

1.0. Introduction.

Once our forces are committed to combat, the tactical commander relies heavily on Class V support to directly influence the outcome of battle. The Division Support Command (DISCOM) Division Ammunition Officer (DAO) manages the division munitions stocks and provides technical assistance to the division units. In peacetime, training munitions management is of primary concern for cost-effective training. In wartime, munitions management is essential to accomplish the tactical mission and to preserve lives. This lesson will discuss the procedures for computing Army pre-positioned stocks, how to verify unit basic load (UBL); and how to compute supply rates. This lesson also discusses monitoring ammunition transfer point operations; the staff relationships of Materiel Management Center Class V Sections, and how to manage munitions during stability and support or combat operations.

2.0. The Division Materiel Management Center (DMMC).

This section of the lesson discusses the mission, organization, and functions of the DMMC.

2.1. DMMC Mission.

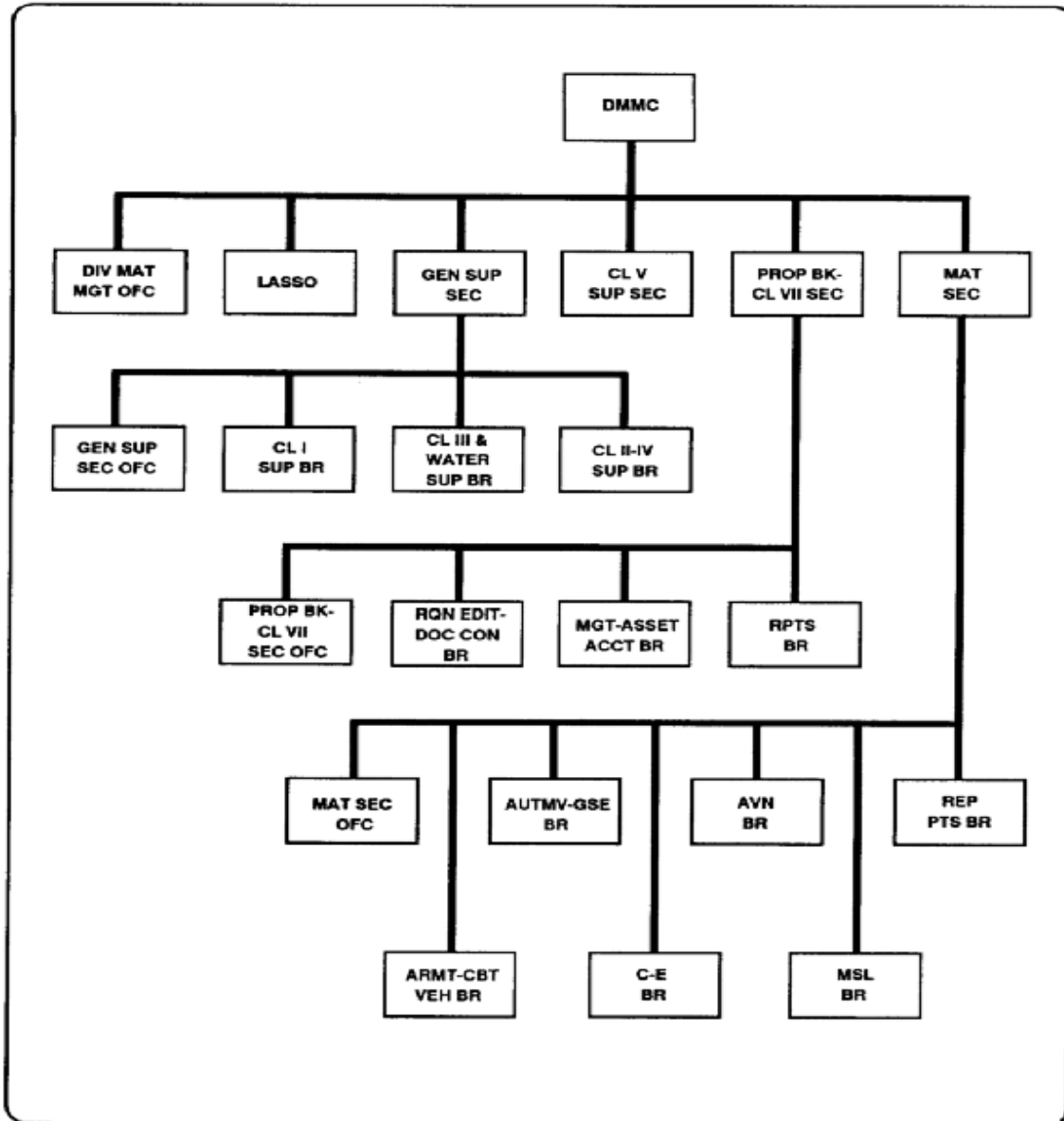
The mission of the DMMC is to provide division units with centralized and integrated materiel management for Class I, II, III, IV, V, VII, and IX supplies and maintenance. Class II supplies include unclassified map supply and communications-security software aids. To accomplish its mission, the DMMC:

- Determines requirements for the development and technical supervision of division authorized stockage lists. Requirements are determined in accordance with AR 710-2, associated pamphlets, and pertinent automated systems users manuals.
- Requisitions all authorized supplies needed by the division and manages their distribution upon receipt in the division area.
- Manages the division master property records. It establishes and maintains a centralized division property book for all divisional units.
- Manages the maintenance work load of corps reinforcing maintenance units and MSTs in support of the division, when located in the division area.
- Manages the division Class IX (repair parts) supply system.
- Manages DISCOM maintenance operations.

2.2. DMMC Organization and Functions.

The organization of the DMMC is shown in Figure 1. This center manages materiel of the division and advises the DISCOM commander and staff concerning supply and maintenance matters. It provides materiel management for weapon systems, implements maintenance priorities, and coordinates and controls supply functions to meet the operational need of the division.

Figure 1. DMMC



2.3. Division Material Management Office.

The division materiel management office is the supervisory element of the DMMC. This office plans, directs, and supervises the center's operations, administration, employment, training, and discipline. The following DISCOM functions are prescribed for the center:

- Ensuring that DISCOM SOPs contain uniform procedures for supply records and reports.
- Coordinating with the DISCOM S2/S3 on locations of supply distribution points.
- Coordinating with logistics operators on supply and maintenance matters in support of future operations.
- Providing supply management data to the DISCOM S2/S3 in support of logistics operations.
- Preparing or reviewing and approving detailed plans and policies for supply and maintenance operations from a management point of view. This is done based on guidance received from the DISCOM commander and the G4.
- Maintaining, with ADP support, the division materiel management status profile.
- Providing continuous information in coordination with the DISCOM S2/S3 in support of DISCOM logistics operations.
- Advising the commander on the status of maintenance and repair parts.
- Directing and coordinating the technical assistance program.

2.4. Logistics Automation Systems Support Office.

The LASSO provides data processing equipment and services for the DMMC. It also advises the DMMC chief and staff on automated data processing (ADP) matters. It manages day-to-day automation operations of the DMMC. The LASSO is responsible for:

- Resolving systems problems and managing daily operations of the ADPE.
- Receiving, distributing, and controlling customer input and output to ensure proper processing in accordance with established procedures.
- Processing and controlling documents received from storage sites, support units, and DMMC elements.
- Performing data reduction and cycle breakdowns.

- Performing automatic data reduction for internally generated manager directions for issues, off-line receipts, local procurement actions, local catalog updates, inquiries, file changes, and post-post operations.
- Managing processed data and organizing and manipulating unprocessed data before processing.
- Performing service support functions that require distribution of incoming documents.
- Supporting and maintaining TACCS.
- Ensuring proper utilization of data processing equipment.
- Determining changes in processing as required.
- Verifying return data and maintaining hard-copy documentation of an audit nature required by AR 710-2.
- Transporting and receiving data and reports from the telecommunications center (transceiver site) and data processing detachment.
- Establishing and coordinating schedules of supply cycles with data processing operations personnel.

A system support element is being designed to replace the LASSO once the objective systems are fielded. It will provide support for logistics software packages run on microcomputers.

2.5. General Supply Section.

The general supply section coordinates and supervises supply management for water and Class I, II, III, and IV supplies in support of the division. The section does not manage classified maps, aircraft, airdrop equipment, or COMSEC equipment. It determines requirements and recommends priorities, allocation, and other controls. It provides advice on the receipt, storage, and distribution of Class I, II, III, and IV supplies. It also establishes and maintains files of all supply publications and regulations required to support section activities. It also provides catalog research and retrieval service. It develops requirements for current and contingency operations. It also analyzes and assists in the development of the supply portion of logistics operations or administrative orders. The general supply section consists of a general supply section office, a Class I supply branch, a Class II-IV supply branch, and a Class III and water supply branch.

2.6. General Supply Section Office.

The general supply section office is responsible for planning, directing, and supervising the section operations. Specific duties center on the managing of Class I, II, III, and IV supplies.

2.6.1. Class I Supply Branch.

The Class I supply branch performs manual stock control of Class I supplies and free issue of sundry items. It develops unit and division basic load data. The Class I supply branch plans and prepares for the procurement, receipt, accountability, storage, and issue of subsistence supplies. It plans, coordinates, and supervises the Army's subsistence supply system and is accountable for all Class I supplies for the division.

2.6.2. Class II-IV Supply Branch.

The Class II-IV supply branch performs automated stock control for expendable and durable division Class II, III (packaged), and IV items stocked and supplied by the operating units of the DISCOM. It manages and supervises Class II (including unclassified map resupply) and IV expendable and durable items. The branch is responsible for all expendable Class II, III (packaged), and IV supplies in division ASLs. The Class II supply branch typically:

- Performs stock record functions pertaining to receipt, distribution, and issue of construction materials.
- Maintains accurate stock records and replenishment of ASL stockage.
- Manages the supply or replacement of mission support items and division special project items.
- Manages map ASL requirements for contingency operations and for current operations.
- Coordinates resupply of industrial gases.
- Provides liaison with the map supply point in the MSB.
- Is responsible for Defense Personnel Support Center related supplies and the supply of unclassified maps.

2.6.3. Class III and Water Supply Branch.

The Class III and water supply branch controls and manages the supply of bulk fuel to division elements. It also determines requirements, recommends priorities, and manages allocations for bulk fuel. The branch also manages water distribution in an arid environment. Typically, the branch:

- Directs the acquisition, storage, inspection, testing, issue, and distribution of bulk fuel.
- Directs preparation of reports and maintenance of records pertaining to bulk fuel accounting and distribution.
- Supervises the acquisition, storage, inspection, testing, issue, and distribution of water.

2.7. Class V Supply Section.

The Class V supply section maintains records of munitions allocations, receipts, quantities on hand at ATPs, and expenditures for division units. It coordinates activities of ATPs and provides technical assistance and advice on munitions management to division units. Class V is one of the most critical classes of supply. These supplies must be provided at the right time and place to enable the division to win the battle. The Class V section of the DMMC keeps records on munitions so that Class V supplies are available when and where needed. These records include allocations, credits, debits, and expenditures for all division units. They include basic loads, training munitions, CSRs, RSRs, and other necessary data. The Class V supply system is a continuous refill system. Stocks issued to the user are replaced by stocks moved up from the rear area.

The DAO serves as chief of the Class V supply section. The DAO is the division manager for munitions. This officer provides assistance in all matters pertaining to munitions support to the division. He also represents the DMMC and DISCOM commander on matters pertaining to munitions requirements and availability. The DAO maintains liaison with the division G3 and G4 within limits defined by the DISCOM commander and the DMMC chief. On routine matters, the DAO usually deals directly with the G3 and G4, keeping the DMMC chief and the DISCOM commander informed. In cases having major impact on the DISCOM mission, the DAO obtains the approval of the DISCOM commander and the DMMC chief before taking action.

The DAO coordinates and controls the use of Class V supplies for the division. He monitors required supply rates as provided by the G3. He enforces controlled supply rates determined by the G3 and G4. He also approves munitions requirements for users. The DAO also provides staff coordination for the operations of the ATPs. This includes the DS ammunition company ATP operated by the corps DS ammunition supply company. He maintains liaison with the supporting munitions supply points, the corps storage areas, and the COSCOM MMC.

For RSRs, the DAO provides technical advice concerning types, correct nomenclatures, and DODACs. Quantity requirements for RSRs are computed by the tactical commanders based on the tactical mission of the division. The G3 consolidates the RSRs. After approval of the G3, RSRs are forwarded through channels to the next higher command. The corps informs the division G4 and DISCOM commander of the approved supply rates received from higher headquarters and any CSRs imposed. The DAO then coordinates resupply in conformance with the CSRs.

The G3 and the DAO must also be informed of the corps artillery unit's RSR and CSR. These munitions requirements must be incorporated into the fire support plans. These will also be used to determine the quantity of munitions support required from the ATPs.

Specific duties of the Class V supply section are:

- Monitoring the safety, serviceability, maintenance, and security of munitions assets in the division.
- Observing and assisting in investigations on munitions malfunctions concerning division weapon systems.
- Providing liaison support to the explosive ordnance disposal team whenever EOD assistance is required.
- Providing technical assistance on munitions supply, transportation, handling, and storage.
- Coordinating the operation of the ATPs and controlling the issue of munitions in the BSA and DSA.
- Ensuring that the ATPs do not have excessive numbers of vehicles or trailers loaded with munitions.

2.8. Property Book-Class VII Section.

The property book-Class VII section maintains the consolidated division property book. It also manages the Class VII items stocked and supplied by operating units of the DISCOM. It establishes working boundaries for the automated process and directs execution. It maintains division property books and transaction registers. This section receives supply transaction documents and verifies, records, and processes data for the division property book. It manages the hand-receipt accounts and processes reports of survey and statements of charges. It assists in equipment status reporting. In addition, it manages the division Class VII assets and Class II and IV nonexpendable supplies.

2.8.1. Property Book-Class VII Section Office.

This office supervises and controls all input and output from automated processes supporting the property book system. This office also coordinates the supply transaction documents. It verifies, records, and processes data for the division property book.

2.8.2. Requisition Edit-Document Control Branch.

This branch receives, records, and verifies data entered on supply transaction documents. This information is received as input for processing by the division's decentralized mobile computer. It also receives all printed listings and machine-produced cards as output from the LASSO. These are distributed within the division property book office and to units of the division. This branch controls all input and output from the automated processes that support the property book system. Once RPBS-R and SARSS-2A are fielded, the edit function will be performed automatically.

2.8.3. Management-Asset Accounting Branch.

This branch manages the hand-receipt accounts for division units. It processes unit requests for issue and turn-in of organizational property and hand-receipt annex items. It also processes all data input to the division property book. It evaluates and acts on cards and listings produced as output from the computer. In addition, it identifies, reports, and makes recommendations on redistribution of excess property. The branch provides for seven property book teams. Each consists of a property book technician, a supply accounting sergeant, and two supply accounting specialists. The branch also provides input to the G4 to develop Class VII requirements for contingency operations. This branch also assists in the development of the Class VII supply portions of administrative orders. It provides a catalog research and retrieval service. It coordinates the return to supply channels of excess end items as well as coordinates equipment processing with the FSBs and MSB.

2.8.4. Reports Branch.

This branch processes reports of survey and statements of charges and similar documents. It assists in equipment status reporting.

2.9. Materiel Section.

The materiel section of the DMMC manages repair parts supply and maintenance. It designs and manages the division Class IX inventory and directs the Class IX issue. This section also requisitions supplies through the COSCOM MMC.

The materiel section manages Class IX supply and maintenance for all items of materiel, less medical and COMSEC. It oversees the document control and edit functions. This section supervises its branches in providing integrated materiel management on a materiel-systems basis using DS4 and SAMS procedures. Its management is limited to the maintenance functions that

are generally external to the MSB, FSBs, and AMCO. These functions include the monitoring of unit maintenance throughout the division. The section also collects, analyzes, and reports maintenance statistics and keeps records on the status of MWOs. It compiles reports on the operational status of division equipment and provides disposition instructions on unserviceable materiel.

One of its primary functions is to plan future maintenance requirements based on information from the DISCOM and division staffs. Maintenance management functions such as planning, scheduling, and supervising internal procedures and maintenance operations are the responsibility of the MSB and FSBs. The section uses the SAMS as a tool for developing data and reports for maintenance management. The SAMS includes a maintenance control system and MWO accounting procedures. Data to support the SAMS are provided from using organizations, maintenance units, and the US Army Materiel Command. The data are summarized and prepared in the form of reports. These reports are used for management purposes by supported units, maintenance unit commanders, the DMMC, and the DISCOM commander and staffs.

Each systems-oriented branch manages designated materiel systems end items and selected Class IX items that are critical or maintenance significant to the operational readiness of those systems. Each branch:

- Recommends maintenance data requirements and report formats.
- Implements ADP collection procedures and supervises the operation of the maintenance reporting system.
- Analyzes data and reports (automated and manual). This is done to recognize trends, problem areas, and any other data that create a need for action by the maintenance units and staff elements.
- Compiles special reports on the status of division equipment.
- Assists in developing policies and plans for controlling and managing data and reports and suggesting corrective actions.
- Provides disposition instructions for unserviceable items of equipment that exceed the repair ability or capacity of maintenance support units. This is done together with the property book-Class VII section. Working closely with the DISCOM movements control office, each branch develops transportation requirements for removing such items for the division area.
- Develops maintenance plans to support projected combat operations. This is done by coordinating with the maintenance units and staffs.
- Monitors unit maintenance operations and evaluates procedures and use of equipment and personnel.

- Maintains the status of all MWOs for equipment and recommends the order of completion for MWOs.
- Coordinates with other DMMC sections on the status of end item supply.
- Identifies materiel that needs calibration. It schedules actions to be completed by TMDE support activities or TMDE maintenance battalions. It coordinates the calibration of division test, measurement, and diagnostic equipment by supporting the calibration activity.

The materiel section receives all repair parts supply requests from the DS units organic to the FSBs, MSB, and AMCO. The section assigns control numbers to the documents and maintains registers of such documents. It receives all machine-produced outputs (printed listings or punch cards) for distribution to the section's branches and to the DSUs. It also provides catalog research and retrieval service (using microfilm catalog data) and provides catalog changes to materiel managers.

Through its branches, the section serves as the centralized maintenance management activity for the division. Centralized management takes care of much of the effort related to, but not directly involved in, repair operations. The management effort mainly includes reporting, compiling, and interpreting data as a basis for management decisions.

2.10. Materiel Section Office.

The materiel section office is responsible for supervision of repair parts supply and maintenance activities to include requisitioning supplies. It is responsible for managing repair parts supply requests and managing maintenance for all maintainable items of materiel. It is also accountable for Class IX supplies. The office also supervises the preparation and maintenance of inventory reports and maintains stock locator records. It also verifies the accuracy of data entered on supply transaction documents before processing. This office is also responsible for overseeing the activities of all the branches.

2.10.1. Armament-Combat Vehicle Branch.

The armament-combat vehicle branch performs integrated materiel management for armament (weapons) and combat vehicles. This includes artillery weapons, individual and crew-served weapons, common-type armament tools, and common-type armament tool and shot sets. The branch is responsible for the supervision of armament-combat vehicle maintenance activities. Key activities include the classification and diagnosis of malfunctions. They also include the repair and replacement of parts or the overhaul of components, and the testing and final inspection of equipment.

2.10.2. Automotive-ground Support Equipment Branch.

The automotive-ground support equipment branch performs integrated materiel management for automotive and ground support equipment. This includes management for tactical wheeled and general purpose vehicles; construction and materials-handling equipment; and test equipment that is part of, or used with, assigned materiel. Key maintenance activities are the same as those listed for the armament-combat vehicle branch.

2.10.3. Communications-Electronics Branch.

The C-E branch performs integrated materiel management for communications equipment, communications-electronics intelligence equipment, and electronic warfare equipment. Also included are combat surveillance equipment, target acquisition equipment, and night vision equipment. This branch provides recommendations on employment of signal units based upon mission and equipment. It also supervises the unit maintenance of C-E equipment. It coordinates communications support to provide planning information and resolves communications-related problems. The branch also coordinates, organizes, and supervises subordinate personnel activities of units, shops, or activities engaged in maintenance, calibration, or installation of C-E equipment. This includes quality assurance.

2.10.4. Aviation Branch.

The aviation branch performs materiel management for aeronautical and airdrop equipment and test equipment that is a part of, or used with, assigned materiel. Equipment includes materiel for aircraft and airdrop, avionics, aircraft armament, and related test equipment. The branch supervises aviation maintenance activities. Key activities are the same as above. In the event of AVIM work overload, the aviation branch, along with the support operations branch, coordinates passback to the COSCOM MMC. The aviation branch supervises the maintenance of aircraft and applies production control principles and procedures to AVIM.

2.10.5. Missile Branch.

The missile branch performs integrated materiel management for missiles, less the Class V portion of missiles that are managed by the DAO. Missile materiel includes rockets, guided missiles, ballistic missiles, and target missiles. Also included are missile-fire coordination equipment and related special purpose and multisystem test equipment. Test equipment that is part of, or used with, assigned materiel, missile launching and ground support equipment, and missile fire control equipment are also included. For these systems, the branch is responsible for the coordination of maintenance activities listed above.

2.10.6. Repair Parts Branch.

The repair parts branch manages Class IX supply functions. It develops and controls overall ASL-PLL repair parts supply. It evaluates all ADP output pertaining to repair parts supply and provides advice to DSUs on catalog changes. This branch measures system performance through the use of appropriate management techniques and tools. These include pertinent records and reports such as stock status reports, the daily transaction register, and the input transaction and error listing. The branch determines, in coordination with the division G4 and the DISCOM (AMCO, FS, and MSB) commanders, the wartime ASL load plan. The branch plans requirements and supervises input on requisitions. The branch also supervises the distribution and the accountability of repair parts, and maintenance-related supply items.

3.0. Determine Pre-positioned War Reserve Stocks (PPWR).

This section of the lesson will explain how to compute a PPWR. Requirements for PPWRs are computed based upon planned force structures, the munitions items on the theater mobilization reserve stockage list, weapons densities, authorized days of supply, and theater expenditure rates. All requirements for PPWR are computed using the formula $\text{Weapon Density (WD)} \times \text{Expenditure Rate (TCR)} \times \text{Days of Supply (DOS)} = \text{Stockage Objective (SO)}$. (WD x TCR x DOS). In addition, the percentage of mix formulas are used to break down total weapon system requirements into individual munitions type requirements.

3.1. Weapon Density.

These are obtained from unit TOEs, and files in the automated asset control system (ACS).

- It includes only weapons authorized in the hands of the troops by TOE and weapons and weapons used as float items.
- It excludes Depot Stock Reserve Weapons and weapons used as float items.

3.2. Expenditure Rates.

These rates are obtained from SB 38-26, which is classified CONFIDENTIAL. The type of rate used is called a Theater Combat Rate (TCR) and is specific to a given theater. See the Supplemental Reading for a training extract of SB 38-26.

3.3. Days of Supply.

Days of supply authorized for each theater are obtained from AR 11-1, which is classified SECRET.

3.4. Days of Supply Report.

This report displays the days of supply available for each prime DODIC by stockage point and account with storage point and DODIC totals. Serviceable and unserviceable assets are displayed. The purpose of the days of supply report is to provide the SAAS manager with basic days of supply available for each prime DODIC by storage point and account code with storage point and DODIC totals (Refer to the Supplemental Reading for a sample).

3.5. Errors in Computing PPWR.

Most errors in PPWR computations are the direct result of not knowing how to use SB 38-26 and inaccurate weapons densities. Refer to the Supplemental Reading for the basic definition of a TCR and what it represents. Note the TCR not only provides the total units per weapons per day, but also provides the percentage of mix of the rounds by the type of round. The computations are not difficult, but many times you will not have the weapons densities immediately available. In such cases, you must either use the asset control system, if you are at an automated site, or you must use unit TOEs.

4.0. Combat Operational Support Level Computation.

This section of the lesson will discuss how to compute Required Supply Rates (RSR) and Controlled Supply Rates (CSR).

4.1. Required Supply Rates.

To sustain tactical operations for specific periods, units determine their munitions requirements and submit a Required Supply Rate (RSR). The RSR is defined as the amount of munitions a maneuver commander estimates will be needed to sustain tactical operations, without munitions expenditure restrictions, over a specified period of time. The RSR is expressed as rounds per weapon (on hand) per day, or as a bulk allotment per day or per mission. RSR computation and routing are normally done by unit S3/G3s. As such, it is not a logistics function, but the S4/G4 may be called on to assist in the process. RSRs can be computed using manual or automated procedures. Weapons Density (WD) and mission are key to determining RSR. RSRs are determined using the following formula.

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

RSRs are developed by maneuver commanders and submitted to the next higher headquarters. The RSR is determined by analysis of the most recent issue and combat experience. It differs from the PPWR computations which are all pre-computed. RSRs provide for a variable stockage objective since they are based on combat conditions and changes in weapons densities or troop strengths. Headquarters at each level review, adjust, and consolidate RSR information and forward it through command channels.

The following matrix can be used for RSR computations.

RSR Computation Matrix

Type Ammunition Item	Type of Action	Level of Commitment	Period Covered	Number of Days	Expenditure Rate	Weapons Densities	Total Rounds per Type Action or Days	matrix Total
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Computational Essential Elements.

- **Type Ammunition Item.** This block is self-explanatory.
- **Type of Action.** The type of action is inferred from the operations order. Examples of type of action are inactive, attack, retrograde, etc.

Tables 2-16 and 2-17, FM 101-10-1/2 (Refer to Supplemental Reading) provide munitions requirements in rounds and short tons. Table 2-16 contains data for the armored, infantry, mechanized, airborne, and air assault divisions; separate armored, mechanized, infantry, light infantry, and airborne brigades; air cavalry combat brigade; armored cavalry regiment with armored reconnaissance airborne assault vehicle (ARAAV); and armored cavalry regiment with M60A1 tank for protracted periods of combat. Table 2-16 represents those rates experienced by a force of division size or smaller that is heavily committed and firing at high rates of fire. Table 2-17 provides daily artillery munitions requirements in rounds per weapon per day by level of operation. Table 2-16 may also be used for estimating munitions expenditures per weapon for divisions or separate brigades in combat situations not stated in the table. To estimate such munitions requirements, the percentage provided below may be used as multipliers for the rates in Table 2-16.

- Attack of position (permanent fortification): 100 percent of attack of position (deliberately organized).
- Attack of position (hastily organized): 100 percent of attack of position (deliberately organized).
- Covering force: 100 percent of defense of position.
- Inactive situation: 80 percent of protracted period.
- Meeting engagement: 200 percent of protracted period.
- Pursuit: 40 percent of protracted period.
- Retrograde: 59 percent of defense of position (succeeding days).
- Assault of hostile shore: 100 percent of defense of position (succeeding days).

- **Level of Commitment.** The level of commitment is inferred from the operations order and past experience. Levels of commitment are either heavy, moderate, or light. A heavily committed operation would be 100% use of all fire support with 75% commitment of maneuver forces. A moderate commitment would be 60% use of all fire support with 45% commitment of maneuver forces. A lightly committed operation would be 30% use of fire support with 20% commitment of maneuver forces and only sporadic combat.
- **Period Covered.** The period covered is taken directly from the operations order. For example, “From 10 March 9__ to 20 March 9_, the 10th Armored Division will conduct an attack of a heavily fortified enemy position.”
- **Type of Day.** The Army has four types of days it uses for computations. They are:
 - **First Day.** The first day time period represents the first 24-hour period of the engagement.
 - **Succeeding Days.** Succeeding days represent the 2nd through 4th days of the engagement.
 - **Fifth Day.** The fifth day is day five of the engagement. Fifth day requirements may be established by taking the average of the succeeding-day’s rate and the protracted rate.
 - **Protracted Period.** The protracted period refers to days 6 through 15 of the engagement.

In the example above, all four types of days were included. The first day was day one, or 10 March. The succeeding days were days two, three, and four (11 March through 13 March). The fifth day was day five or 14 March. The protracted days were days six through eleven or, 15 March through 20 March.

Table 2-18 provides daily antitank guided missile requirements in rounds and STONs. Table 2-19 provides munitions requirements in rounds per weapon per day by level of operation for all types of divisions. (Refer to Supplemental Reading).

- **Number of Days.** The number of each type of day is identified by the type of day. In the above example, there was one first day, three succeeding days, one fifth day, and six protracted days.
- **Expenditure Rate:** Tables 2-16 through 2-19, FM 101-10-1/2, are used to determine expenditure rates. (Refer to Supplemental Reading.) Table 2-16 provides rates for specific types of divisions. Table 2-17 provides daily artillery requirements. Table 2-18 provides daily antitank munitions requirements. Table 2-19 provides munitions expenditures for rounds per weapons per day for all types of divisions. Table 2-19 is probably the most helpful for determining RSR requirements.

The essential information in the tables include:

- Type of weapon or bulk issue item.
 - Type of operation.
 - Level of commitment.
 - Type day.
- **Weapons Densities.** Sources of weapons densities are TOEs and FM 101-10-1/2. It is assumed that weapons densities remain constant; however, they can and will change due to battle losses.
 - **Total Rounds per Type Action.** Total rounds per type action per level of commitment per type day are determined by multiplying columns 5, 6, and 7.
 - **Matrix Total.** End total of column 8.

The division's RSR can now be computed using the RSR formula: $RSR = (\# \text{ Rnds}) - (WD \times \# \text{ Days})$. The total RSR has now been computed. However, there is more than one type of main tank munitions available and required. Therefore, the percentage of mix formula and SB 38-26 must be used (Refer to Supplemental Reading). The percentage of mix formula is applied to the total number of rounds to determine totals for individual type munitions RSRs.

4.2. Controlled Supply Rates (CSR).

A CSR is the rate of munitions consumption that can be supported, considering supplies, transportation, and facilities available for a given period of time. The ARFOR determines the CSR by comparing the total unrestricted munitions requirements against the total munitions assets on hand or due in. Several factors limit the amount of munitions available for an operation (e.g., stockage of lift capabilities). Accordingly, the munitions issues are controlled by CSRs. The ARFOR establishes the CSR, which is based on the amount of munitions available for issue. When a munitions item is in short supply, the CSR is low. The commander determines who receives the munitions. The DAO informs the G3 of the quantity available. The ARFOR commander gives the corps commanders the CSR for each munitions item. The CSR may vary from corps to corps based on the mission objectives and priorities of each corps, the projected threat, and munitions availability. The corps gives subordinate combat commanders their unit CSR. Each combat commander gives the CSR to each subordinate combat commander. Commanders making CSR allocations to subordinate units should retain a portion of the CSR to meet unforeseen contingencies. The CSR is disseminated to units through the OPORD. The CSR should appear in the OPORD in paragraph 4, or in either the service support or fire support annex. The munitions requirements of other services and coalition members must be considered when computing the RSR and CSR. Also, munitions items in the Army inventory that are unique to other services or coalition members must be considered in supply rate computations.

The following factors must be used in calculating a CSR:

- **Balance on Hand.** Self-explanatory, taken from SAAS-1 balances.
- **Stockage Objective.** The number of days of munitions, by type, or the actual quantity, by type, that a theater commander requires to be stored in a theater in TSAs, CSAs, and ASPs.
- **Due Outs.** Determined by the consolidated RSRs reported to SAAS-1 by its subordinate SAAS-3.
- **Safety Level.** The minimum days of munitions or actual quantities, by type, that a theater commander states will be on hand at all times.
- **Due Ins.** Those quantities of munitions that the CONUS NICP has notified SAAS-1 that are due in to the theater. SAAS-1 will have expected delivery dates for the arrivals.
- **Distribution Times.** The average time period required to get munitions from the ports to the theater TSAs, CSA, or ASPs.
- **Weapons Density.** Self-explanatory, taken from asset reports and battle damage reports.

4.2.1. CSR Formulas.

The formula for computing a CSR is:

- Balance on Hand - Safety Level / Weapons Density x Number of Days CSR will be required.
 $BOH - SL / WD \times DTR = CSR$

You should use the following formulas for determining if a CSR is required:

- Quantity O/H - Due Outs > Safety Level
- Quantity O/H - Due Outs < Safety Level

After conducting your calculations, if either of the above formulas holds true, then a CSR is required.

You should use the following formulas for determining CSRs to be announced:

- Balance on Hand - Safety Level / Weapons Density x (# of Days to next resupply*)

The length of the CSR may be computed for specific periods as determined by the Theater Commander.

EXAMPLE: BOH = 500,000 rounds, SL = 200,000 rounds. Due Outs for the next 15 days is 400,000 rounds, WD = 100 weapons, and no due ins are due until 30 days from now.

Applying the formula for determining if a CSR is required, you determine:

$$500,000 - 400,000 < 200,000$$

Therefore, a CSR is required.

These are only the most basic of formulas. There are many more variations than can be used. The examples provided should highlight the basic considerations that must be made when determine theater CSRs. The CSR need not be as restricting as it appears. Remember that not all units of a division, brigade, or battalion are always committed. This reallocation by tactical commanders makes the CSR less restricting for tactical operations.

5.0. Requirements to Determine Basic Load.

Now that you have learned how to determine the PPWR, RSR, and CSR, this section of the lesson will focus on how to determine a basic load. The size and make-up of the basic load are designed to meet the anticipated initial combat needs of a unit until normal resupply is accomplished. To compute the requirements for the theater of a major command, it is necessary to consider operational safety and order and ship time levels.

5.1. Basic Load Formula.

The basic formula for computing the UBL is $WD \times Rate = SO$

WD = Weapons Density

Rate = Rounds per weapon

SO = Stockage Objective (Total Quantity)

Example: $18 (WD) \times 58 (Rate) = 1044$ Stockage Objective.

All major commands have established detailed regulations covering the size and composition of subordinate unit basic loads. Use the following factors to compute UBLs:

- List the unit and type of munitions from the TOE to include all weapons and missiles.
- List the number of weapons authorized by the TOE by line number.

- List type of rounds and rounds per weapon for unit by category (Unit category can be found in Section I of the TOE.)
- Select and enter the applicable DODACs for each weapon.
- Enter weight data per packed round as applicable for each item.
- Determine the total rounds for each DODIC by multiplying rounds per weapon times the unit's total weapons.
- Break out the proportion of total rounds to be carried by each mode of transportation, then determine the total basic load weight.

Approving authority for basic loads is vested in the major overseas and CONUS commanders. The UBL is formatted and computed by the using unit. The figures are totaled at each level in the chain of command. The DMMC or the separate brigade logistics center reports the figures to SAAS-3. SAAS-3 inturn reports them to SAAS-1.

5.1.1. Basic Load Verification Step 1.

The first step in calculating the basic load authorization is to review the Table of Organization and Equipment (TOE) under which the unit is organized for authorized weapons by type. In Section III (Equipment Allowance) under the "Recapitulation" heading, you will find all the equipment the unit is authorized to have on hand by equipment level. For the purpose of this lesson, refer to Figure 2 (Extract from Section III, TOE 9-30H). Look down the listing and find "Rifle, 5.56mm." To the right listed under equipment block "d," you will find that the unit is authorized 273 rifles. Please note that the format used in Figure 2 may not be the same format that you will actually encounter. However, in reviewing an actual TOE, you will find the information contained in Section III (Equipment Allowance) under the Recapitulation heading in that section.

TOE-09-030H		TABLE OF ORGANIZATION AND EQUIPMENT						TOE-09-030H	
SECTION III: EQUIPMENT ALLOWANCES									
Para	Line #	Description	Equipment						
a.	b.	c.	d.	e.	f.	g.	h.	i.	
	L44595	Launcher, Grenade 40MM: Sgle Shot Rifle MID Detachable W/E	4	4	4			4	
	L92366	Machine Gun 7.62MM; Light Flexible	4	4	4			4	
	M75714	Mount Tripod Machine Gun: 7.62MM	4	4	4			4	
	M96741	Pistol Caliber .45 Automatic	4	4	4			4	
	R94977	Rifle, 5.56MM W/E	273	255	224		1	163	
a.	b.	c.	d.	e.	f.	g.	h.	i.	

EXAMPLE OF TO & E

Figure 2. TOE Extract

5.1.2. Basic Load Verification Step 2.

The next step in calculating the basic load authorization is to determine the quantity of munitions by type that is authorized per weapon. This information must be extracted from the basic load table that is normally included in the basic load directive. Figure 3 (Extract Basic Load Table) is a sample extract of a basic load table you will use for the purpose of this lesson. Now look at Figure 3 under Column 2 (Weapon/Equipment) and find “ctg 5.56mm, Ball.” To the right, under Column 3 (units per weapon), you find that each weapon is authorized 360 rounds.

1	2	3	4	5	6	7
LIN	WEAPON/EQUIPMENT	Units per wpn	Packed wt per wpn (lb)	Rd per wpn carried on Individual	Rd per wpn carried on vehicle	Rd per wpn bulk loaded
R94977	Rifle, 5.56MM Ctg 5.56 Ball Tracer	440rd (360) (80)	042	140	300	
M66008	Mortar 81MM Prof 31MM HE w/fuze HE w/fuze Illuminating W/fuze Fuze prox PD	120rd (24) (81) (11) (4) 25ea 5ea	1732 3.84 3.25		80 12 5	10 11
M68282	Mortar 4.2 In Proj HE w/fuze HE w/fuze WP w/fuze Illuminating w/fuze PD	160re (64) (61) (30) (5)	40.00		50	110
K57392	Howitzer 105MM towed M101 M102 (TOE 6-11-H/117H) Proj, 105MM HE w/fuze HEPT, fuze, BD Illuminating, fuze, MT Smoke, Fuze, MT (Red, Green, Yellow 2 ea) HCBE, fuze, MT WP w/fuze Apers, fuze, MT HE, ICM, fuze, MT 8Q Fuze PD CP MT 8q PROX	175rd (75) (5) (5) (6) (10) (8) (6) (60) 175ea (83) (9) (17) (66)	65.00		80 50	135 142

Figure 3. Extract Basic Load Table

5.1.3. Basic Load Verification Step 3.

To determine the total quantity of ball munitions that is authorized to be on hand, multiply the number of weapons by the number of rounds authorized per weapon.

Number of weapons: **273**

Multiplied by the number of rounds per weapon: **360**

Total rounds authorized: **98,280**

You have now calculated the basic load authorization for this item. The amount actually exceeds the unit's authorization. However, the ammunition supply point (ASP) issues basic load munitions only in full standard pack. In this case, it exceeded the unit's authorization. A basic load directive states that it is the unit's responsibility to ensure that munitions are drawn to the next lower full pack if drawing the higher level full pack would cause the unit to exceed its authorization.

6.0. Ammunition Transfer Point (ATP).

The final portion of this lesson will discuss the ATP. ATPs are established in each brigade rear area to reduce the travel distance of resupply vehicles for high usage, high tonnage items, and to control and monitor the shipment of munitions from rear supply points to combat units trains locations.

- An ATP will be established in each brigade area under the physical control of the forward support battalion commander. A fourth ATP will be established in the division support area to provide supplies for other divisional needs.
- The ATP is under the staff supervision of the DAO.
- The handling capability of an ATP is rated at 500 short tons per day.
- The DAO controls the operations of the ATP through the DAO representative at the ATP (brigade ammunition NCO).
- The ATP is operational 24 hours a day by two shifts.
- Efficient flow of munitions into the ATP depends on the timely arrival of motor transport from the corps storage area. During periods of medium to heavy engagement, CSA motor transport must arrive at the ATP every 3 to 4 hours.
- The ATP concept of operations impacts strongly on the ammunition supply point (ASP) and CSA in that a major portion of the requirements of the ATP is provided by transshipment.
- The personnel and equipment to operate the ATP are an integral part of the supply company, forward support battalion, or the supply and service company of the supply and transport battalion of the division support command.

6.1. ATP Structure.

The typical structure of an ATP is as follows:

Personnel Structure

Duty Position	Number of Personnel	Rank	MOS
Section Sergeant	1	E6	55B30
Crane Operator	2	E5	62F20
Ammo Storage Specialist	4	E4	55B10
Crane Operator	1	E4	62F10
Ammo Storage Specialist	4	E3	55B10
Crane Operator	3	E3	62F10
TOTAL	15		

The section chief supervises his shift of personnel in the mission operations and coordinates administrative support.

Ammunition specialists operate the forklifts.

Crane operators operate the 5-ton cranes.

6.2. ATP Communications.

The DAO representative at each ATP will have one each tactical radio set, with speech security equipment to communicate with the DAO and net with the supporting and supported units. Small unit transceivers are used by ATP personnel for intra-ATP communications. A telephone set (TA 312) will be netted with the supply company switch board for administrative coordination purposes.

6.3. ATP Layout.

An ATP will be laid out based on the area available, its physical features, and accessibility.

6.4. ATP Munitions Receipts.

- **Initial Stockage.** The initial stockage of each ATP will be on 12 to 15 corps S&P semi-trailers and consists of high usage items, as determined by the DAO and the Division commander, in coordination with the brigade S3/S4 and division G3/G4.
- **Resupply.** The major 75 percent portion of the combat resupply requirement will be provided via throughput shipments from corps storage areas to the ATP as requested by the DAO through coordination with the DMMC and the COSCOM MMC and MMC elements. Approximately 20 to 25 percent will come from the supporting ASP.

The CSA will prepare DD Form 1348-1, (DOD Single Line Release/Receipts Document) based on “Call Forward” by the DAO for shipments to the ATPs. The convoy commander will deliver the user copies of this form to the DAO representative at the ASP.

Each vehicle in a convoy will have a TCMD (DD Form 1384) indicating the ATP destination and the contents of the vehicle. Upon arrival, each vehicle is checked to ensure that the contents and the TCMD are in agreement. This check will be made along with the TMO representative, if located at the ATP. TCMDs will be signed and distributed in accordance with Military Standard Transportation and Movement Procedures (MILSTAMP).

Storage of munitions at the ATP will be on corps transportation S&P trailers. The Field Storage Category System will apply for compatibility and dispersion purposes.

6.5. ATP Munitions Issues.

The following procedures govern munitions issues at an ATP:

- **Authentication.** The DAO representative at the ATP will authenticate the 581s for issues from the ATP to enforce the Controlled supply rates (CSR).
- **Transient Units.** Issues of munitions to units not on the “support lists” must be approved by the DAO.
- The DAO ATP representative will control the issues of munitions to units based on the CSR provided by the DAO.
- The supported brigade S3/S4 will establish the priority of issues to units.
- The DAO will provide each ATP a listing of the units the ATP supports.
- Units will request munitions from the ATP by use of a DA Form 581.
- DA Form 1687, Notice of Delegation of Authority, will be maintained at the ATP.

6.6. ATP Records and Reports.

The following records and reports are used in ATP operations:

- Receipts and issues of munitions at the ATP will be recorded on accountability records IAW division SOP.
- A daily transaction report (DTR) will be provided to the DAO. This report includes all issues and receipts.

- Signed receipt documents will be returned to originator of shipments through the DAO.
- Vehicle registers must be maintained to account for receipts and on-hand (corps) trailers.

6.7. ATP Relocation.

When the ATP has to be relocated, the MHE must be transported on lowboy-type trailers. Adequate 5-ton tractors must be available for movement of on-hand trailers. The DAO will request transportation support through the DISCOM.

7.0. Summary.

During this lesson, you have learned the procedures for computing Army pre-positioned stocks, how to verify unit basic loads, how to compute RSRs and CSRs, and how to monitor ATPS. The lesson also discussed the staff relationships of Material Management Center Class V sections and how to ensure approved stockage levels are maintained for each appropriate level within the theater of operations.

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PRACTICAL EXERCISE
LESSON 55B40A04

This practical exercise will reinforce the information covered in this lesson. Answer the following questions. Cite the appropriate paragraph in the lesson that supports your answer.

1. What is the mission of the DMMC?

ANSWER: _____

REFERENCE: _____

2. What does the General Supply Section coordinate and supervise?

ANSWER: _____

REFERENCE: _____

3. What section maintains records of munitions allocations?

ANSWER: _____

REFERENCE: _____

4. What branch manages the hand-receipt accounts for division units?

ANSWER: _____

REFERENCE: _____

5. What is the formula for computing PPWR?

ANSWER: _____

REFERENCE: _____

6. What are most errors in PPWR computations a direct result of?

ANSWER: _____

REFERENCE: _____

7. What is the formula for computing Required Supply Rates?

ANSWER: _____

REFERENCE: _____

8. What are the four types of days used in RSR computations?

ANSWER: _____

REFERENCE: _____

9. What is a CSR?

ANSWER: _____

REFERENCE: _____

10. What are the factors used in calculating the CSR?

ANSWER: _____

REFERENCE: _____

11. What are the formulas for determining if a CSR is required?

ANSWER: _____

REFERENCE: _____

12. What is the basic formula for computing a UBL?

ANSWER: _____

REFERENCE: _____

13. What is the first step in verifying a UBL?

ANSWER: _____

REFERENCE: _____

14. How do you determine how much of a type of munitions is authorized to be on hand?

ANSWER: _____

REFERENCE: _____

15. Who controls the ATPs in each brigade area?

ANSWER: _____

REFERENCE: _____

16. Where does the major percentage of combat resupply for ATPs come from?

ANSWER: _____

REFERENCE: _____

17. What is meant by a transient unit?

ANSWER: _____

REFERENCE: _____

18. What does the daily transaction report include?

ANSWER: _____

REFERENCE: _____

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**PRACTICAL EXERCISE
SOLUTION**

1. Answer: The mission of the DMMC is to provide division units with centralized and integrated materiel management for Class I, II, III, IV, V, VII, and IX supplies and maintenance.
Reference: Paragraph 2.1.
2. Answer: The general supply section coordinates and supervises supply management for water and Class I, II, III, and IV supplies in support of the division.
Reference: Paragraph 2.5.
3. Answer: The Class V Supply Section.
Reference: Paragraph 2.7.
4. Answer: The management-asset accounting branch.
Reference: Paragraph 2.8.3.
5. Answer: The formula is $\text{Weapon Density} \times \text{Expenditure Rate} \times \text{Days of Supply} = \text{Stockage Objective}$.
Reference: Paragraph 3.0.
6. Answer: Most errors in PPWR computations are the direct result of not knowing how to use SB 38-26 and inaccurate weapons densities.
Reference: Paragraph 3.5.
7. Answer: The formula is $\text{Total Rounds} = \text{WD} \times \text{Expenditure} \times \text{Days}$
Reference: Paragraph 4.1.
8. Answer: They are the first day, succeeding days, fifth day, and protracted period.
Reference: Paragraph 4.1.
9. Answer: A CSR is the rate of munitions consumption that can be supported, considering supplies, transportation, and facilities available for a given period of time.
Reference: Paragraph 4.2.
10. Answer: The factors are balance on hand, stockage objective, due outs, safety level, due ins, distribution times, and weapons density.
Reference: Paragraph 4.2.
11. Answer: The formulas are: $\text{Quantity O/H} - \text{Due Outs} > \text{Safety Level}$ or $\text{Quantity O/H} - \text{Due Outs} < \text{Safety Level}$.
Reference: Paragraph 4.2.1.

12. Answer: The basic formula is Weapons Density x Rate = Stockage Objective (Total Quantity)
Reference: Paragraph 5.1.
13. Answer: The first step in basic load verification is to review the Table of Organization and Equipment under which the unit is organized for authorized weapons by type.
Reference: Paragraph 5.1.1.
14. Answer: The formula is to multiply the number of weapons by the number of rounds authorized per weapon.
Reference: Paragraph 5.1.3.
15. Answer: The Forward Support Battalion Commander.
Reference: Paragraph 6.0.
16. Answer: They will be provided via throughput shipments from corps storage areas to the ATP as requested by the DAO through coordination with the DMMC and the COSCOM MMC and MMC elements.
Reference: Paragraph 6.4.
17. Answer: A transient unit is a unit not on the “support lists.”
Reference: Paragraph 6.5.
18. Answer: The report includes all issues and receipts.
Reference: Paragraph 6.6.

*Supplemental
Reading
55B40A04*

SB 38-26 Supplemental Reading

This supplemental reading is designed to present Unclassified instruction on the use of Department of the Army Supply Bulletin Ammunition Supply Rates. This supplemental reading is organized in the same manner as SB 38-26; however, it contains no classified information. The introduction was extracted from the supply bulletin and is unclassified, and provides the instructions on the use of SB 38-26. The column heading remains the same; however, only the weapons to be used in practical exercises are included. The rates included in SB 38-26 are classified confidential; therefore, the rates in this supplemental reading have been changed and should be used only for training on the proper use of SB 38-26.

SECTION I

INTRODUCTION

1. (U) Purpose. This bulletin prescribes ammunition supply rates for the united states army in establishing theater war reserve levels.
2. (U) Definitions.
 - a. Theater Combat Rate. A quantity of ammunition per day which, where multiplied by an authorized number of days, will produce a stock level of combat, conduct training activities, and compensate for losses from enemy action or losses in transit until such time as normal supply can be effected. It is expressed in terms of rounds/units per day per weapon in the hands of troops for ammunition items fired by weapons or systems and in terms of other units of measure for bulk allotment items. Proportions of types of rounds and fuzes are included where applicable. Extra fuze authorizations are based on total rounds.
 - b. Basic Load. The quantity of conventional ammunition authorized by major commanders to be on hand in units and which is carried by the individual or on the unit vehicles to enable the unit to accomplish its mission until resupply can be effected. The basic load is reconstituted as
3. (U) Authorization. The ammunition supply rates published herein are authorized for use effective upon. the date of this bulletin.
4. (U) Use.
 - a. This bulletin will be used by the Department of the Army for determining requirements, programming, and other logistical planning. It cites theater combat rates for each major theater.
 - b. Applicable columns in each paragraph of section II and section III will be used to determine PRE-D/Day theater war reserve levels authorized in AR 11-12- The levels for ammunition fired by weapons or systems will be based on items in the hands of troops. Allocation and distribution of toxic munitions will be directed by the Department of the Army.

- c. The applicable column in each paragraph will be considered in initially stocking the theater reserve levels for a newly established theater until consumption experience dictate a change. The supply rate (i.e., rounds per weapon per day) are not satisfactory for use in determining unit basic loads; however, when the basic load is established by a major command, the proportion by the type established by this bulletin should be closely adhered to so that the balance in the theater reserve may be preserved.
5. (U) Changes, It is the responsibility of the theater Army commander to continuously study the rates in this bulletin and recommend necessary changes through command channels to the Department of the Army, accompanied by detailed justification for each change, During combat recommendations will be based on actual expenditure, experience, environmental conditions and tactical planning considerations; during peacetime they will be based on past combat experience, analytical studies, and other available planning data.

SECTION II

CONVENTIONAL AMMUNITION THEATER COMBAT RATES

(c) Conventional Ammunition. (For Training Only)

Weapon of Weapon System	Unit per Weapon Per Day			Types of Rounds or Items	Proportions of Types of Rounds (EA)		
	USAR EUR	USAR PAC	All OTHERS		USAR EUR	USARP AC	ALL OTHERS
Rifle, 5.56MM	105	126	126	Ball, A066 Ball, A071 Tracer	30 60 15	30 72 18	36 72 18
MG, 7.62MM, Fixed	203	314	314	4&1 Linked	280	314	314
MG, 7.62MM LT Flexed	308	345.4	345.4	4&1, Linked Tracer, Linked	280 28.0	314 31.4	314 31.4
MG, 7.62MM, 6 Barrels	5544	6048	6048	9&1, Linked 4&1, Linked	2640 2904	2880 3168	2880 3168
Revolver, Cal .38, 4 inch barrel	1.4	1.4	1.8	Ball	1.4	1.4	1.8
Pistol, Cal .45, Auto	1.4	1.4	1.8	Ball	1.4	1.4	1.8
SBU-MG, Cal .45	19.3	22	22	Ball Tracer	17.9 1.9	19.8 2.2	19.8 2.2
MG Cal. 50 HB Flex	232	259	259	4 API & API-T Linked 4API & 1 TR, Linked	114 118	127 132	127 132
Gun, ADA, SP, 20MM	2640	2880	2880	HEI-T, Linked	2640	2880	2880
LCHR, GREN 40mm, SSR	11.5	15	15	Apers White Star Para White Star Cluster HE	1.8 .5 .2 9.0	2.1 .6 .3 12.0	2.1 .6 .3 12.0
LCHR, GEN, 40MM LOR RH	143	172	172	HE DP HE	14 129	18 154	18 154
Mortar, 81mm	68.3	70.0	70.0	HE, W/Fuze PD HE, W/O Fuze Fuze, Prox WP, W/Fuze PD ILL, W/Fuze Time	50.3 7.8 7.8 6.8 3.4	47.6 11.9 11.9 7.0 3.5	47.6 11.9 11.9 7.0 3.5

CONVENTIONAL AMMUNITION THEATER COMBAT RATES (Continued)

(c) Conventional Ammunition. (For Training Only)

Weapon of Weapon System	Unit per Weapon Per Day			Types of Rounds or Items	Proportions of Types of Rounds (EA)		
	USAR EUR	USAR PAC	All OTHERS		USAR EUR	USARP AC	ALL OTHERS
Tank, 105mm Gun	37.0	37.0	37.0	APDS-T HEAT-T APERS W/Fuze MT WP-T	22.8 9.5 1.5 3.2	22.8 9.5 1.9 3.8	22.8 9.5 1.9 3.8
Mortar, 4.2IN Flexed	75.44 1	79.0	79.0	HE W/Fuze PD HE W/O Fuze Fuze, Prox III, W/Fuze MTSQ WP, W/Fuze PD	39.4 28.7 26.41 6.93 1.626 5.715	31.6 39.5 35.55 10.05 1.975 5.925	31.6 39.5 35.55 10.05 1.975 5.925
ARM ASLT VEH, 152MM	15	13	13	Missile W/HE Warhead (SHILL) HEAT-T-MP CANNISTER- APERS	11.5 2.9 .6	9.0 3.4 .6	9.0 3.4 .6
HOWITZER, 155MM	6.937	201.411	201.411	HE, W/O Fuze Fuze, PD (N335) Fuze, PD (N340) Fuze, PROX Fuze, MTSQ SMK, Be RED Fuze, MT SMK, BE Green Fuze, MT ILLUM Fuze, MT WP Fuze, PD (N335) Fuze, MTSQ Charge Prop White Bag, M4 Green Bag, M3 Primers	62.1 20.25 20.25 22.735 1.963 .69 .74 .69 .74 .207 .219 3.45 3.123 .613 69 51.75 17.25 69	186.3 60.753 60.753 68.205 5.889 2.07 2.19 2.07 2.19 .621 .657 10.35 9.48 1.87 207 155.25 51.75 207	186.3 60.753 60.753 68.205 5.889 2.07 2.19 2.07 2.19 .621 .657 10.35 9.48 1.87 207 155.25 51.75 207
HOWITZER, 8 Inch	123	164	164	HE W/O Fuze Fuze, PD (N335) Fuze, PD (N340) Fuze, PROX Fuze, MTSQ Charge, Prop White Bag Green Bag Reducer, Flash Primers	123 50.55 35.00 39.14 3.57 125.5 35.25 92.25 92.25 127.5	164 67.4 46.66 52.18 4.76 170 47 123 123 170	164 67.4 46.66 52.18 4.76 170 47 123 123 170

CONVENTIONAL AMMUNITION THEATER COMBAT RATES (Continued)

(c) Conventional Ammunition. (For Training Only)

Weapon of Weapon System	Unit per Weapon Per Day			Types of Rounds or Items	Proportions of Types of Rounds (EA)		
	USAR EUR	USAR PAC	All OTHERS		USAR EUR	USARP AC	ALL OTHERS
COM. ENG VEH. 165MM	3.5	4.0	4.0	HEP W/fuze	3.5	4.0	4.0
TRKR, INFR GMSU-26	5.5	4.0	4.0	Missile, SURF ATT (Dragon)	10.5	10.0	10.0
LNCHR, TUB GM (TOW)	10.5	10.5	10.0	Missile, SURF ATT (TOW)	10.5	10.0	10.0
LNCH, GREN SMK: M239	16.9	9.0	9.0	GREN, LNCHR SMK	15.0	9.0	9.0
GM SYS INTERCEPT (CHAP MIM-72C)	9.1	6.0	6.0	Missile Guided	9.1	6.0	6.0
LNCH, RKT:66MM (4-Tube 66MM)	6.0	8.0	8.0	RKT, INCEN, 66MM	4.8	6.4	6.4
Helicopter ATK: TOW	9.5	13.0	13.0	MIS. Guided, SURF ATK (TOW)	9.5	13.0	13.0
LNCHR, RKT. AIRCRAFT, 2.75IN	18.0	20.0	20.0	HE W/Fuze WP	15.0 3.0	18.0 2.0	18.0 2.0

UNITS PER 1,000 MEN PER DAY

ITEMS	UNIT	USAREUR	USARPAC	ALL OTHERS
Cap, Blasting, Electric	EA	8.90	3.20	3.20
Cap, Blasting, Non-electric	EA	8.90	3.20	3.20
Charger, Demo Block, 1 lb, TNT	EA	160.00	175.00	175.00
Charge, Demo Block, 1 ½ lb, C4	EA	228.00	250.00	250.00
Demo Kit, Bangalore Torpedo	EA	18.00	15.00	15.00
Flare, Surface, Trip	EA	6.038	5.142	5.142
Gren, Hand Frag M67/XM67	EA	18.00	12.00	12.00
Gren, Hand, Smoke, Green	EA	7.50	16.00	16.00
Gren Hand, Smoke, Red	EA	7.50	16.00	16.00
Gren Hand, Smoke, Yellow	EA	7.50	16.00	16.00
Mine, Apers, NM, M14	EA	28.00	20.00	20.00
Mine, Apers, M18A1 (Claymore)	EA	145.00	150.00	150.00
Mine, Anti-Tank, M19	EA	62.00	50.00	50.00
Mine, Anti-Tank, M21	EA	105.00	100.00	100.00
Signal, Illum, Green-Star, Para	EA	42.00	42.00	36.00
Signal, Illum, Red-Star, Para	EA	42.00	36.00	36.00
Signal, Illum, White-Star, Para	EA	42.00	36.00	36.00

Table 2-16. Ammunition Per Type Unit Per Weapon Per Day Expressed in Rounds and STON¹

Weapon	Defense of Position						Attack of Position (deliberately organized)										
	First day			Succeeding days			First day			Succeeding days							
	No. of wpns	Packed w/rd	Rds/ wpn	Total rds	STON	Rds/ wpn	Total rds	STON	Total rds	STON	Rds/ wpn	Total rds	STON				
Part A. Armored Division (AIM)																	
Armored Division (AIM)																	
Armament pod, act, 7.62 mm mg, M18	6	.093	6,000	36,000	1.7	3,600	21,600	1.0	4,980	29,880	1.4	2,689	16,134	8	1,500	9,000	.4
Armament subsystem, helicopter, 20mm auto gun, M35	4	.80	3,000	12,000	4.8	1,800	7,200	2.9	2,490	9,960	4.0	1,345	5,380	2.2	750	3,000	1.2
Armament subsystem, helicopter, 7.62mm mg, lt, M23	13	.093	840	10,920	5	509	5,617	3	700	9,100	4	382	4,966	2	213	2,759	.1
Armament subsystem, helicopter 7.62mm mg 40mm lchr	9	.093	2,250	20,250	1.0	1,350	12,150	.6	1,868	16,812	8	1,009	9,081	4	563	5,067	2
Ht rate, M28, A1	9	.750	321	2,889	1.1	193	1,737	.7	266	2,394	9	144	1,296	5	80	720	3
Armored reconnaissance airborne assault vehicle, M551																	
Ctg, 152mm	27	60.00	9	243	7.3	5	135	4.1	7	189	5.7	4	108	3.2	2	54	1.6
S1B (Shillelagh)	27	112.00	7	189	10.6	9	243	13.6	6	162	9.1	7	189	10.6	3	81	4.5
Gun, ADA, SP, 20mm, M163	24	1.00	6,000	144,000	43.2	3,600	86,400	43.2	4,980	119,520	60.0	2,689	64,536	32.3	1,500	36,000	18.0
Howitzer, 155mm, SP, M109	54	135.7	203	10,962	743.8	207	11,178	758.4	146	7,884	534.9	153	8,262	560.6	166	8,964	608.2
Howitzer, 8 in, SP, M110	12	282.50	177	2,124	278.8	164	1,968	298.3	130	1,560	204.8	127	1,324	200.0	118	1,416	185.9
Lehr, GM, M222 (Dragon)	137	67.00	3	411	13.8	4	548	18.4	2	274	9.2	3	411	13.8	1	137	4.6
Lehr, grenade, 40mm, M203	1,061	.750	32	33,952	12.7	19	20,159	7.6	27	28,647	10.8	15	15,915	6.0	8	8,488	3.2
Lehr, rt act, 2.75 in, M158A41	18	27.00	42	756	10.2	25	450	6.1	35	630	8.5	19	342	4.6	11	198	2.7
Lehr, rt act, 2.75 in, 19 tube (repairable), M200A1	10	27.00	114	1,140	15.4	68	680	9.2	95	950	12.8	51	510	6.9	29	290	3.9
Lehr, rt, multiple, 155 mm, M91	9	93.33	See note 2														
Lehr, rt, 66 mm, M202, A1	2,400	7.80	NA	700	2.7	NA	455	1.7	NA	595	2.3	NA	301	1.2	NA	175	0.7
Lehr, tubular, GM (TOW)	85	8.75	16	1,360	5.9	10	850	3.7	14	1,190	5.2	7	595	2.6	4	340	1.5
Machine gun, 50 cal, M2	90	87.00	9	810	35.2	10	900	39.2	7	630	27.4	8	720	31.3	4	360	15.7
Machine gun, 7.62mm, M60	1,195	.395	283	314,285	62.1	159	190,005	37.5	219	261,705	51.7	120	143,400	28.3	67	80,065	19.8
Machine gun, 7.62mm, six barrels, M134	611	.093	649	396,539	18.4	393	240,123	11.2	541	330,551	15.4	295	180,245	8.4	164	100,204	4.7
Mortar, 81mm, M29, A1	9	.093	6,000	54,000	2.5	3,600	32,400	1.5	4,980	44,820	2.1	2,689	24,201	1.1	1,500	13,500	.6
Mortar, 4.2 in, M24, A1	45	17.32	145	6,525	56.5	88	3,960	34.3	121	5,445	47.2	66	2,970	25.7	37	1,665	14.4
Rifle, recoilless 90mm, M67	53	40.00	163	8,639	172.8	99	5,274	104.9	136	7,208	144.2	74	3,922	78.4	41	2,173	43.5
Rifle, 5.56mm, M16, A1	13,160	.042	148	1,947,680	40.9	90	1,184,400	24.9	124	1,631,840	34.3	67	881,720	18.5	38	500,080	10.5
Submachinegun, 45 cal, M3, A1	8	27.50	19	144	1.9	11	88	1.2	15	120	1.7	8	64	.9	5	40	.6
Tank, combat, full tracked, 105mm gun, M60, A1	889	.056	44	29,116	1.1	27	24,003	.7	37	32,893	.9	20	17,780	.5	11	9,779	.3
Armored division total (STON)	324	68.49	78	25,272	865.4	47	15,228	5,215.0	65	21,060	721.2	35	11,340	388.3	20	6,480	221.9
				2,432.6				1,902.8			1,911.5		1,424.3				1,163.4
Part B. Infantry Division (AIM)																	
Infantry Division (AIM)																	
Armament subsystem, helicopter, 20mm auto gun, M35	12	.80	3,000	36,000	14.4	1,800	21,600	8.6	2,490	29,880	12.0	1,345	16,140	6.5	750	9,000	3.6
Armament subsystem, helicopter, 7.62mm mg, lt, M23	35	.093	840	29,400	1.4	509	17,815	.8	700	24,500	1.1	382	13,370	.6	213	7,455	.3
Armament subsystem helicopter 7.62mm mg 40mm lchr	27	.093	2,250	60,750	2.8	1,350	35,450	1.7	1,868	50,436	2.3	1,009	27,243	1.3	563	15,201	.7
Ht rate, M28, A1	27	.750	321	8,667	3.3	193	5,211	2.0	266	7,182	2.7	144	3,888	1.5	80	2,160	.8
Armored reconnaissance airborne assault vehicle, M551																	
Ctg, 152mm	9	60.00	9	81	2.4	5	45	1.4	7	63	1.9	4	36	1.1	2	18	.5
S1B (Shillelagh)	9	112.00	7	63	3.5	9	81	4.5	6	54	3.0	7	63	3.5	3	27	1.5
Gun, ADA, SP, 20mm, M163	24	1.00	6,000	144,000	72.0	3,600	86,400	43.2	4,980	119,520	60.0	2,689	64,536	32.3	1,500	36,000	18.0
Howitzer, 105mm, towed, M102	54	68.50	423	22,842	782.3	467	25,218	863.7	376	20,304	605.4	381	20,574	704.6	220	11,340	388.4
Howitzer, 155 mm, towed M114	18	135.70	203	3,365	247.9	207	3,726	252.8	146	2,628	178.3	153	2,754	186.9	166	2,968	207.7

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Table 2-17. Daily Artillery Ammunition Requirements—Rounds Per Weapon and STON

Type of operation	Level of operation	First day		Succeeding days ¹		Protracted period ²	
		Rounds	STON ³	Rounds	STON	Rounds	STON
Part A. 105-mm Howitzer							
Covering Force	1-Heavy	491	16.8	511	17.5	198	6.8
	2-Moderate	319	10.9	332	11.4	129	4.4
	3-Light	172	5.9	179	6.1	69	2.4
Defense of Position	1-Heavy	423	14.5	467	16.0	222	7.6
	2-Moderate	275	9.4	304	10.4	144	4.9
	3-Light	148	5.1	163	5.6	78	2.7
Attack of Position	1-Heavy	376	12.9	381	13.0	210	7.2
	2-Moderate	244	8.4	248	8.5	137	4.7
	3-Light	132	4.5	133	4.6	74	2.5
Part B. 155-mm Howitzer (Divisional)							
Covering Force	1-Heavy	254	17.2	274	18.6	174	11.8
	2-Moderate	165	11.2	178	12.1	113	7.7
	3-Light	89	6.0	96	6.5	61	4.1
Defense of Position	1-Heavy	203	13.8	207	14.0	183	12.4
	2-Moderate	132	9.0	135	9.2	119	8.1
	3-Light	71	4.8	72	4.9	64	4.3
Attack of Position	1-Heavy	146	9.9	153	10.4	140	9.5
	2-Moderate	95	6.4	99	6.7	91	6.2
	3-Light	51	3.5	54	3.7	49	3.3
Part C. 155-mm Howitzer (Nondivisional)							
Covering Force	1-Heavy	309	21.0	333	22.6	212	14.4
	2-Moderate	201	13.6	216	14.7	138	9.4
	3-Light	108	7.3	117	7.9	74	5.0
Defense of Position	1-Heavy	227	15.4	235	15.9	199	13.5
	2-Moderate	148	10.0	153	10.4	129	8.8
	3-Light	79	5.3	82	5.6	70	4.7
Attack of Position	1-Heavy	175	11.9	183	12.4	170	11.5
	2-Moderate	114	7.7	119	8.1	111	7.5
	3-Light	62	4.2	64	4.3	60	4.1
Part D. 8-in Howitzer (Divisional)							
Covering Force	1-Heavy	360	47.3	361	47.4	207	27.2
	2-Moderate	234	30.7	235	30.8	135	17.7
	3-Light	126	16.5	126	16.5	73	9.6
Defense of Position	1-Heavy	177	23.2	164	21.5	90	11.8
	2-Moderate	115	15.1	107	14.0	59	7.7
	3-Light	62	8.1	57	7.5	32	4.2
Attack of Position	1-Heavy	130	17.1	127	16.7	56	7.4
	2-Moderate	85	11.1	83	10.9	36	4.7
	3-Light	46	6.0	45	5.9	20	2.6

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Table 2-18. Daily Antitank Guided Missile Requirements—Rounds Per Weapon/Launcher and STON

Type of operation	Level of operation	First day		Succeeding days ¹		Protracted period ²	
		Missiles	STON ³	Missiles	STON	Missiles	STON
Part A. TOW (Mounted/Unmounted) Ground System							
Covering Force	1-Heavy	9	.39	10	.44	4	.17
	2-Moderate	5	.22	6	.26	2	.08
	3-Light	2	.08	3	.13	1	.04
Defense of Position	1-Heavy	9	.39	10	.44	4	.17
	2-Moderate	6	.26	7	.30	2	.08
	3-Light	4	.17	4	.17	1	.04
Attack of Position	1-Heavy	7	.30	8	.34	4	.17
	2-Moderate	4	.17	5	.22	2	.08
	3-Light	2	.08	3	.13	1	.04
Recon and Security	1-Heavy	5	.22	6	.26	4	.17
	2-Moderate	3	.13	4	.17	2	.08
	3-Light	2	.08	2	.08	1	.04
Part B. TOW Aerial System							
Covering Force	1-Heavy	11	.48	12	.52	1	.22
	2-Moderate	6	.26	7	.30	3	.13
	3-Light	2	.08	3	.13	1	.04
Defense of Position	1-Heavy	12	.52	13	.57	5	.22
	2-Moderate	7	.30	8	.34	3	.13
	3-Light	3	.13	4	.17	1	.04
Attack of Position	1-Heavy	9	.39	10	.44	5	.22
	2-Moderate	5	.22	6	.26	3	.13
	3-Light	2	.08	3	.13	1	.04
Recon and Security	1-Heavy	7	.30	8	.34	5	.22
	2-Moderate	4	.17	5	.22	3	.13
	3-Light	2	.08	2	.08	1	.04
Part C. Dragon							
Covering Force	1-Heavy	2	.06	2	.06	1	.03
	2-Moderate	2	.06	2	.06	1	.03
	3-Light	1	.03	1	.03	1	.03
Defense of Position	1-Heavy	3	.10	4	.13	1	.03
	2-Moderate	2	.06	2	.06	1	.03
	3-Light	1	.03	1	.03	1	.03
Attack of Position	1-Heavy	2	.06	3	.10	1	.03
	2-Moderate	1	.03	2	.06	1	.03
	3-Light	1	.03	1	.03	1	.03
Recon and Security	1-Heavy	2	.06	2	.06	1	.03
	2-Moderate	1	.03	1	.03	1	.03
	3-Light	1	.03	1	.03	1	.03

Table 2-19. Ammunition in Rounds Per Weapon Per Day and STON Per Day by Level of Operation For All Types of Divisions

Weapon	Level of Operation	Defense of Position				Attack of Position					
		First Day		Succeeding Days		First Day		Succeeding Days			
		Rounds	STON	Rounds	STON	Rounds	STON	Rounds	STON		
1. MG 7.62 M18	Heavy	6000	0.300	3600	0.180	4980	0.249	2689	0.134	1500	0.075
	Moderate	4260	0.213	2556	0.128	3536	0.177	1909	0.095	1065	0.053
	Light	2580	0.129	1548	0.077	2141	0.107	1156	0.058	645	0.032
2. HEL ATK AH-1S 20MM GUN	Heavy	3000	1.200	1800	0.720	2490	0.996	1345	0.538	750	0.300
	Moderate	2130	0.852	1278	0.511	1768	0.707	955	0.382	533	0.213
	Light	1290	0.516	774	0.310	1071	0.428	578	0.231	323	0.129
3. HEL ATK AH-1S 7.62 MG	Heavy	840	0.042	509	0.025	700	0.035	382	0.019	213	0.011
	Moderate	596	0.030	361	0.018	497	0.025	271	0.014	151	0.008
	Light	361	0.018	219	0.011	301	0.015	164	0.008	92	0.005
4. HEL ATK AH-1S TOW	Heavy	12	0.593	13	0.642	9	0.445	10	0.494	5	0.247
	Moderate	9	0.445	9	0.445	6	0.296	7	0.346	4	0.198
	Light	5	0.247	6	0.296	4	0.198	4	0.198	2	0.099
5. ARAAV M551 SHILLELAGH	Heavy	7	0.392	9	0.504	6	0.336	7	0.392	3	0.168
	Moderate	5	0.280	6	0.336	4	0.224	5	0.280	2	0.112
	Light	3	0.168	4	0.224	3	0.168	3	0.168	1	0.056
6. ARAAV M551 152MM CTG	Heavy	9	0.270	5	0.150	7	0.210	4	0.120	2	0.060
	Moderate	6	0.180	4	0.120	5	0.150	3	0.090	1	0.030
	Light	4	0.120	2	0.060	3	0.090	2	0.060	1	0.030
7. ADA SP 20MM M163	Heavy	4800	2.400	2880	1.440	3984	1.992	2151	1.076	1200	0.600
	Moderate	3408	1.704	2045	1.023	2829	1.415	1527	0.764	852	0.426
	Light	2064	1.032	1238	0.619	1713	0.857	925	0.463	516	0.258
8. HOW SP 105MM M108	Heavy	423	14.488	467	15.995	376	12.878	381	13.049	210	7.193
	Moderate	300	10.275	332	11.371	267	9.145	271	9.282	149	5.103
	Light	182	6.234	201	6.884	162	5.549	164	5.617	90	3.083
9. HOW SP 155MM M109	Heavy	203	13.774	207	14.045	146	9.906	153	10.381	166	11.263
	Moderate	144	9.770	147	9.974	104	7.056	109	7.396	118	8.006
	Light	87	5.903	89	6.039	63	4.275	66	4.478	71	4.817
10. HOW SP 8" M110	Heavy	177	23.231	164	21.525	130	17.063	127	16.669	118	15.488
	Moderate	126	16.538	116	15.225	92	12.075	90	11.813	84	11.025
	Light	76	9.975	71	9.319	56	7.350	55	7.219	51	6.694
11. LCHR GREN 40MM M203	Heavy	32	0.017	19	0.010	27	0.015	15	0.008	8	0.004
	Moderate	23	0.013	13	0.007	19	0.010	11	0.006	6	0.003
	Light	14	0.008	8	0.004	12	0.007	6	0.003	3	0.002
12. LCHR GM DRAGON	Heavy	3	0.109	4	0.145	2	0.073	3	0.109	1	0.036
	Moderate	2	0.073	3	0.109	1	0.036	2	0.073	1	0.036
	Light	1	0.036	2	0.073	1	0.036	1	0.036	0	0.000
13. HEL ATK AH-1S 2.75" RKT	Heavy	42	0.693	25	0.413	35	0.578	19	0.014	11	0.182
	Moderate	30	0.495	18	0.297	25	0.413	13	0.215	8	0.132
	Light	18	0.297	11	0.182	15	0.248	8	0.132	5	0.083
14. LCHR RKT 65MM M202	Heavy	16	0.070	10	0.044	14	0.061	7	0.031	4	0.116
	Moderate	11	0.048	7	0.031	10	0.044	5	0.022	3	0.113
	Light	7	0.031	4	0.018	6	0.026	3	0.013	2	0.009

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