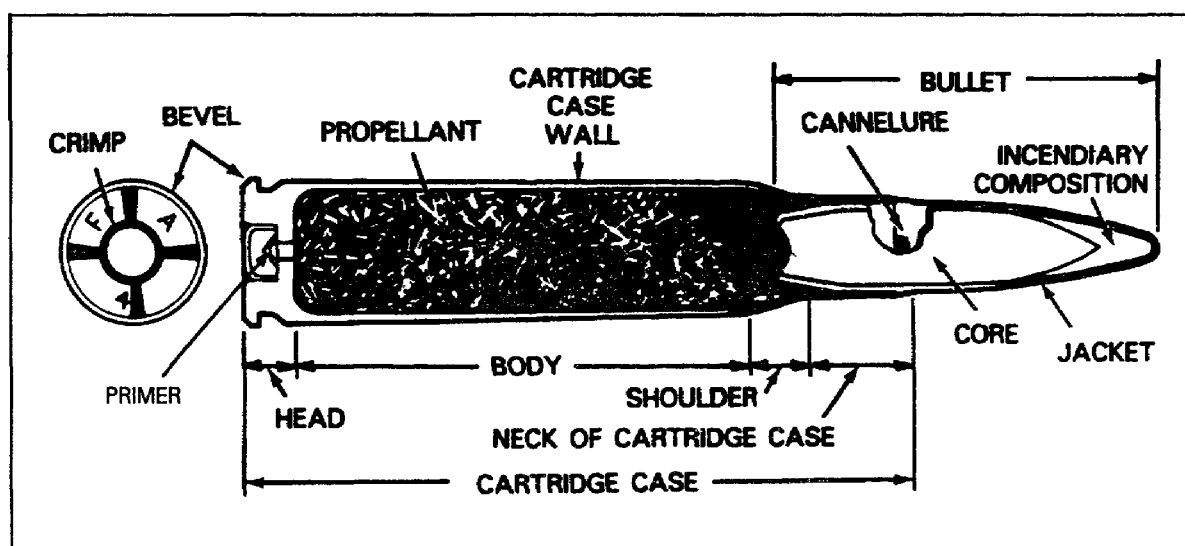
Of the ten classes of supply, only Class V will be discussed in this lesson.

TYPES OF AMMUNITION

Small Arms Ammunition

Small arms ammunition describes a cartridge, or families of cartridges, intended for use in various types of hand-held or mounted weapons through 30mm. These weapons include pistols, rifles, submachine and machine guns up to 30mm, and shotguns. A small arms cartridge (Figure 1) consists of the following components:

- Bullet. Military bullets are assemblies of a copper jacket with a steel or lead core.
- Cartridge case. It may be made of copper, brass, steel, or some other material.
- Propellant charge. Low-explosive propellant grains (sometimes mistakenly called powder) are located inside the cartridge case.
- Primer assembly. The primer ignites the propellant.



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Figure 1. Cross section of a typical small arms cartridge.

Artillery Ammunition

Artillery ammunition is designed for use in guns, howitzers, mortars, and recoilless rifles that range in size from 37mm through 406mm (16-inch). There are four general types of artillery ammunition—fixed, semifixed, separated, and separate-loading ammunition. See Figure 2, Page 4.

Fixed rounds are used in guns and recoilless rifles. This type of ammunition is issued and loaded as a complete round. Semifixed rounds are used in 105mm howitzers and all mortars. Semifixed rounds are issued with the cartridge case and propellant separate from the projectile but in the same container. Separated rounds are used in large guns. This type of ammunition is issued as two separate components, a sealed cartridge case and a projectile. Separate-loading rounds are used in larger guns and howitzers (155mm, 175mm, 8-inch and 16-inch). Separate-loading components—projectile, propelling charge, and primer—are issued unassembled and are issued separately.

A complete round of artillery ammunition consists of all the components required to fire a weapon once. A typical artillery round consists of a projectile, propellant charge, and a fuze and primer.

Projectile. The type of projectile may be antipersonnel (APERS); high-explosive (HE); high-explosive antitank (HEAT); armor-piercing (AP); high-explosive, dual-purpose (HEDP); and so forth. See TM 9-1300-200 for a complete listing.

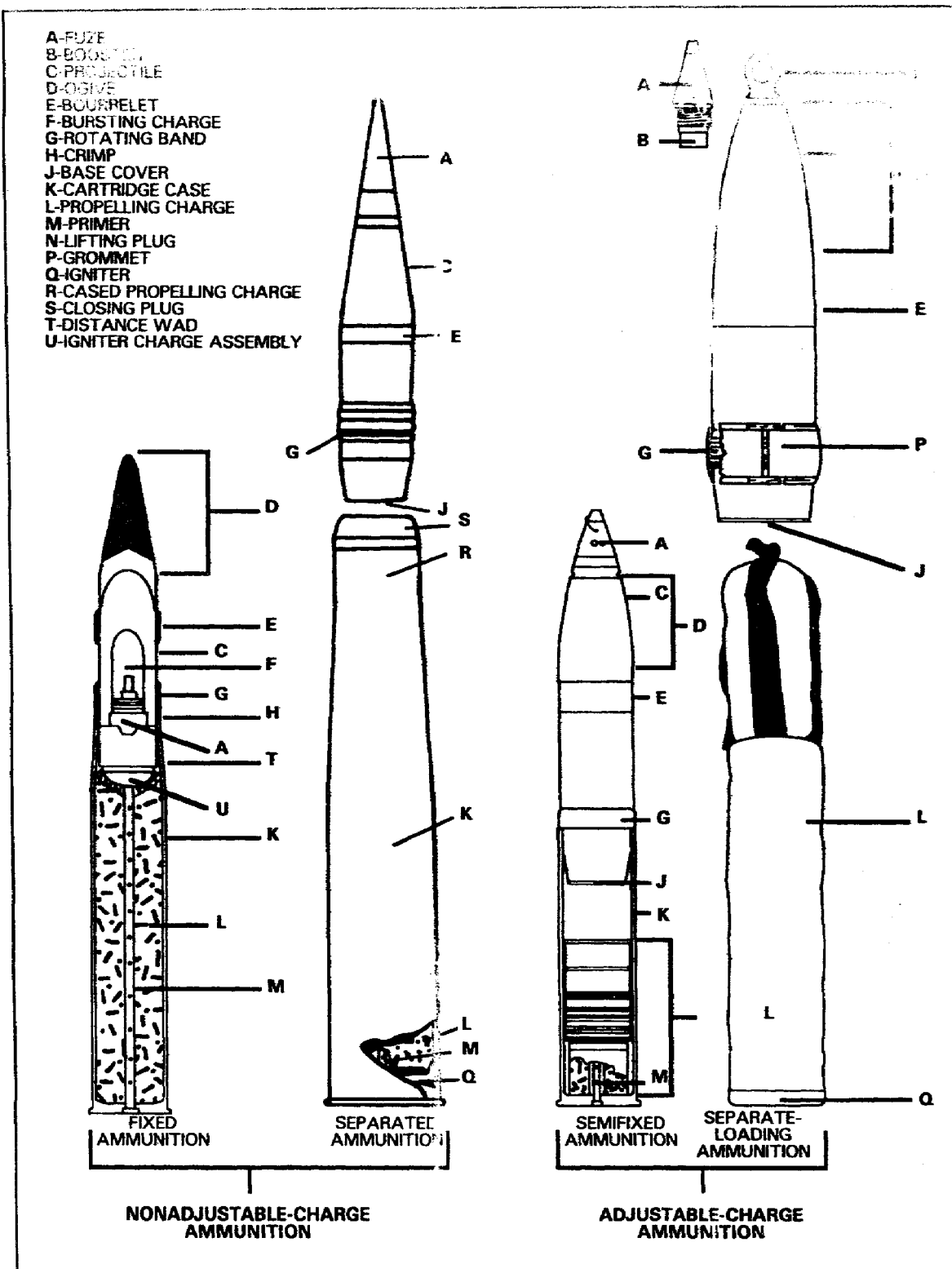
Propellant Charge. Propelling charges consist of a quantity of propellant that has been carefully designed for the type of ammunition (fixed, semifixed, separated, or separate-loading). The propelling charge in a round of fixed ammunition is loose in the cartridge case. This charge is not adjustable. In separated ammunition, the propelling charge consists of a loosely loaded propellant in a primed cartridge case. This charge is not adjustable. In semifixed howitzer ammunition, the propelling charge is bagged inside a primed cartridge case. In semifixed mortar ammunition, bags of granular propellant are attached to the fins or boom. Semifixed propelling charges are adjustable. In separate-loading ammunition, the propelling charge is contained in cloth bags, divided into multisection charges. These charges are adjustable.

Fuze. An artillery fuze is a mechanical device used with a projectile to cause it to function as required. Fuzes are classified according to their position on the projectile and method of functioning. Examples include base detonating (BD); point-initiating, base-detonating (PIBD); and point-detonating (PD). Most projectiles require nose fuzing. Exceptions are armor piercing, high-explosive rocket (APHER) and high-explosive plastic (HEP) projectiles that require base fuzing. Fuzes are classified according to function as impact, time, proximity, or a combination of these. For example, the mechanical time, the proximity, and most PIBD fuzes provide a backup function upon impact.

Land Mines

Land mines are devices filled with high explosives or chemical agents. See Figure 3, Page 5. These munitions are designed to be placed in, on, or above the ground. They are designed to damage or destroy vehicles, hinder movement of enemy personnel, or contaminate strategic areas. Land mines are classified as APERS, antitank (AT), chemical, and scatterable. They are also classified as to how they function.

APERS Mines. There are three types of APERS mines. The bounding-type mine is placed beneath the surface of the ground. When it functions, a fragmentation projectile is expelled from the mine body. The ascending projectile detonates in the air, propelling fragments in all directions. The fixed, directional, fragmentation mine (Claymore) is designed to be placed above the ground in the expected path or direction of the enemy. When the mine explodes, high-speed fragments fan



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Figure 2. Different types of artillery ammunition.

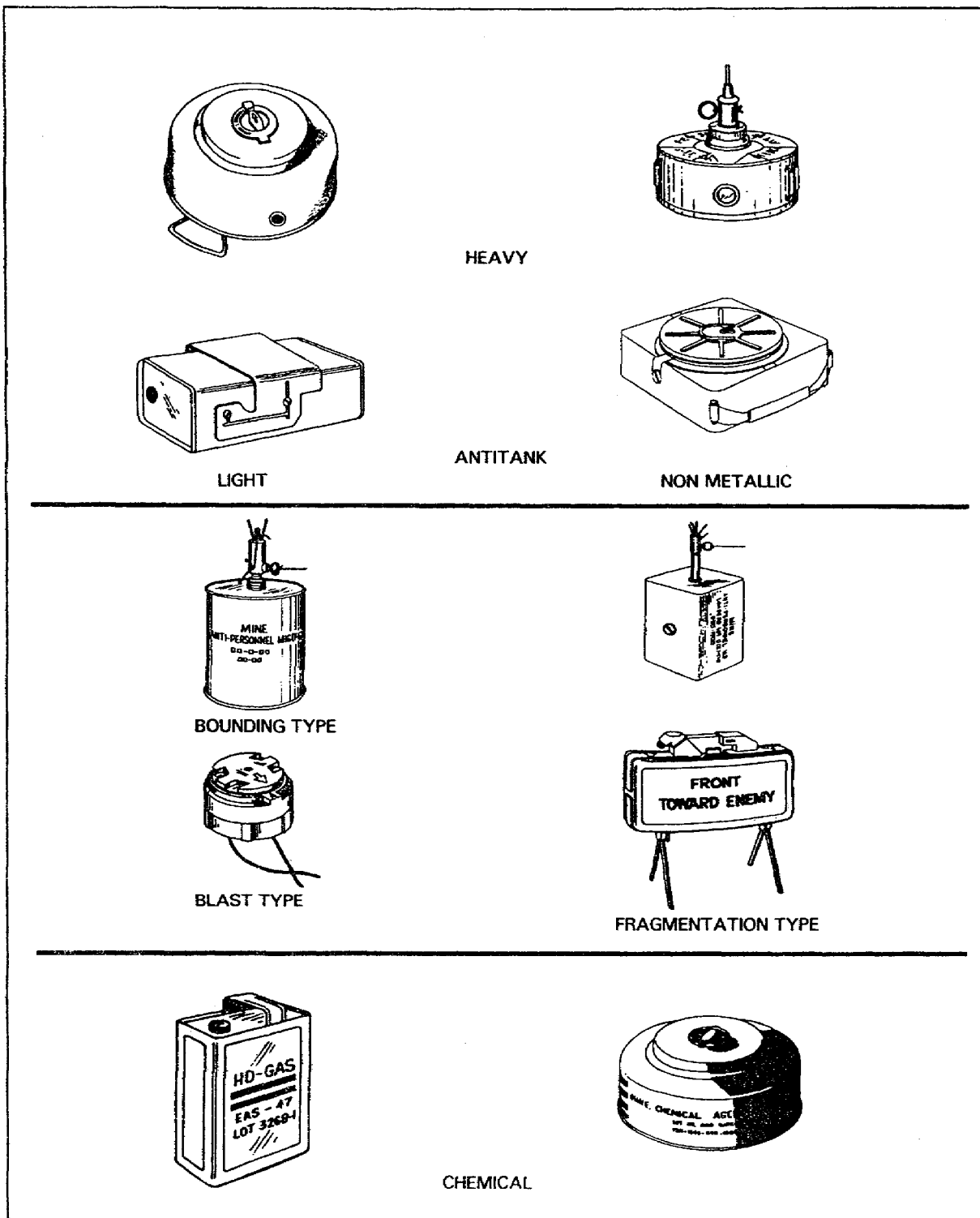


Figure 3. Representative types of land mines.

outward. The blast-type mine may be the small M14 type or may be a larger AT-type mine with an APERS-type fuze. These mines normally have a larger high-explosive charge with little or no fragmentation. Currently, the M14 is the only US blast-type mine. It has a small, all plastic body with an integral fuze.

AT Mines. AT mines are explosive devices placed on, or slightly below the surface of the ground. The AT mine will, depending on its size and type, damage or destroy tanks and other vehicles. The blast-type AT mine may not always destroy a tank, but it can be relied upon to delay its movement. The plate-type M21 mine will destroy all known tanks. The off-route mine is designed to propel a HEAT rocket. It is very effective at short ranges against tanks.

Chemical Mines. Chemical mines are filled with a toxic chemical filler. These mines are used to contaminate an area or to produce casualties. The use of these mines is doubtful due to the US position on chemical agent use. The US has developed two types of chemical mines.

The one-gallon, metal-can chemical mine is designed to be filled with a liquid blister agent (H or HD). This type of mine has no explosives or fuzing. Two short copper wires are soldered to one side of its body. These wires are used to attach the bursting charge (detonating cord). It is normally set off with the standard electric or the nonelectric demolition firing system.

The second type of chemical mine is the M23 VX-filled (nerve gas) mine. It is similar in appearance and functioning to the heavy M15 AT mine.

Scatterable Mines. A new family of mines, normally referred to as scatterable mines, has been developed and may replace all others. These mines are designed to be disbursed by aircraft, artillery projectiles, large rockets such as the Multiple Launch Rocket System (MLRS), and by rapid-vehicle dispersing systems.

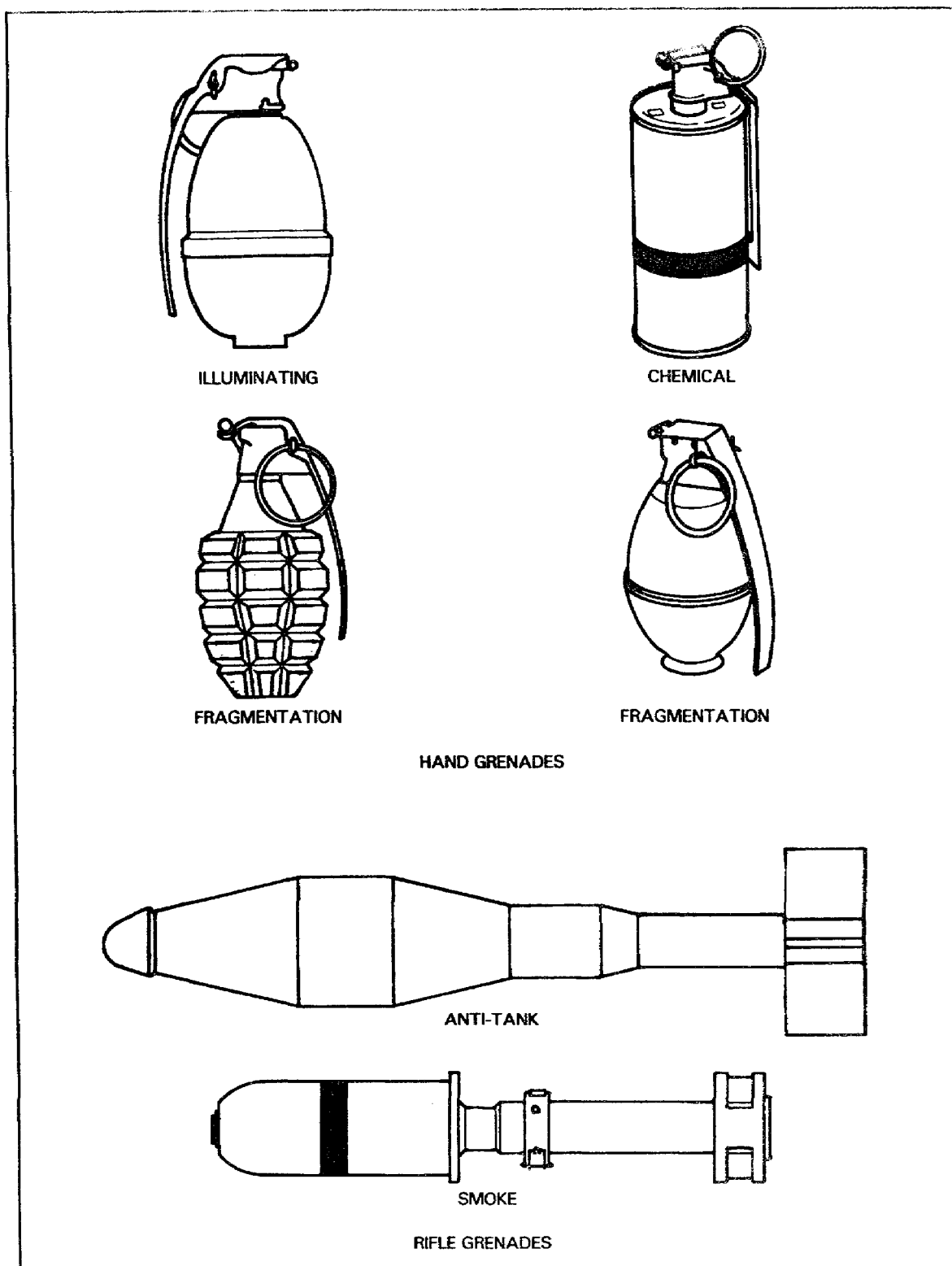
Grenades

A grenade is a small missile weighing between 1 and 2 pounds. It may be filled with high explosives or with chemical agents. Grenades are used against enemy personnel and materials at relatively short ranges. There are three types of grenades—hand grenades, rifle grenades, and the 40mm grenade.

Hand Grenades. The hand grenade is thrown by the user. It supplements small-arms fire in close combat where artillery fire cannot be used. Hand grenades are classified as fragmentation (defensive), chemical, practice, illuminating, and offensive. See Figure 4.

Rifle Grenades. Rifle grenades are launched from the standard service rifle that is equipped with a grenade launcher or an M16 adapter. These grenades are used against enemy tanks and bunkers. They are also used for screening and signaling purposes. See Figure 4.

The 40mm Grenade. The 40mm special-purpose grenade system does not fit into the hand- or rifle-grenade categories. It could also be classified as a small, hand-held machinegun, mortar, or artillery system. The 40mm grenade system utilizes a variety of projectiles to include HE fragmentation, dual-purpose, chemical, signal, smoke, and a cannister/shotgun round.

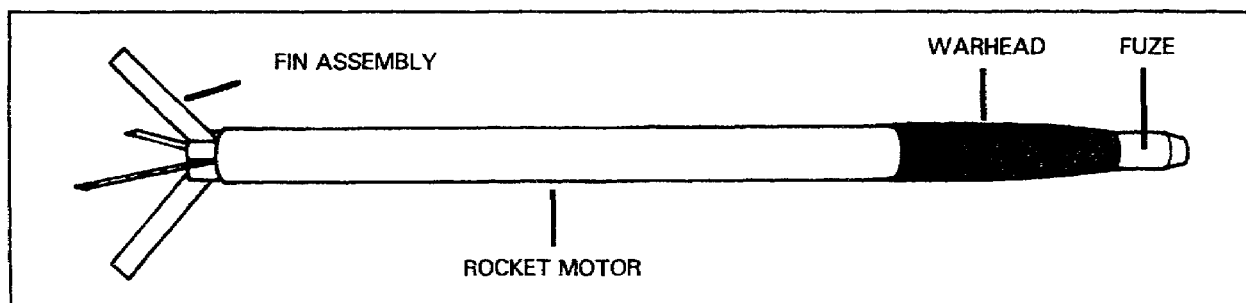


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Figure 4. Representative types of grenades.

Rockets and Guided Missiles

A rocket is an unguided missile propelled by a discharging jet of propellant gas. A military rocket consists essentially of a warhead, a fuze, and a motor. The rocket is stabilized in flight by fins, or canted nozzles, that are attached to the motor. See Figure 5. The unguided or free rocket is fired from a launcher along a predetermined trajectory. Rockets are basically classified as shoulder-fired, ground-to-ground, or aircraft (air-to-air or air-to-ground). Rockets may have HE (fragmentation), HEAT, smoke, flechette (nails), and practice warheads. The rocket used with the MLRS is a good example of a large rocket.



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Figure 5. Typical 2.75-inch aircraft rocket in flight.

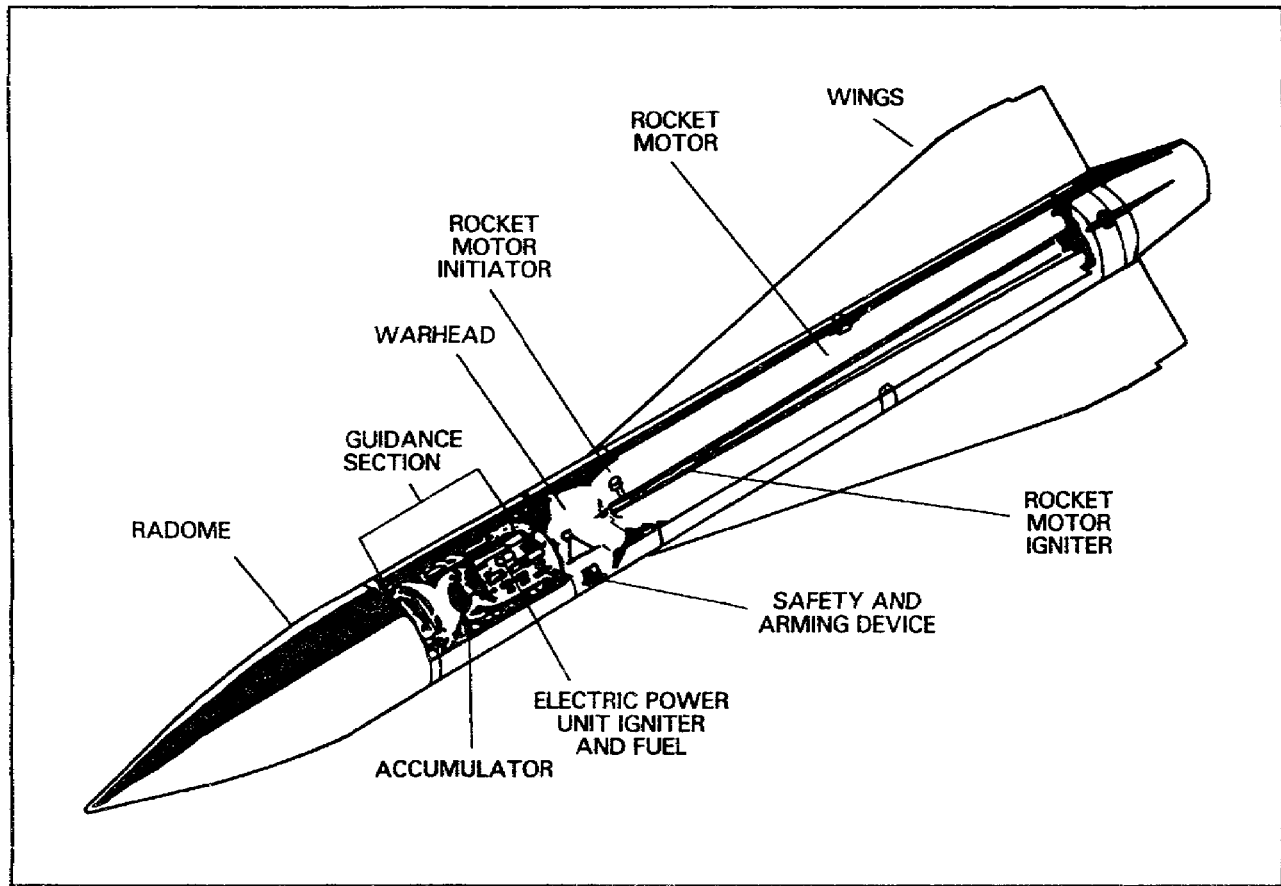
Guided missiles are rockets with a guidance system. They range in size from the small AT missile to the large artillery and air defense guided missile systems. See Figure 6. The warheads used with guided missiles may be HE, HEAT, HE fragmentation, and chemical.

Bombs

Bombs are normally under the control of the Air Force. However, as an ammunition officer, you should have a basic understanding of how bombs are constructed and how they are stored. Bombs come in all sizes and types depending on how they are to be used. They are classified as to use as follows:

- General purpose (GP).
- Light case (LC).
- Armor-piercing (AP).
- Semi-armor-piercing (SAP).
- Depth.
- Fragmentation.
- Chemical.
- Incendiary or fire.
- Cluster and clustered bomb units (CBUs).

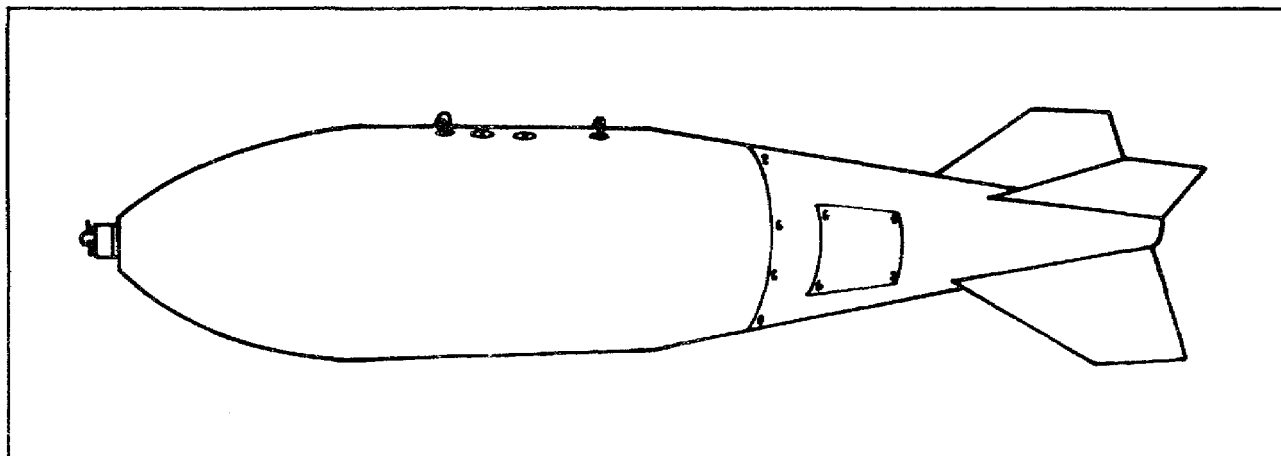
Bombs range in size from the small bomb live units (BLUs) to the large 250-pound to 3,000-pound GP bombs. Normally, small bombs and BLUs have one fuze. The larger bombs have a nose fuze and a tail fuze.



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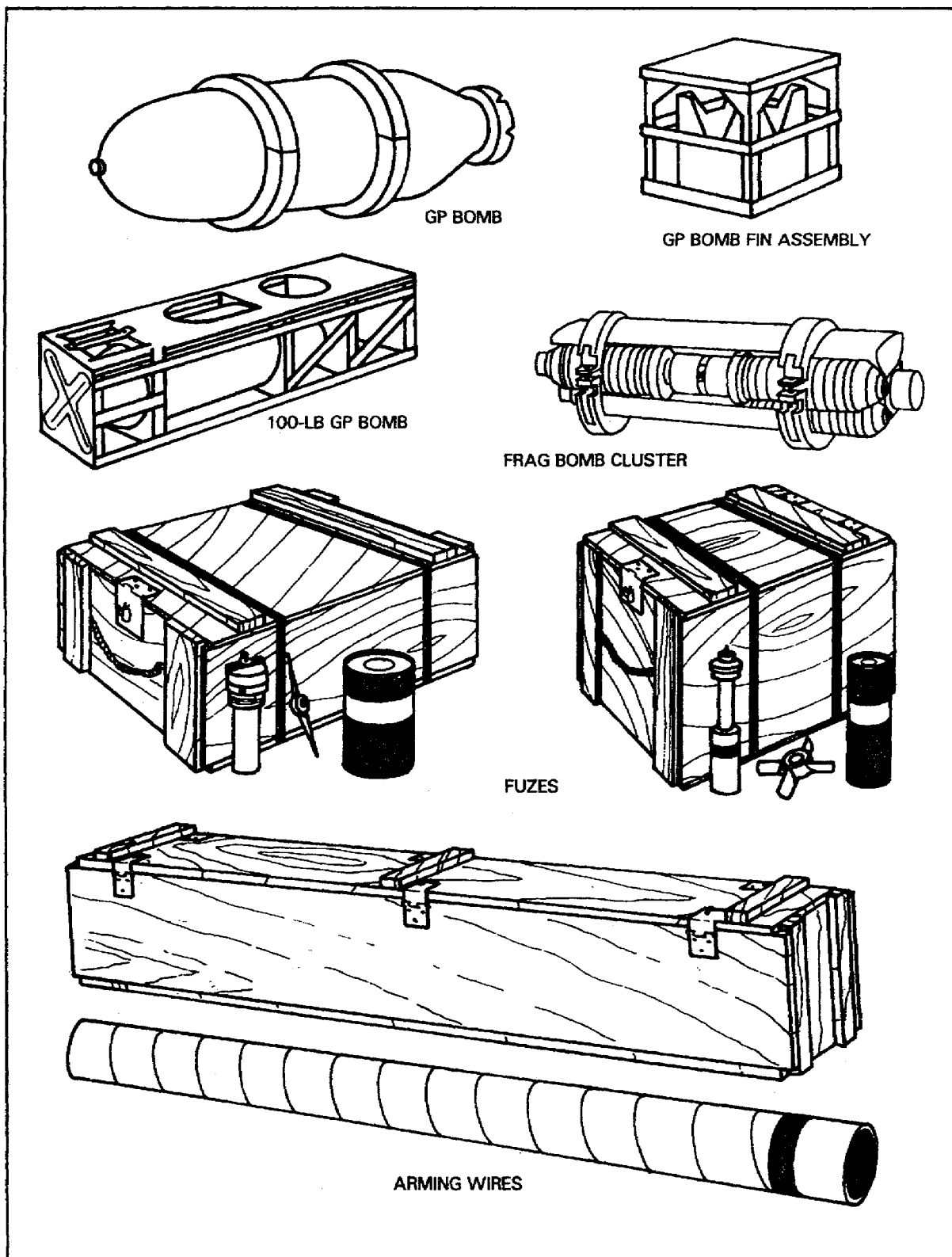
Figure 6. Typical guided missile showing location of components.

GP bombs are used for most bombing situations. Figure 7 shows a new-series GP bomb fully assembled. Bombs and bomb components are stored as shipped. See Figure 8, Page 10.



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Figure 7. New-series GP bomb.



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Figure 8. Components of bombs as received.

Demolition Materials

The term "demolition materials" covers a variety of explosive charges and related initiating devices and equipment. These materials are used for excavation projects and to destroy dams, bridges, buildings, and other fortifications. Demolition materials are also used for the emergency destruction (ED) of supplies and equipment, to include the routine destruction and ED of ammunition. TM 5-250 provides detailed information about demolition materials that are used to destroy conventional ammunition.

Miscellaneous Munitions-Related Items

These miscellaneous items may be explosive propellant-actuated devices (PADs) or nonexplosive items.

Propellant-Actuated Devices. PADs are designed to do a specific task by using the energy of propellant gases. The propellant may be contained in a replaceable cartridge or permanently sealed into the device. PADs include the following.

- Explosive embedment anchors.
- Cutters.
- Parachute ejectors.
- Fire-extinguisher cartridges.

Nonexplosive Items. Nonexplosive items include machine-gun ammunition links, clips, eyebolts, spent brass, and preservation and packaging (P&P) materials, dunnage, et cetera.

Chemical Munitions and Agents

Chemical agents are compounds and mixtures that are used as fillers in artillery and mortar ammunition, grenades, and rockets. The following munitions may contain chemical fillers:

- Bombs (from 10-pound to 1,000-pound).
- Rockets (from 2.75-inch to the MLRS rocket).
- Artillery projectiles (60mm and above).
- Grenades (hand and rifle).
- Land mines.

AMMUNITION LOGISTICS SYSTEM

Logistics procedures for ammunition differ from those procedures associated with the other nine commodities. The ammunition logistics system was developed to adhere to the strict rules, regulations, and requirements associated with the transportation and handling of ammunition.

Storage

Ammunition storage operations are governed by two requirements. The first requirement is to protect and secure the ammunition. The second requirement is to protect, to the maximum extent possible, personnel and property from the damaging effects of accidents involving ammunition and explosives. See AR 385-64 and TM 9-1300-206 for general guidance on storage operations.

Storage Facilities. There are two categories of storage facilities—magazine storage facilities and outdoor storage facilities.

Magazine storage facilities include earth-covered magazines and above-ground magazines. Earth-covered magazines include, but are not limited to, the standard igloo, the Stradley, and the steel-arch magazines. See Figure 9. There are two main types of above-ground magazines—HE or black-powder magazines and fuze or primer magazines. See Figure 10, Page 14.

Outdoor storage sites are used only for the temporary storage of ammunition. Keeping ammunition outside exposes it to the weather. Ammunition kept outside is stored in both barricaded and unbarricaded areas. A barricaded site differs from an unbarricaded site only in that it has a berm (barricade) built around three or four of its sides. See Figure 11, Page 15.

Storage Areas. There are five areas where ammunition is likely to be stored. These areas are depot, the theater storage area (TSA), the corps storage area (CSA), the ammunition supply point (ASP), and the ammunition transfer point (ATP).

Depot storage is used at the national level for ammunition assets. The Army Materiel Command (AMC) is responsible for depot storage. This function is accomplished by two of AMC's subordinate commands, the Depot Systems Command (DESCOM) and the Armament, Munitions, and Chemical Command (AMCCOM).

The TSA encompasses those storage facilities located at echelons above corps (EAC). The TSA is the largest ammunition facility in the theater of operations (TO). The TSA provides Class V support to all units in the theater.

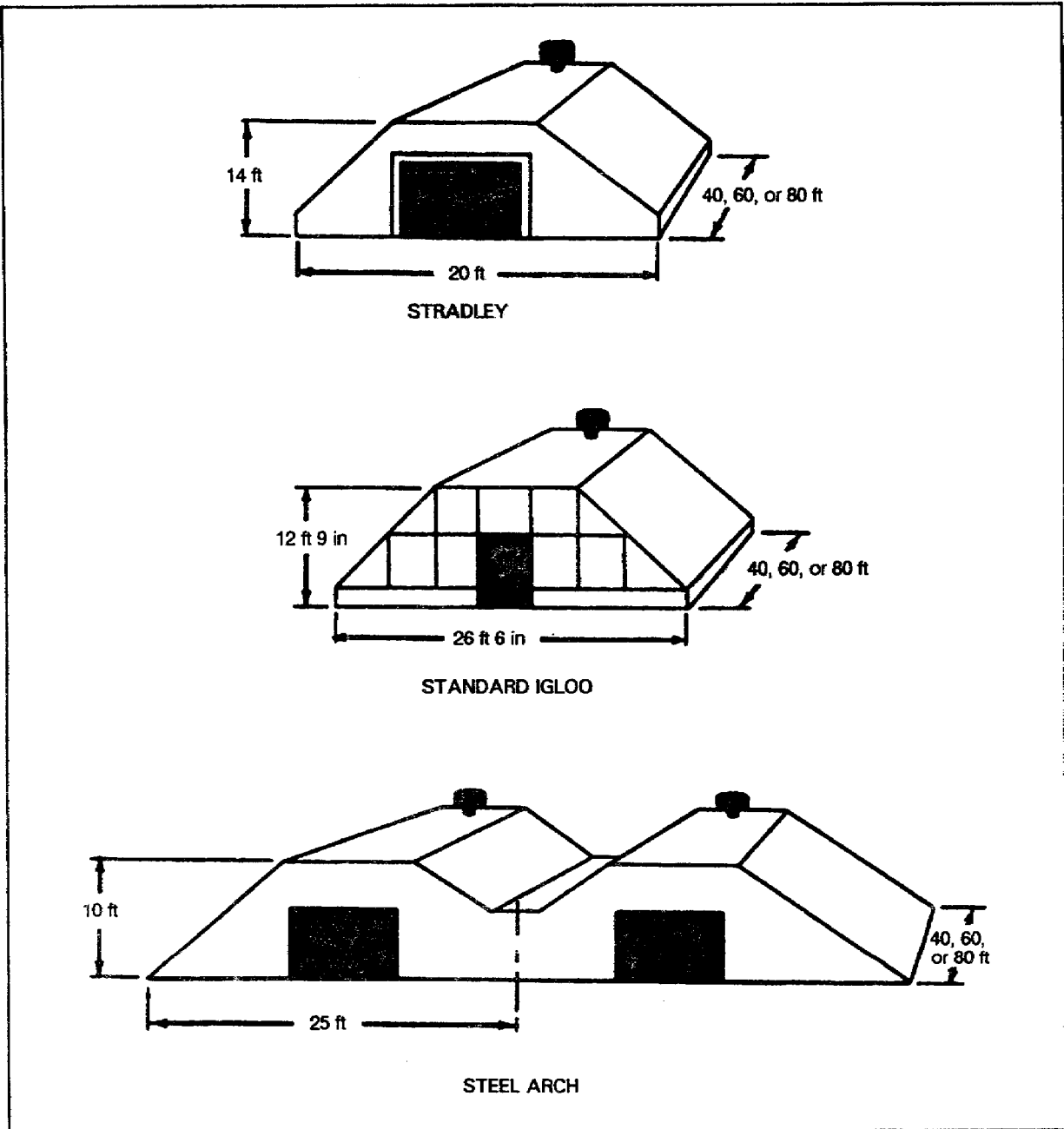
The CSA is the primary source of high-tonnage ammunition for the division. The CSA is normally located in semifixed or field locations in order to support each committed division. The CSA supports ASPs and ATPs in corps and division areas.

ASPs are located in or near the division rear. They receive, store, account for, and maintain a 1-to-3-day supply of ammunition in order to meet routine, surge, and emergency requirements of supported units.

The ATP is a mobile ammunition supply facility that is designed to accommodate maneuver units. It provides high-usage, high-tonnage ammunition stocks to its using units. The ATPs receive 75 percent of their stocks from the CSA and 25 percent from supporting ASPs.

Transportation

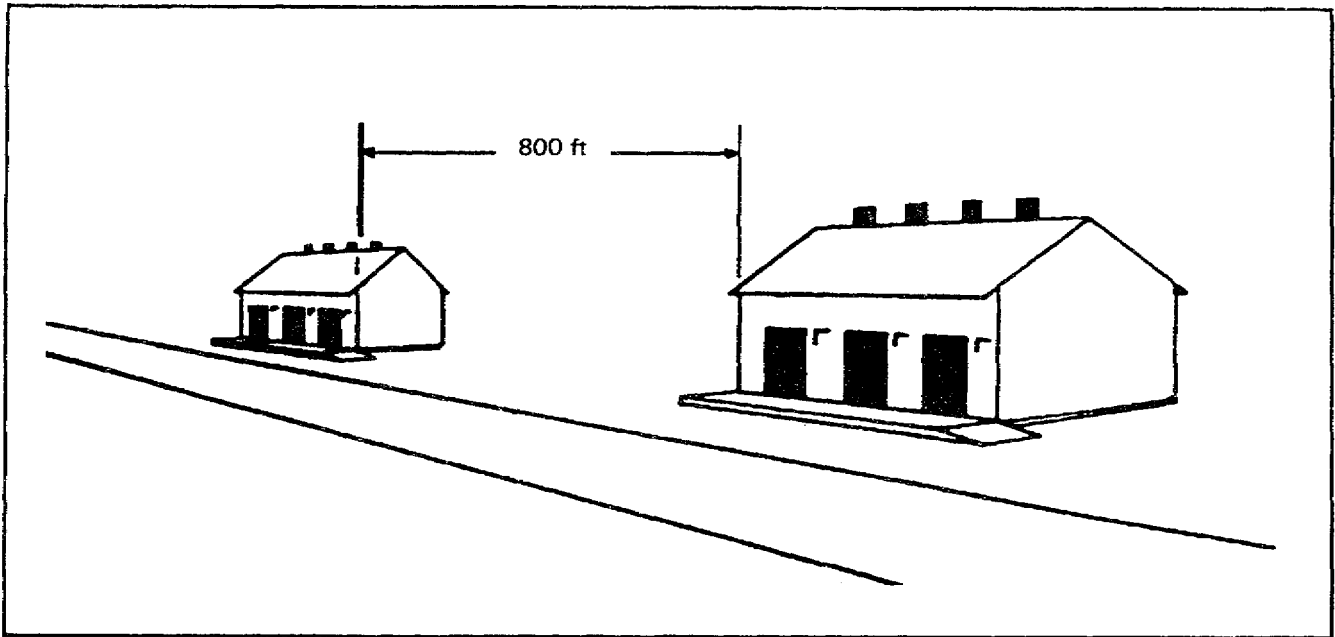
The theater provides transportation assets required for ammunition support down to the assets of using units. The mode of transportation required will depend on where the ammunition is located and the type and quantity of ammunition to be moved. Transportation units perform truck, rail, air, and water movement functions. At the TSA, all modes of transportation may be used. Once the ammunition is delivered to the ATP, the trailers minus their tractors remain at the ATP until they are emptied by using units.



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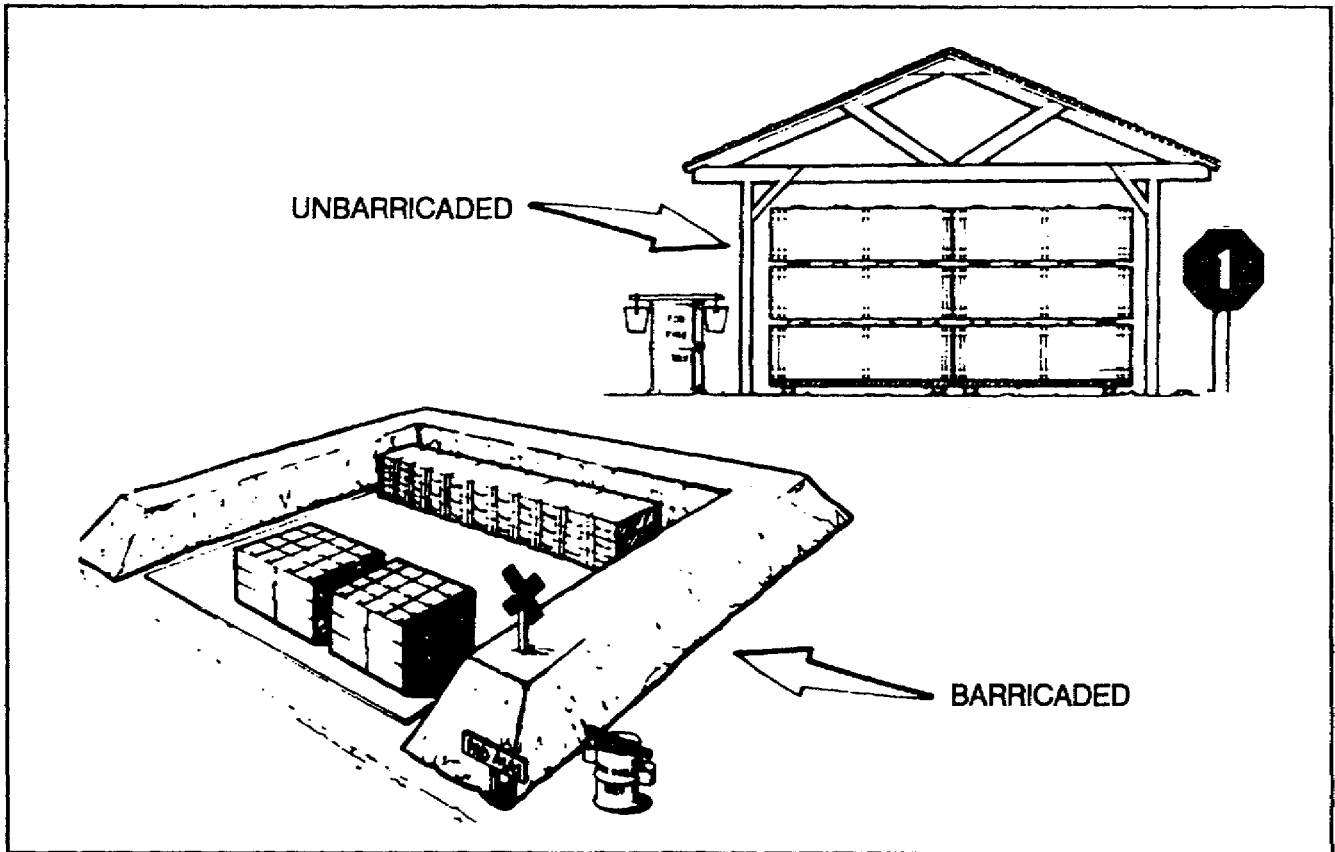
Figure 9. Earth-covered magazines.

AMC Drawing 19-48-75-5 (*Index of US Army Unitization, Storage and Outloading Drawings for Ammunition and Components*) provides a listing of approved drawings that are to be used to the maximum extent possible when dealing with the unitization, storage, and outloading of ammunition items and the loading and stuffing of container express (CONEX) and military-owned demountable containers (MILVANs). All shipments of military explosives and other dangerous items by either military or commercial carriers within the continental United States (CONUS) or outside the continental United States (OCONUS) will comply with the requirements of AR 55-355.



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Figure 10. High-explosive or black-powder magazines.



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Figure 11. Unbaricaded and baricaded outdoor storage sites.

All carriers transporting Class V assets will be inspected before and after loading for serviceability and for compliance with safety regulations. Loading must be performed according to specific outloading requirements for the mode of transport and the type of ammunition involved.

Security

Ammunition security requirements fall into two categories. Classified munitions and their components must be safeguarded to ensure that they do not fall into enemy hands. See AR 380-5 for complete information. Materiel security of explosives and ammunition ensures that Class V items do not turn up in unauthorized locations, with unauthorized users, or in situations that could cause a hazardous or unfavorable condition for the population or the Army. See AR 190-11 for complete information.

Safety

Ammunition commanders at all levels are concerned about personnel safety and the ammunition and explosive items under their control. See AR 385-64 for additional information. All personnel engaged in operations in which munitions or other hazardous materials are involved should be thoroughly trained in explosive safety aspects of the following operations:

- Storage.
- Transportation.
- Training.
- Range clearing.
- Disposal operations.
- Unauthorized possession (AR 385-64).

Accountability

The DOD and DA have always required 100-percent accountability of Class V items. To implement this requirement, the DOD and DA published regulations, directives, pamphlets, and technical and field manuals that address this subject. They also established agencies and commands, assigned managers and special teams, and developed management information systems and programs in order to oversee the ammunition program. Some of these initiatives follow:

- DOD Single Manager for Conventional Ammunition. SMCA is discussed later in this subcourse.
- Standard Army Ammunition System. SAAS is a multicommand, computerized ammunition management information system that provides uniform procedures for ammunition management at all echelons from theater to user. SAAS is discussed later in this subcourse.
- Stockpile Function Test Program. A program designed to determine functional reliability, to develop shelf and service life, and to detect trends in stockpile performance. This program is administered at AMC and major commands (MACOMs) by quality assurance specialists, ammunition surveillance (QASAS) personnel.
- Surveillance and Accountability Teams (SAATs). These teams are used in the Republic of Korea (ROK). SAATs are discussed later in this subcourse.

- Ammunition Stockpile Reliability Program. This program provides a means of evaluating the operational readiness, serviceability, safety, reliability, and performance of ammunition in the stockpile or deployed for use in combat or training. Administered by AMC agencies per AR 702-6, this program provides information necessary for decision making in the overall logistical management of ammunition-retention, maintenance, modification, or replacement.
- Quality Assurance Specialist, Ammunition Surveillance Program. QASAS personnel assigned to this program are AMC/MACOM assets.

Destruction

Disposal of ammunition is required in order to purge the distribution system of ammunition that is obsolete, excess, unserviceable, uneconomical to repair, and/or hazardous for continued storage, issue, or use. The demilitarization and disposal of Class V items are required functions at all levels of the ammunition logistics system. There are two types of destruction-routine and emergency.

Routine disposal operations are a means of eliminating unwanted munitions from the inventory by destruction. Routine destruction is accomplished in accordance with TM 9-1300-206 and the unit SOP. The objective of ED is to destroy munitions and documents of value to the enemy and render what is left too hazardous to use. ED is accomplished in accordance with TM 5-250, TM 43-0002-33, and the unit standing operating procedure (SOP).

AMMUNITION SUPPORT PROGRAM

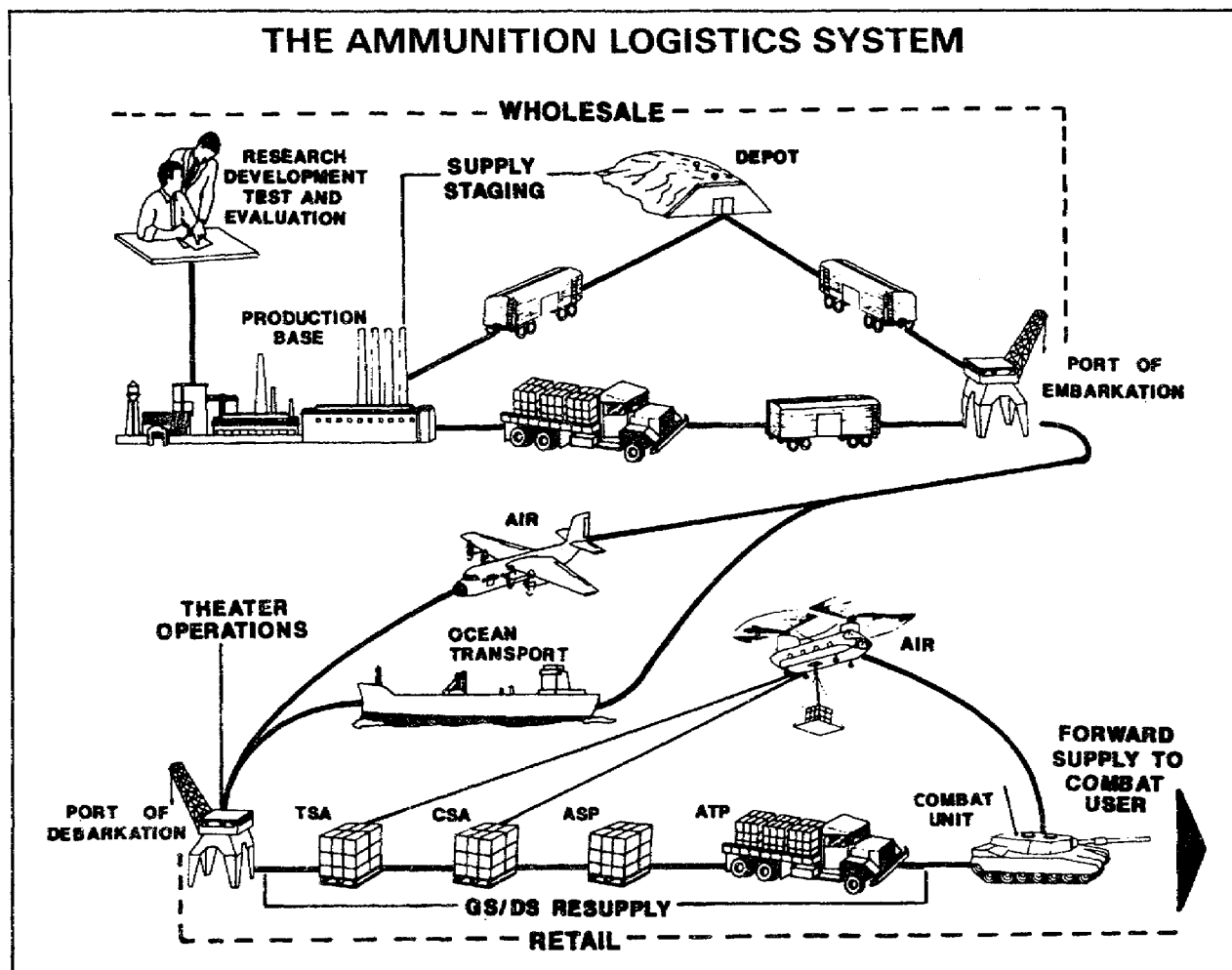
The ammunition support program is designed to provide responsive ammunition support to deployed US forces anywhere in the world. The ammunition support program is managed from the HQ DA level. This program is divided into two levels: the wholesale ammunition distribution system and the retail ammunition distribution system. See Figure 12.

Wholesale Ammunition Distribution System

The wholesale ammunition distribution system is CONUS based and managed by AMC. The primary function of the wholesale system is to receive ammunition stocks from the producers and store these stocks in CONUS. The system is made up of the following array of personnel and facilities:

- Resource managers at DOD, DA, and AMC and its subordinate commands of AMCCOM, DESCOM, and the Missile Command (MICOM).
- Ammunition plants that are government-owned, government-operated (GOGO), government-owned, contractor-operated (GOCO), and contractor-owned, contractor operated (COCO).
- Component manufacturers.
- Depot-level storage facilities.
- Transportation- and movement-control agencies.

It is through the wholesale ammunition distribution system that all conventional, chemical, and nuclear ammunition assets are produced. The assets are produced based on known or projected user



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Figure 12. Overview of the wholesale and retail ammunition distribution systems.

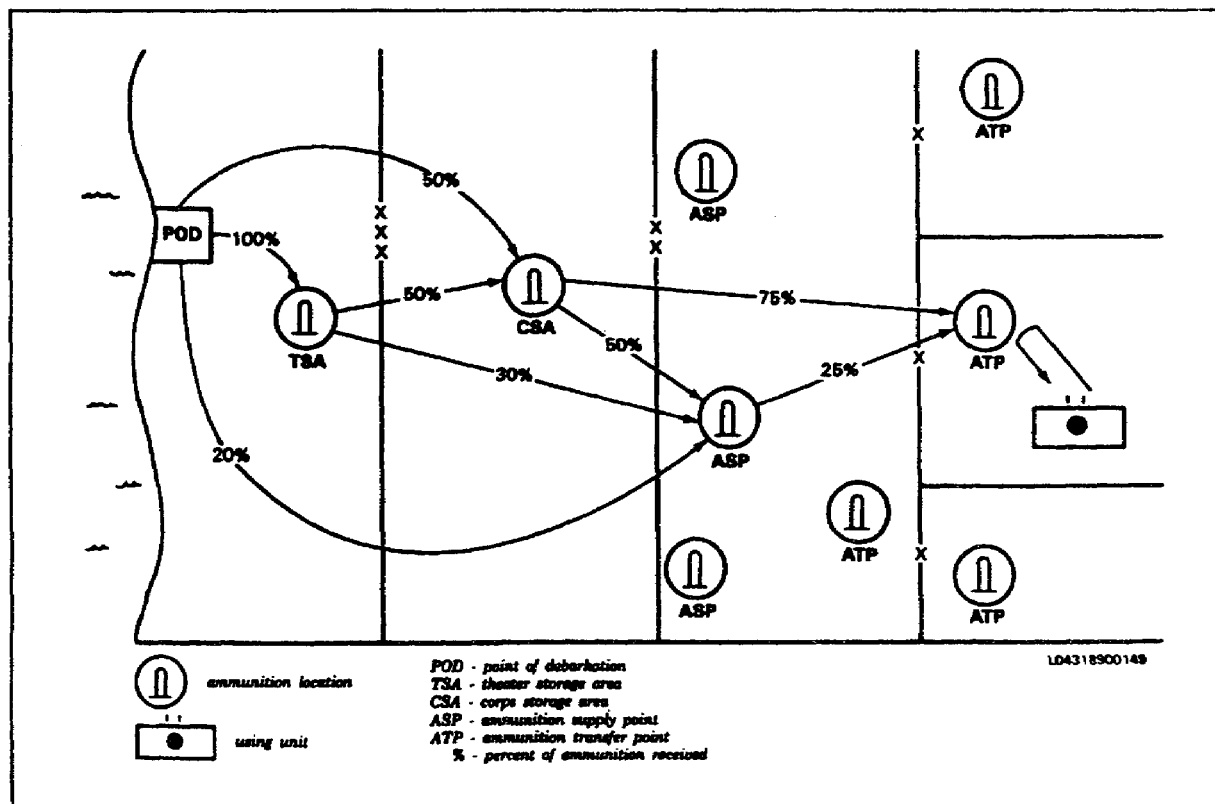
requirements. These projected user requirements. These requirements are based on projected ammunition resupply rates for new and maturing theaters and actual ammunition forecasts from mature theaters. Based on the level of deployment of US forces, these theaters may be defined as follows:

- **New Theater.** There are no US forces in the theater before the beginning of hostilities. The start of the war is designated as deployment day (D-Day).
- **Maturing Theater.** There were some US combat forces in the theater before the start of hostilities and additional forces are deployed into the theater after D-Day. In the early stages of war, the combat forces may have to rely on logistical support from host nation or third-country elements.
- **Mature Theater.** All US forces in the theater on a certain day represent the near-total forces that are planned for commitment to the theater. No additional units are planned, although individual replacements of personnel and equipment will continue to arrive.

The wholesale ammunition distribution system manages ammunition until it is shipped to OCONUS locations. When the ammunition is off-loaded at the theater's port of debarkation (POD), it enters the retail ammunition distribution system.

Retail Ammunition Distribution System

The retail ammunition distribution system includes all supply and transportation activities necessary to provide ammunition support to the using units within the TO. See Figure 13. This system is OCONUS based and is managed by the theater commander. Ammunition support includes all activities at the TSA, CSA, ASPs, and ATPs. FM 9-6 provides detailed information about the conventional and chemical ammunition support structures.



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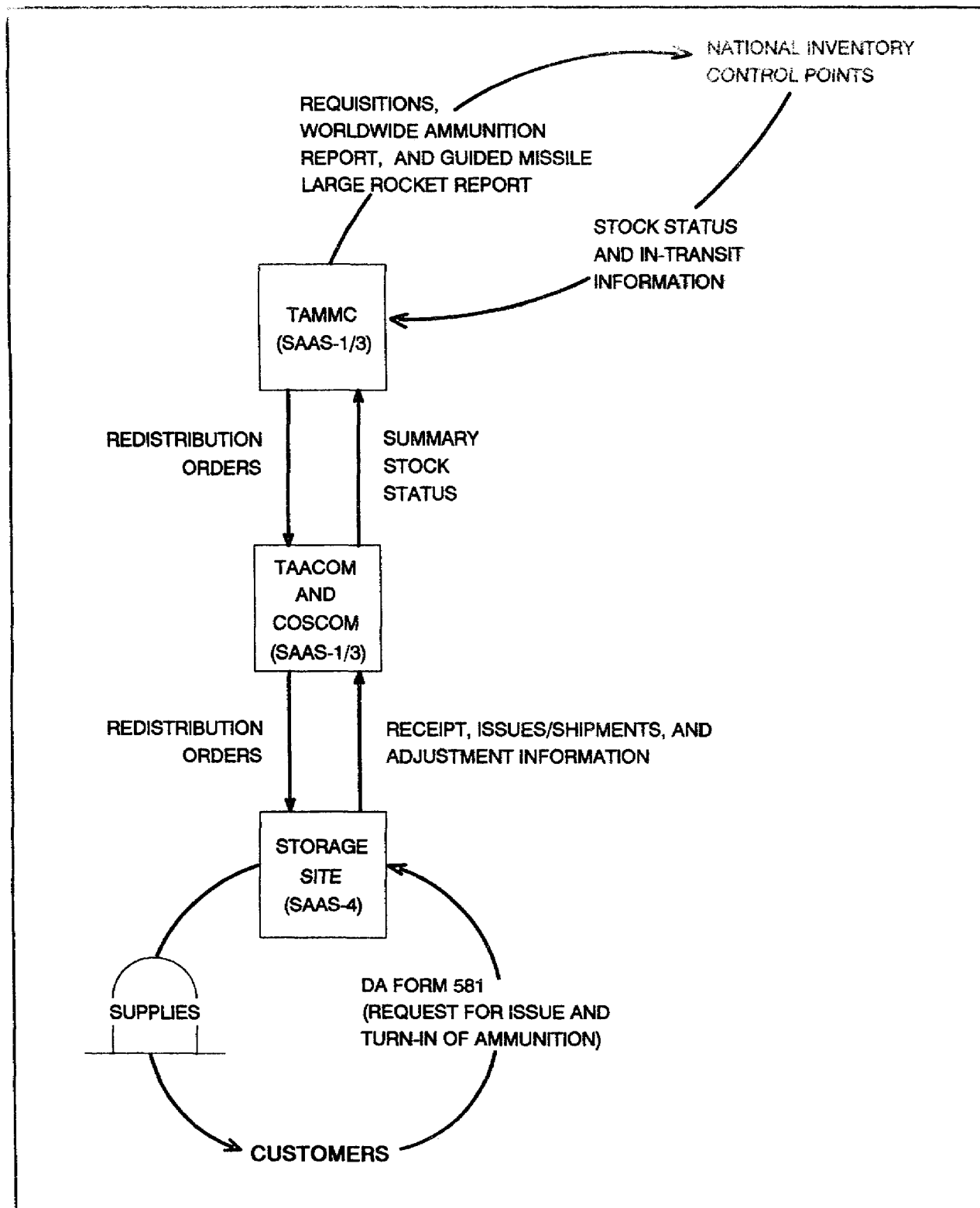
Figure 13. Flow of ammunition within the theater of operations.

Standard Army Ammunition System

SAAS is a multicommand management information system that integrates Class V management and reporting data from the ammunition storage location to the theater Army materiel management center (TAMMC). See Figure 14. SAAS is a computerized Class V stock control process designed to provide management information for conventional ammunition and guided missile and large rockets (GMLRs) and their components (repair parts) and packaging materials. Each SAAS subsystem is tailored to the peculiar requirements of the organizational level where it is used.

The SAAS level 1/3 (SAAS-1/3) subsystem located at the TAMMC supports the theater or MACOM by providing summary stock status information on total theater assets to include the following.

- Quantities on hand by Department of Defense identification code (DODIC), condition code, and location.



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Figure 14. SAAS overview.

- Quantities on order or in transit by DODIC.
- Requirements by DODIC and location.
- Status of renovation, care, P&P, and demilitarization programs.
- Information by national stock number (NSN), lot number, DODIC, and date of manufacture.

SAAS-1/3 also prepares consolidated theater input to the Worldwide Ammunition Reporting System (WARS) consolidated ammunition status report for the AMCCOM and the GMLR expenditure report for MICOM.

SAAS-1/3 (TAMMC) is located in the communications zone (COMMZ) of the theater. It is the only interface between the TO and the national inventory control point (NICP). The NICP is a part of the AMCCOM and serves as the commodity manager for all ammunition stocks worldwide. The SAAS-1/3 subsystem functions as the theater's commodity manager for the following commodities:

- Conventional ammunition.
- GMLRs, less nuclear warheads.
- Chemical munitions.
- Ammunition components for renovation programs.
- Packaging materials required for replacement of damaged items in stock and the retrograde of excess P&P materials to depot.
- Ammunition peculiar equipment (APE) (only in the ROK at this time).

SAAS-1/3 provides a Class V management capability at the corps support command (COSCOM) and the theater Army area command (TAACOM). SAAS-1/3 located at the COSCOM or at the TAACOM consolidates stock status reports from storage locations, computes authorized stockage levels, and maintains the status of ammunition on hand throughout the theater or corps area. It also provides consolidated stock status information to the theater or MACOM to support the SAAS-1/3 COSCOM/TAACOM system. SAAS-1/3 at the COSCOM or TAACOM also has the capability to perform certain SAAS-1/3 TAMMC functions, such as requisitioning and WARS reporting.

SAAS Level 4 (SAAS-4) consists of two systems, manual and automated, that have been implemented worldwide at ammunition storage points. The automated SAAS-4 system processes and performs the following ammunition functions:

- Receipts.
- Turn-ins.
- Issues and shipments.
- Adjustments to accountable records.
- Produces management information.
- Processes necessary interface information for SAAS.
- Processes Training Ammunition Management Information System (TAMIS) input requirements.

AMMUNITION MANAGEMENT

Due to national interest, ammunition management is a high priority from the DOD level down to the individual soldier. Each command or activity has its own responsibility and mission within the ammunition community.

In October 1975, the Secretary of Defense assigned the Secretary of the Army as the SMCA. The SMCA mission is to manage the full-scale procurement and production of all assigned conventional ammunition items. The objectives of this assignment are as follows:

- Achieve the highest possible degree of efficiency and effectiveness in DOD ammunition operations.
- Integrate conventional ammunition logistics functions of the military departments to the maximum extent possible.
- Maintain the integrated production and logistics base necessary to meet the ammunition requirements of peacetime, mobilization, surge, and sustained wartime operations.

To accomplish these missions, the SMCA is responsible for managing, operating, and maintaining the inventory of ammunition for the DOD. This responsibility includes the following functions:

- Inventory management of assets.
- Maintenance, packaging, and protection of assets.
- Demilitarization and disposal of assets.
- Custody of all SMCA assets.

DA is also responsible for other related areas of ammunition management to include the following:

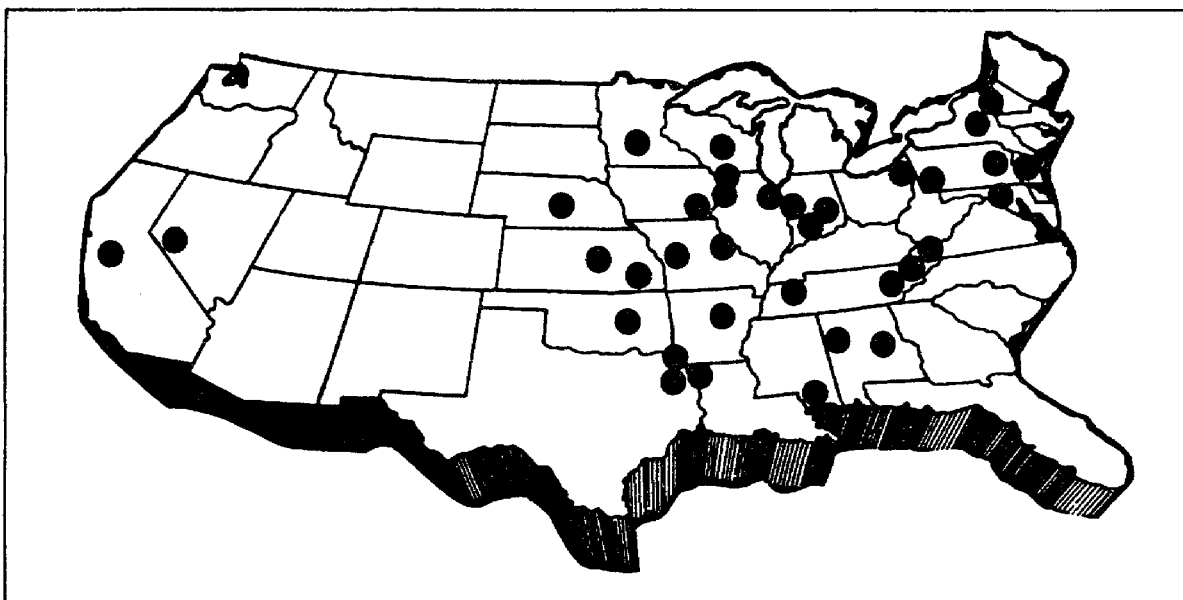
- Industrial preparedness planning.
- Transportation and traffic management.
- Quality assurance.
- Modernization and expansion of ammunition installations and facilities.
- Retail asset stratification data.

MAJOR CONUS COMMANDS

Army Materiel Command

The AMC is responsible for all Army materiel development activities. This responsibility extends throughout the ten classes of supply. AMC's mission in support of Class V-related items is to equip and sustain a trained, ready Army; to provide equipment and services to other nations; and to define, develop, and acquire technologies for continued modernization (R&D). To accomplish this mission, AMC relies on three of its 13 commodity commands—AMCCOM, DESCOM, and MICOM.

AMCCOM. AMCCOM serves as the primary field operating agency for accomplishing the SMCA mission. It consists of 38 subordinate installations and activities located in 25 states. See Figure 15, Page 22. To support R&D, AMCCOM has two research, development, and engineering centers.



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Figure 15. AMCCOM installations and activities.

The US Army Armament Research, Development and Engineering Center (ARDEC) is located at Picatinny Arsenal, New Jersey. ARDEC is responsible for the research, development, and life-cycle engineering of all assigned armament and munitions systems and materiel.

The US Army Chemical Research, Development and Engineering Center (CRDEC) is located at Aberdeen Proving Ground, Maryland. CRDEC is responsible for the research, design, development, and life-cycle engineering of chemical weapons.

To support manufacturing of assigned materiel, AMCCOM has three arsenals. See Figure 16.

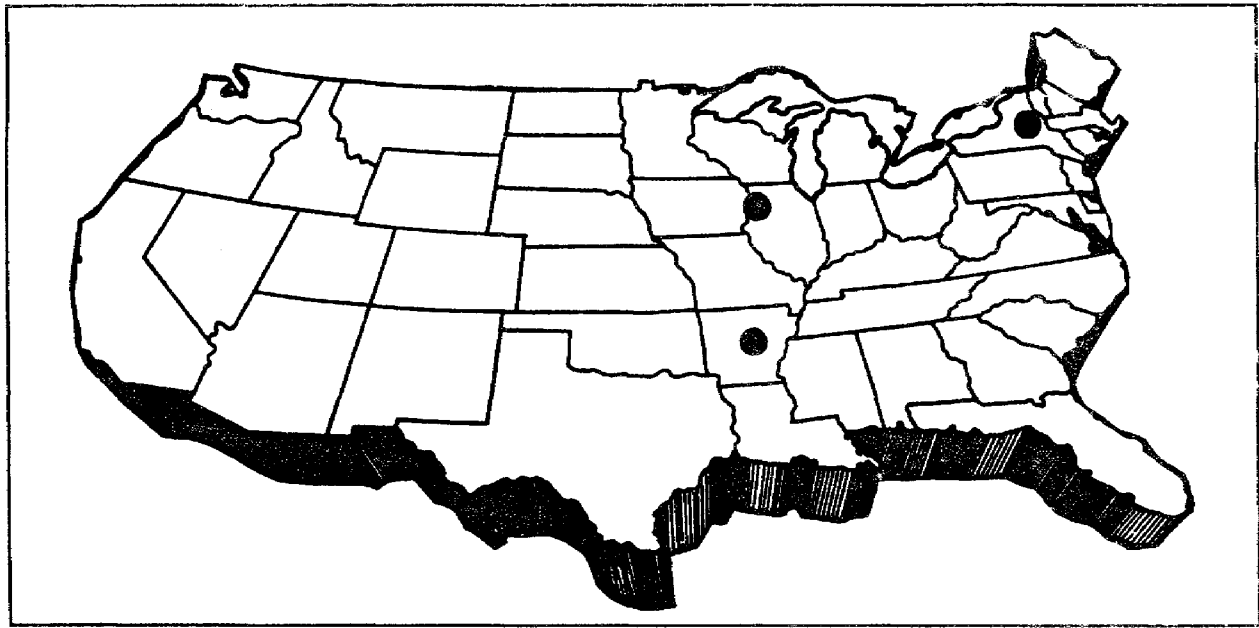
Watervliet Arsenal located at Watervliet, New York, is responsible for the production of all cannons used by the DOD. These cannons range in size from the 20mm up to the massive 16-inch guns used on the USS *Iowa* and USS *New Jersey*. Watervliet also produces the 60mm, 81mm, 4.2-inch, and 120mm mortars; all tank guns from 105mm to 120mm; and artillery howitzers from 105mm to 8-inch.

Pine Bluff Arsenal located at Pine Bluff, Arkansas, is responsible for the production of chemical munitions. It has the only white phosphorous (WP) munitions filling facility in the US. Pine Bluff also produces and renovates the various protective masks that are used by all of the military services. It also has a binary chemical production facility.

Rock Island Arsenal located at Rock Island, Illinois, is the largest weapons manufacturing arsenal in the free world. It produces recoil mechanisms and gun mounts for most Army and Marine Corps weapons. Rock Island also assembles most of the Army's common and special toolkits and related items.

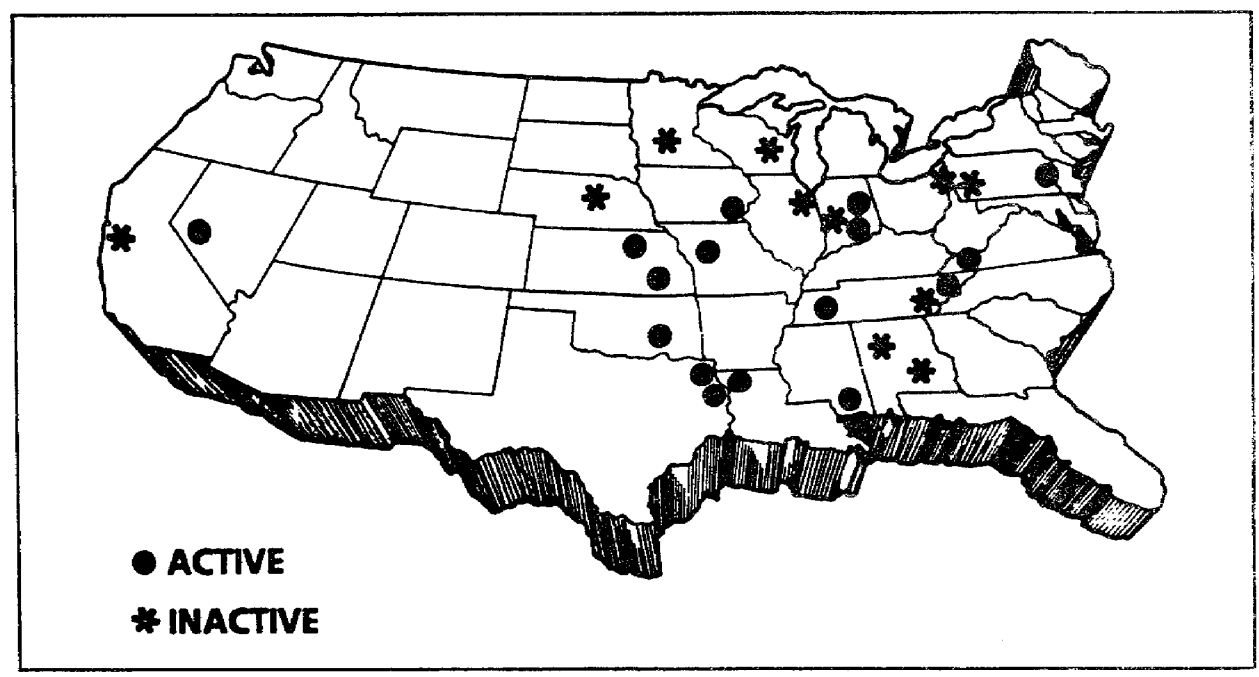
Additionally, AMCCOM has 30 ammunition plants (Figure 17) and three ammunition storage facilities (Figure 18). These storage facilities are located at Crain Army Depot, Indiana, McAlester Army Depot, Oklahoma, and Hawthorne Army Depot, Nevada. The other storage locations shown in Figure 18 are DESCOM storage depots.

DESCOM. DESCOM, headquartered at Chambersburg, Pennsylvania, is responsible for storing all Class V assets in CONUS (minus AMCCOM assets). See Figure 18, Page 24.



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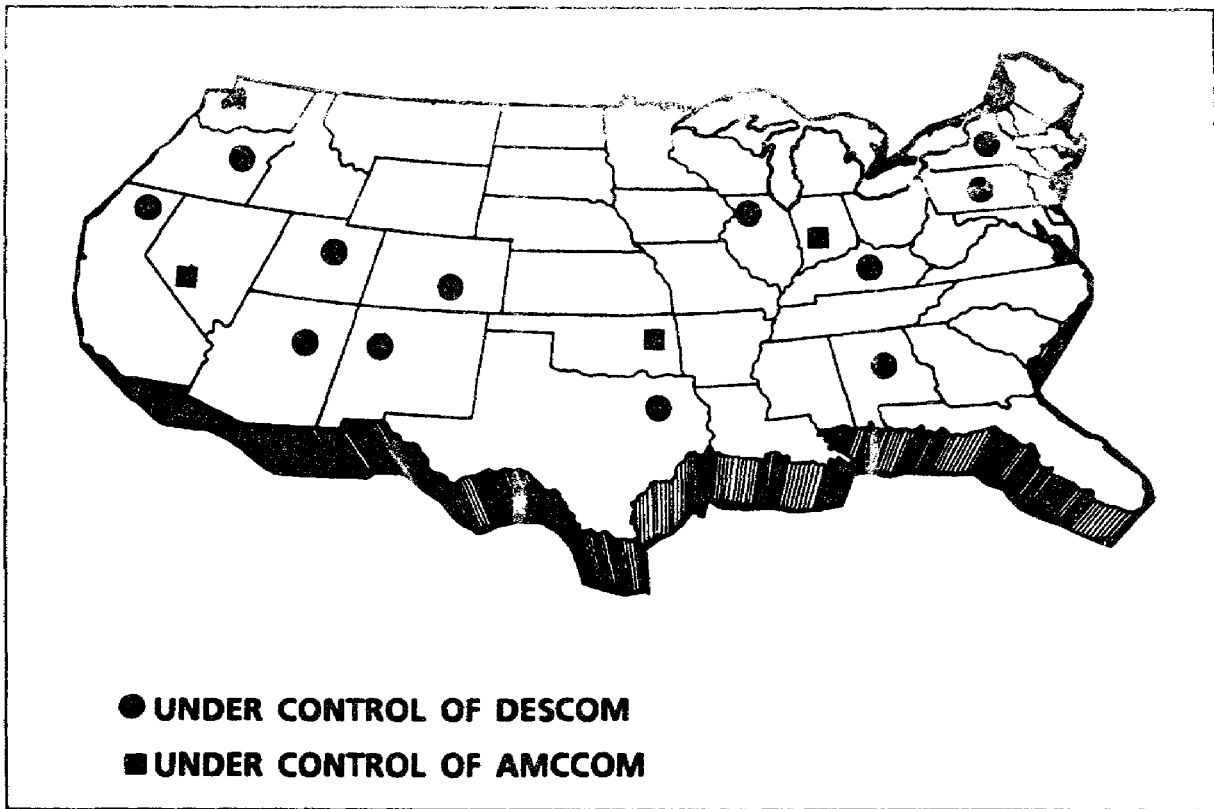
Figure 16. AMCCOM arsenals.



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Figure 17. AMCCOM ammunition plants.

MICOM. The MICOM located at Redstone Arsenal, Alabama, is responsible for developing all rockets to include the 2.75-inch rocket and the MLRS rocket, all guided missile systems used by the Army and the Marine Corps, and directed-energy weapons systems (DEWS).



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Figure 18. Ammunition storage locations.

US Army Training and Doctrine Command

The US Army Training and Doctrine Command (TRADOC) is responsible for all technical training, less US Army Forces Command (FORSCOM) training. The primary TRADOC service school for missile and munitions training and doctrine is the US Army Ordnance Missile and Munitions Center and School (USAOMMCS) located at Redstone Arsenal, Alabama. USAOMMCS is responsible for the following training:

- Ammunition logistics training:
 - Officer basic and advanced courses.
 - Warrant officer basic and advanced courses.
 - Enlisted 55B MOS course.
- Explosive ordnance disposal (EOD) training.
 - Officer EOD course (technical portions).
 - Enlisted MOS 55D EOD course.
 - EOD training at the EOD Center for Technology and Training, USAOMMCS, Redstone Arsenal, Alabama. EOD training at Army EOD Training Detachment #2, Eglin Air Force Base, Florida.
 - EOD training at Army EOD Training Detachment #1, US Navy EOD School, Indian Head, Maryland

- Missile maintenance training.
 - Officer basic and advanced courses.
 - Warrant officer basic and advanced courses.
 - Enlisted career management field (CMF) 24 and 27 courses.
 - Enlisted MOS 35Y (Intermediate Forward Test Equipment [IFTE]) course.

USAOMMCS is also the proponent for MOS 35H (Test, Measurement, and Diagnostic Equipment [TMDE]) training at Lowry Air Force Base, Colorado.

US Army Forces Command

FORSCOM has command and control of all active and reserve component Army units and personnel in CONUS. FORSCOM also provides all ammunition, missile maintenance, and EOD personnel and units on a worldwide basis.

MAJOR OCONUS COMMANDS

The Army's OCONUS retail ammunition distribution system is managed either by theater support commands or by TAMMCs.

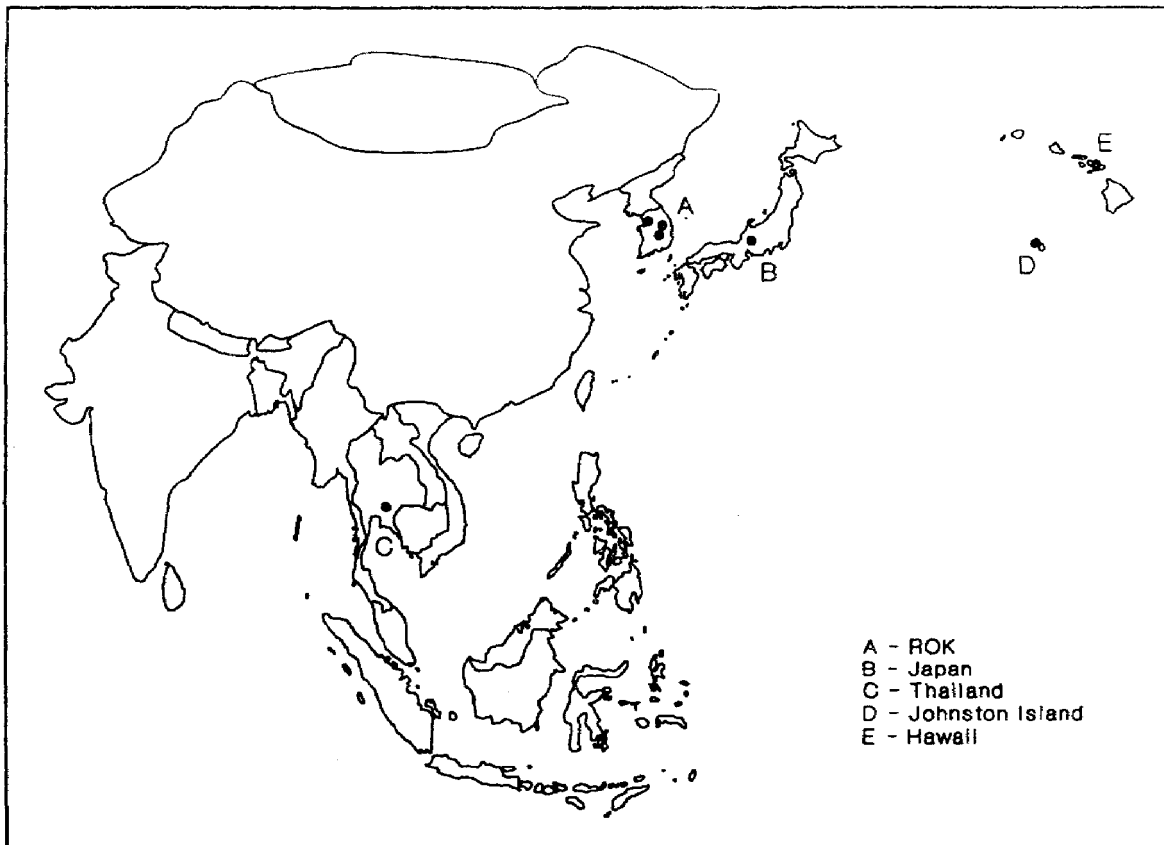
Pacific Area

US Pacific Command (USPACOM) and the US Army Central Ammunition Management Office—Pacific (CAMO-PAC) jointly manage all ammunition assets in the Pacific Theater. See Figure 19, Page 26. These assets consist of training ammunition, unit basic load (UBL), and prepositioned war reserves (PPWRs). The Pacific Theater includes the following areas:

- ROK.
- Japan.
- Thailand.
- Johnston Island.
- Hawaii.

The 19th Support Command controls all US Class V assets stored in the ROK. The US provides SAATs made up of US military and civilian ammunition personnel to work with ROK ammunition personnel. See Figure 20, Page 27. This task is accomplished by using the following two initiatives:

- The joint US and Korean Ammunition Management System (KAMS).
- The joint US and Korean Single Ammunition Logistics System—Korea (SALS-K) agreement. Under this agreement, the ROK provides the following support:
 - Storage.
 - Maintenance and P&P.
 - Receipt and issue.
 - Transportation.
 - Disposal of all US assets in ROK,



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Figure 19. Ammunition assets in USPACOM.

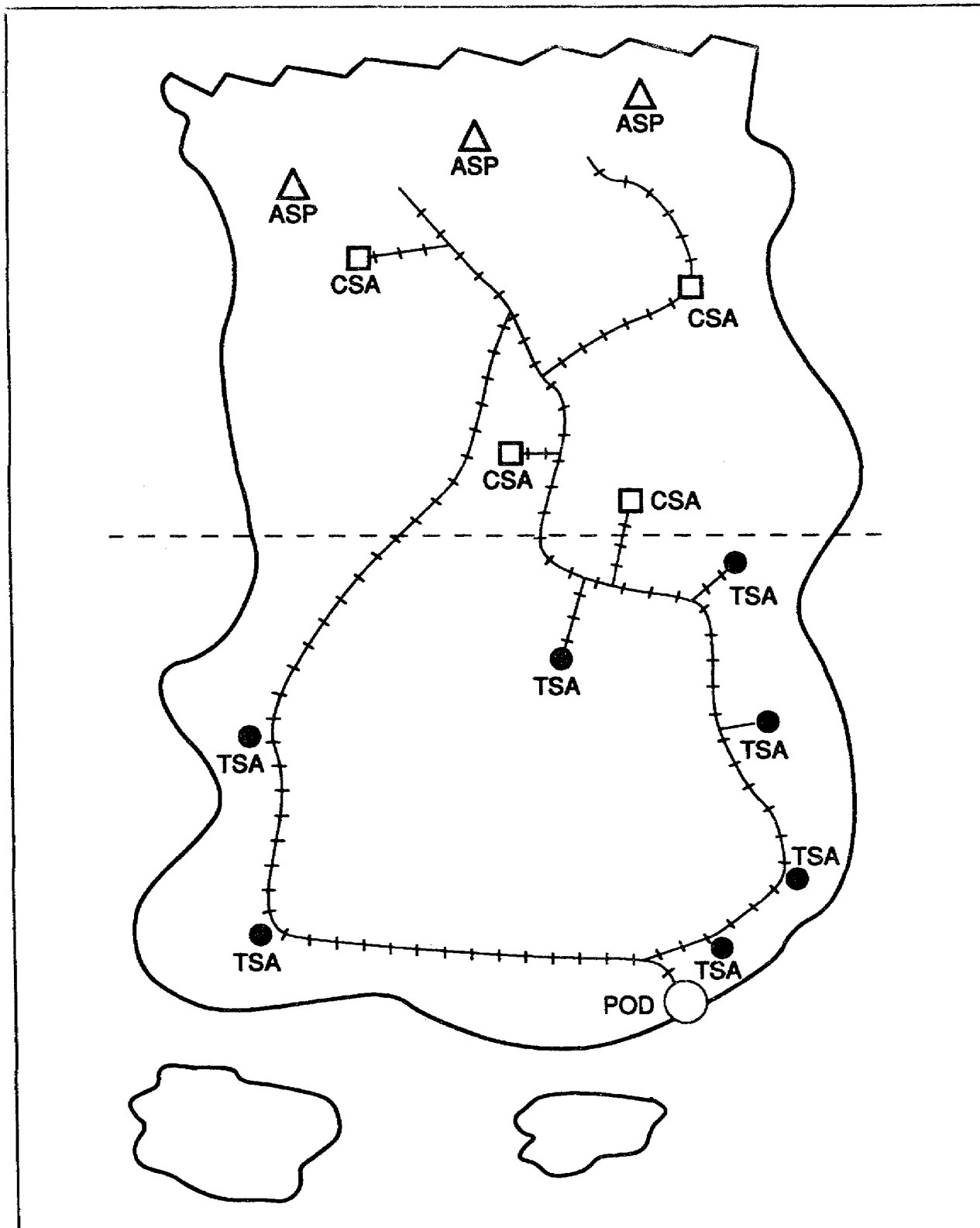
US Army, Japan (USARJ) located at Camp Zama, Japan, is responsible for munitions materiel management, QA, maintenance, and storage of war reserves in support of US Army forces in the ROK and throughout the theater. Akizuki Army Depot located at Akizuki, Japan, conducts depot-level maintenance for USPACOM and AMC's CAMO-PAC stocks.

European Area

US Army Europe (USAREUR) and the US European Command (USEUCOM) jointly control all ammunition assets in Europe. See Figure 21, Page 28.

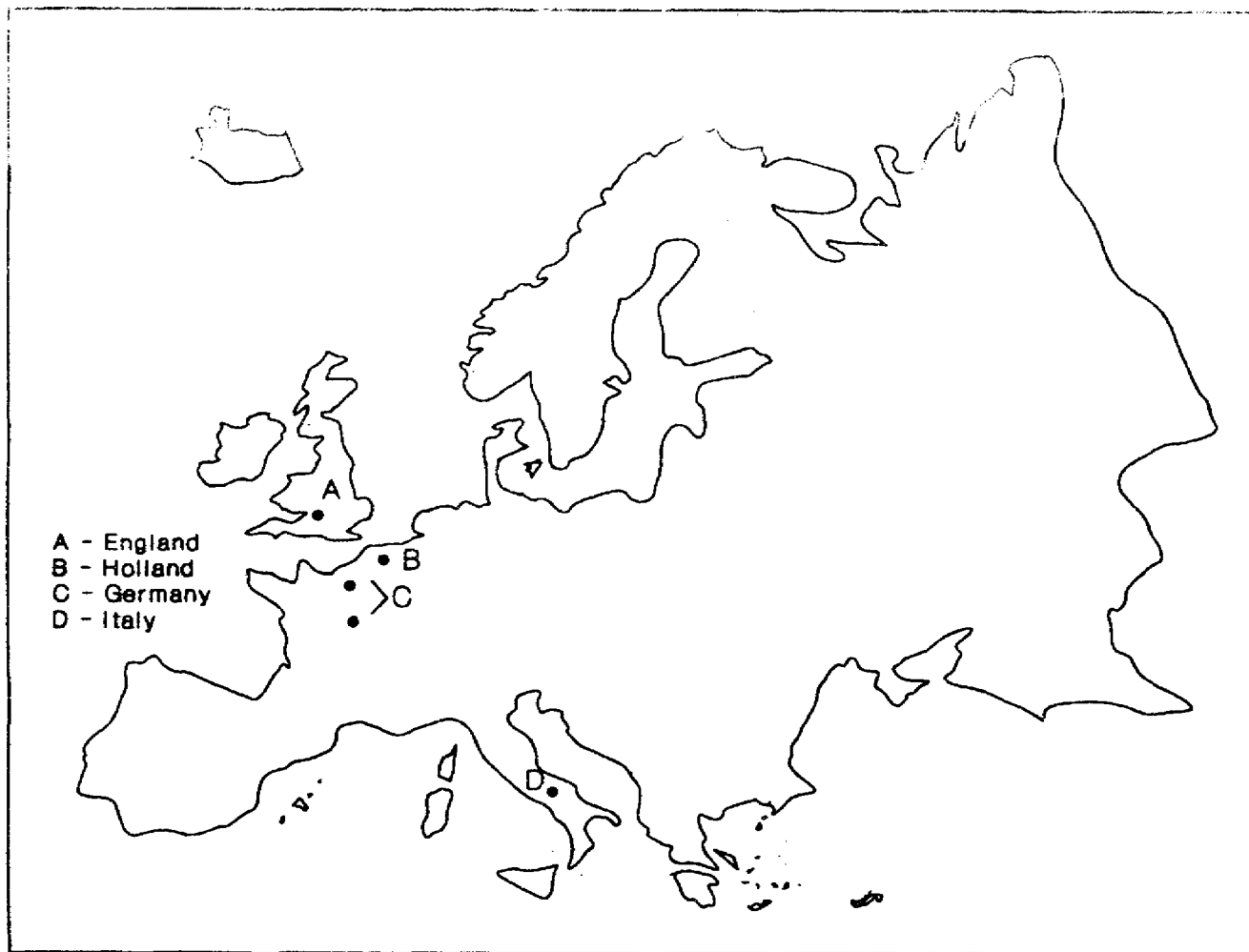
USAREUR (200th TAMMC) manages all ammunition facilities and assets in Europe. USAREUR facilities are operated by Army, civilians (DAC), and host-nation support personnel. Ammunition assets in the European Theater consist of training ammunition, UBL, PPWRs, and prepositioning of materiel configured to unit sets (POMCUS). These assets are stored in facilities located in the following countries:

- England.
- Holland.
- Germany.
- Italy.



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Figure 20. US/ROK ammunition support system.



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Figure 21. Ammunition assets in USAREUR.

LESSON PRACTICE EXERCISE

The following exercise will test your grasp of the material covered in this subcourse. There is only one correct answer for each item. When you have completed the exercise, check your answers with the answer key that follows. If you answer any item incorrectly, study again that part of the lesson that contains the portion involved.

1. At what level(s) do wholesale ammunition distribution operations occur?
 - A. At the foreign military sales (FMS) and other allied sales levels.
 - B. At the CONUS level.
 - C. At the CONUS and OCONUS levels.
 - D. At the TRADOC and FORSCOM levels.

2. For which items or systems is MICOM responsible?
 - A. Rockets, guided missiles, and DEWS.
 - B. All rockets, rocket-assisted bombs, and projectiles.
 - C. All guided missiles, rockets, and TMDE.
 - D. All types of munitions systems.

3. Which items are Class V assets?
 - A. All weapons, ammunition, and required petroleum, oils, and lubricants (POL) items.
 - B. Ammunition and POL items only.
 - C. Ammunition and ammunition components only.
 - D. All wholesale, FMS, and retail assets.

4. What is the mission of the SMCA?
 - A. To equip and sustain a trained, ready Army.
 - B. To manage the full-scale procurement and production of all assigned conventional ammunition.
 - C. To serve as the DOD Class IV, Class V, and Class IX manager.
 - D. To serve as the AMC Class V and Class IX manager.

5. Which are systems of the ammunition support program?
 - A. FMS, PPWR, and UBL.
 - B. UBL, PPWR, POMCUS, and wholesale distribution.
 - C. Wholesale distribution, FMS, and POMCUS.
 - D. Wholesale and retail distribution.

LESSON
ANSWER KEY AND FEEDBACK

Item Correct Answer and Feedback

1. B. At the CONUS level. (Page 16)
2. A. Rockets, guided missiles, and DEWS. (Page 23)
3. C. Ammunition and ammunition components only. (Page 2)
4. B. To manage the full-scale procurement and production of all assigned conventional ammunition. (Page 21)
5. D. Wholesale and retail distribution. (Page 16)