Chapter 12

Captured Enemy Ammunition

This chapter discusses organizations that have an interest in CEA reporting procedures and unit responsibilities. The management of CEA is an integral part of the TECHINT mission. It supports the tactical commander's effort to fight and win the battle. Evaluation of CEA provides valuable data to the commander that helps in countering the enemy's technological advantage. Exploitation of CEA and TECHINT reporting is a major part of the all-source intelligence effort. It involves everyone from the individual soldier to policy makers and all levels of command. Often, the TECHINT process begins when one soldier finds something new on the battlefield and takes steps to report it. The information or CEA is evaluated and frequently exploited at progressively higher levels until a countermeasure is produced to neutralize the enemy advantage.

HISTORICAL PERSPECTIVE

12-1. In the 1920s, Germany developed weapons and weapon systems that would be used against the allies in the 1940s. The allied nations did not include TECHINT in intelligence collection efforts. As a result, German scientific and technical advances went largely unnoticed. By the time information did come to light and was made available to Washington and London, it was ignored. These weapons were used during World War II with devastating results.

WORLD WAR II

12-2. During the air battle for Europe, the British used TECHINT to counter the German antiaircraft and night fighter defenses. They did this by exploiting captured aircraft radios and a captured radar station. This collection led to the publishing of new technical material, to include the following:

- Technical manuals and handbooks on enemy weapons.
- Training aids.
- Updates to handbooks on the German and Italian armies.

The US started a successful TECHINT program in the fall of 1943, but abandoned the program immediately after the war.

KOREAN WAR

12-3. At the beginning of the Korean War, the US finally discovered it had little hard data on enemy weapon systems. The DOD realized that TECHINT had to be ongoing if effective countermeasures were to be developed. Once again, TECHINT was established.

VIETNAM WAR

12-4. During the Vietnam War, the Captured Materiel Exploitation Center was established. Its mission was to manage and coordinate analysis of CEE and technical documents. The CMEC dispatched teams of experts and analysts into the tactical zone of each corps to evaluate and exploit captured items.

GULF WAR

12-5. During the Gulf War, coalition forces and the US Army captured a tremendous amount of enemy munitions. The US was faced with the dilemma of how to handle and dispose of these munitions. While CEA doctrine and procedures were briefly mentioned in several documents, thorough, concise procedures were not available.

TECHINT MISSION

12-6. The TECHINT mission is the end product of a complex process that involves collecting, analyzing, and processing information on foreign technology and CEM. It is also the result of studying the performance of foreign materiel, including munitions and their operational capabilities. Foreign materiel encompasses the following:

- Weapon systems.
- Equipment.
- Apparatus.
- Documents.
- Technology.
- Munitions.
- Supplies of a foreign military force or nonmilitary organization.

12-7. Like other intelligence disciplines, TECHINT guards against surprise in war or SASO. It provides several distinct types of input to the all-source intelligence product, as follows:

- Assessment of capabilities and vulnerabilities of enemy weapon systems.
- Warnings of changes in enemy tactics due to new or changing technology.
- Countermeasures.

12-8. The TECHINT system has two parts within DOD. The first is the S&TI community, which concentrates on decision-making and the TECHINT requirements of strategic policy. The second is made up of the US Army's battlefield TECHINT elements. These elements support commanders in preparing for and waging war or conducting SASO. The two parts are described below.

TECHINT ORGANIZATIONS

12-9. The scientific and intelligence activities discussed in this section are primarily concerned with peacetime exploitation of foreign materiel, including CEA.

US Army Intelligence Agency

12-10. The USAIA is a field-operating agency of the DCS that produces and disseminates intelligence information on foreign ground forces and their weapon systems. Also, it provides threat analysis and related projections to the Army's combat development community.

National Ground Intelligence Center:

12-11. NGIC produces and maintains intelligence on foreign scientific developments, ground force weapons systems, and associated technologies.

US Army Materiel Command

12-12. The USAMC shares responsibility for managing the overt acquisition of foreign materiel for TECHINT purposes. The USAMC buys foreign materiel for exploitation purposes in the US, as well as through its centers in Europe and the Far East.

US Army Intelligence and Security Command

12-13. The INSCOM has the major responsibility for SASO TECHINT operations. It fulfills this responsibility through its TECHINT oversight function and by exercising operational control over the FMIG during SASO.

Foreign Materiel Intelligence Group

12-14. At EAC, the FMIG is a battalion-sized organization located at Aberdeen Proving Ground, MD. This group is the Army's only active duty TECHINT unit. Responsibilities of the FMIG include the following:

- Conducting TECHINT operations.
- Preparing TECHINT reports in support of Army, joint, and combined operations.
- Acting as the HQDA executive agent for foreign materiel used for training purposes.

US Army Armament Research Development and Engineering Center

12-15. The primary responsibility of ARDEC during SASO is to perform detailed evaluations of foreign munitions. ARDEC is located at Picatinny Arsenal, NJ.

BATTLEFIELD ACTIVITIES

12-16. TECHINT activities on the battlefield are usually initiated at the unit level with subsequent involvement of other specialized support teams, command level staffs, and higher echelon organizations with direct responsibility for planning, operations, and logistics.

Response Units

12-17. Response units start the TECHINT process. They are responsible for initial identification, reporting, and safe handling of CEA. Types of response units are discussed briefly below.

12-18. *Capturing unit.* The capturing unit is the first unit that discovers or captures enemy munitions. Recovery and evacuation of CEA is a command responsibility at all echelons. After reporting the CEA, the capturing unit's biggest responsibility is to provide security of the CEA until the unit receives disposition instructions. The immediate headquarters of the capturing unit is responsible for the following:

- Obtaining and providing prompt disposition instructions.
- Assisting the capturing unit with safeguarding, recovering, and evacuating the CEA.

The capturing unit may be required to help destroy or coordinate the movement of CEA. Once the CEA is turned over to another unit or collection point, the capturing unit is relieved of further responsibilities.

12-19. *Explosive ordnance disposal.* EOD units identify and request disposition of first-seen ordnance and CEA of intelligence value and, if required, attempt render-safe procedures. The EOD unit submits required reports through TECHINT channels, if requested.

12-20. *US Army Technical Escort Unit.* The TEU has a worldwide mission to secure, transport, and dispose of nuclear, chemical, or biological CEA after EOD personnel have classified it as safe to handle. The TEU has EOD resources.

12-21. *TECHINT teams.* TECHINT teams initially identify and exploit CEA. They assist corps and divisional tactical operations centers. TECHINT teams rarely perform detailed analysis because there are so few teams and few laboratory facilities. These teams normally consist of a team leader and ten specialists, one from each of the following specialties:

- Tracked vehicles.
- Wheeled vehicles.
- Weapon systems.
- NBC equipment.
- Fire control systems.
- Aviation fire control systems.
- Intercept and jamming equipment.
- Communications equipment.
- Medical equipment.
- Antitank guided missiles.
- Munitions.

Staffs

12-22. Staffs at all levels use TECHINT information to update and develop plans to support the commander's intent. Based on this information, staffs advise the commander of capabilities and technological advances of opposing forces during war and SASO.

12-23. *Intelligence staff.* The J2, G2, or S2 serves as the commander's principal staff office for all MI matters. This staff has primary responsibility for the commander's battlefield TECHINT effort.

12-24. *Operations staff.* The J3, G3, or S3 serves as the commander's principal advisor for operations, plans, organization, and training. This staff incorporates TECHINT into all parts of unit plans and operations.

12-25. *Logistics staff.* The J4, G4, or S4 serves as the commander's principal staff office for supply, maintenance, transportation, and services. As the logistics planner, this staff coordinates accountability, movement, and resupply and is essential to the TECHINT system.

Intelligence Units/Activities

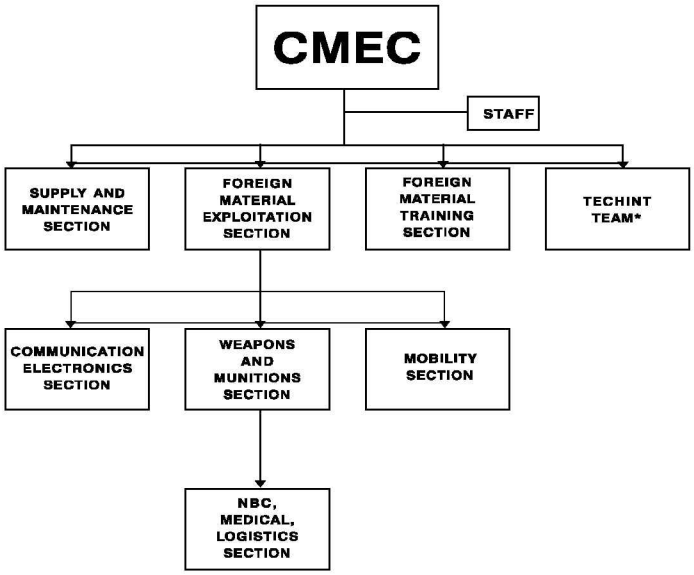
12-26. Intelligence units and activities receive, evaluate, process and disseminate information from response units and staffs. They ensure the TECHINT information is channeled to the appropriate intelligence agency.

12-27. *Military intelligence units.* During routine operations, MI units may accidentally discover incidental items of battlefield TECHINT. All MI units are responsible for establishing procedures for handling, screening, and reporting TECHINT-related items. Also, these units coordinate with operations and logistics staffs on intelligence matters. MI unit missions include the following:

- Interrogation.
- Document exploitation.
- Imagery interpretation.
- Electronic warfare.
- Unmanned aerial vehicle operations.

12-28. *Captured materiel exploitation center.* The CMEC is formed from the assets of organic and attached TECHINT elements augmented by other SMEs. (See Figure 12-1, page 12-6.) It manages the command battlefield TECHINT system through the MI brigade and the G2. When possible, other armed services should combine assets for the acquisition and exploitation of CEM, to include CEA. When this occurs, the CMEC becomes the JCMEC.

12-29. *Joint captured materiel exploitation center.* The JCMEC consists of TECHINT personnel from each participating service. As in the CMEC, the JCMEC commander is the TECHINT advisor to the J2.



*One or more TECHINT teams are deployed for each corps-equivalent command assigned within the theater command. The teams are staffed by one each TECHINT specialty found within the CMEC or task-organized to fit specific local situations. Based on need and assets available, other teams can be organized and deployed.

Figure 12-1. CMEC Organization

Other Units/Activities

12-30. Many other units may be involved in TECHINT operations involving CEA. The depth of involvement depends on the specific CEA found. These units may include the following:

- Combat arms.
- Special operations.
- Military police.
- Chemical.
- Medical.
- Engineer.
- Civil affairs.
- CSS units.

UNIT RESPONSIBILITIES

12-31. Each unit involved with CEA has specific responsibilities related to recovery, evacuation, safety, transportation, storage, and management. These units and their responsibilities are discussed below.

TRANSPORTATION UNITS

12-32. The transportation of CEA is typically part of logistical support requirements. Because it is critical that CEA be transported safely, it is being given special emphasis here.

12-33. The theater commander through the CMEC directs final disposition of CEA. Before moving CEA, an EOD or TEU team must certify that it is safe to handle and transport. An ammunition inspector should be consulted about safe loading, tie-down, and transportation procedures. The capturing unit should coordinate this support early in the planning process. Both the CMCC and CMMC must be involved in planning any movement of CEA.

12-34. The shipping activity must properly load and tie down all munitions, including CEA. The shipper must provide guidance to drivers on all aspects of safety and instruct them on proper firefighting procedures.

12-35. Accountability procedures for CEA are identical to procedures used for US munitions. Motor vehicle drivers sign for the shipment on a DD Form 1384 and are responsible only for the total number of pallets or boxes on their vehicles. Drivers do not sign the shipping documents, which are in the shipping envelope attached to the munitions pallets or boxes.

COLLECTION POINTS

12-36. The collection point commander or NCOIC is responsible for the receipt, storage, issue, shipment, and accountability of the CEA. Once the CEA is received at an ASA, an ammunition inspector inspects the CEA and determines its serviceability.

12-37. CEA is always stored separately from US stocks. It is stored and accounted for in the same manner as like US munitions. All Army activities holding CEA are required to account for the materiel IAW the basic accounting principles of ARs 710-2 and 735-5 and DA Pams 710-2-1 and 710-2-2. Serviceable CEA must be separated from unserviceable CEA within the CEA storage location. Based on the commander's assessment of the threat and risks involved, CEA will be stored at the ASA under one of the following systems:

- *Peacetime*. Storage by NEW and SCG.
- *SASO and Wartime*. Storage by gross tons and SCG (when approved by MACOM commander.

12-38. The site commander or NCOIC reports and requests disposition instructions through logistic channels as directed by the servicing MMC. If the CEA is retrograded, the procedure is the same as for like US munitions.

OTHER SUPPORT UNITS

12-39. Ordnance, aviation, medical, transportation, and quartermaster units may be called upon to perform the following tasks:

- Recover and retrograde CEA.
- Establish collection points.
- Operate collection points.

- Maintain storage location records.
- Submit reports on CEA in logistic channels.

CAPTURE AND REPORTING PROCEDURES

12-40. When a soldier or unit finds munitions, the finding must be reported immediately through command channels to the battalion S2. The report will follow the SALUTE report format (see Figure 12-2). FM 21-16, *Unexploded Ordnance (UXO) Procedures*, may be used to make a tentative identification of the munitions (i.e., projectile, grenade, or bomb). The report may be submitted orally or in writing by any means available. The soldier or unit then safeguards the found munitions or continues the mission as directed.

DANGER

All munitions found on the battlefield must be considered booby-trapped and extremely hazardous. Report all munitions as UXO regardless of country of origin.

12-41. Intermediate echelons of command forward the SALUTE report to the supporting battlefield TECHINT element. The TECHINT element sends disposition instructions back to the capturing unit. Usually, the instructions direct the unit to continue safeguarding the CEA until an EOD team or a TECHINT element arrives. Once on site, the EOD team, TECHINT element, or higher element determines if the items found have intelligence value. The higher headquarters may direct the capturing unit to initiate evacuation or simply abandon the CEA. When abandoning CEA, the responsible unit must mark the site. CEE tags, placed on stakes near the item, will be used to describe the CEA (see Figure 12-3, page 12-10). There are no special tags for CEA. *Do not attach tags directly to hazardous munitions.*

12-42. Proper marking of the site makes it easy to find the CEA once the capturing unit leaves. Also, it alerts others crossing the area that CEA has been found and reported. Marking includes any of the following methods:

- Use engineer tape or other materials and post signs to mark the area.
- Build a small berm around the stack or CEA area.
- Surround the area with CEE-tagged stakes.

TECHINT REPORTING PROCEDURES

12-43. EOD, TEU, and TECHINT teams are qualified to identify captured munitions. An EOD response team may be dispatched to a site to investigate and render safe the munitions. If an EOD team cannot be sent immediately, the CEA will be marked and left for later evaluation. TEUs have EOD resources available and may be able to render safe the CEA.

12-44. TECHINT teams are sent to CEA sites to complete technical intelligence reporting. If a TECHINT team is not available, an EOD team may be asked to identify and evaluate the CEA and activate the TECHINT reporting process. EOD may be directed to segregate and/or dispose of the CEA if it is hazardous or armed. If the CEA has chemical fillers, a TEU may be requested to evaluate, process, and evacuate the CEA.

EXAMPLE

SALUTE REPORT

TO: G2, V CORPS DTG: 230900Z AUG 98

FROM: 1-96 FA, 23 AD REPORT NO: 07-035

1. SIZE: N/A

2. ACTIVITY: Captured Ammunition

3. LOCATION: West bank of Fulda River, south of Bebra, six-digit grid NB 553476

4. UNIT: 1-96 FA, 23 AD (capturing unit)

5. TIME: Ammunition captured at 230230Z Aug 98

6. EQUIPMENT: N/A

7. REMARKS/OTHER INFORMATION: Response to priority intelligence requirement (IPR) 23-0016-93. Ammo site secured, awaiting disposition instructions.

Figure 12-2. Sample Format for SALUTE Spot Report

12-45. If the item is identified as a first-seen CEA, the TECHINT team, EOD team, or TEU forwards a PRETECHREP through command channels to the CMEC (see Figure 12-4, page 12-11). The PRETECHREP gives a general description of the CEA and alerts tactical units to technical information of immediate tactical importance.

12-46. Based on the PRETECHREP, EOD teams may be asked to prepare the Type B COMTECHREP (see Figure 12-5, pages 12-11 and 12-12), which is specifically for EOD. It includes the CEA itself or summaries, diagrams, photos, and samples. Type A COMTECHREP is for USAF TECHINT items. The Type C COMTECHREP is for items not reported on the Type A or B report. If the CMEC directs destruction of the CEA, the EOD team completes the disposal. Once the CEA is destroyed or moved to a collection point, the capturing unit is no longer responsible for the munitions. For more information, see FM 34-54.

PROCEDURES FOR MOVING CEA

12-47. CEA can be evacuated to the nearest collection point once the TECHINT element determines it has no intelligence value. Corps or division establishes CEA collection sites, usually at primary Class V ASAs. These collection points may be at any one of the ASAs or ATPs.

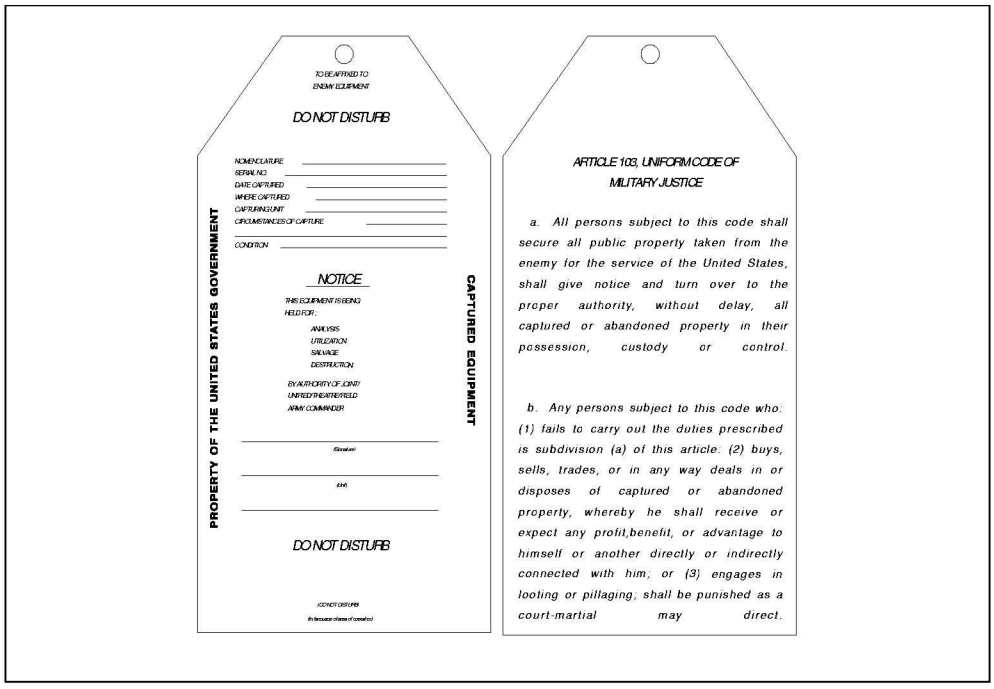


Figure 12-3. Sample CEE Tag

WARNING

All CEA must be certified safe by EOD and/or QASAS prior to any movement.

12-48. Capturing unit transportation assets may be used to evacuate CEA to the nearest collection point. The mission of the capturing unit must be considered when deciding whether the unit will evacuate the CEA. Transportation units may transport CEA from the site of discovery to the collection point or to the rear.

12-49. The capturing unit's higher headquarters, along with the DISCOM and COSCOM, coordinates required transportation. The local MCT notifies the collection point commander of an inbound shipment. EOD, QASAS, or other munitions personnel provides guidance on safe handling and evacuation of CEA. Trained munitions personnel supervise handling and shipment of CEA. CEA is transported in the same manner as similar types of US munitions.

12-50. In certain situations, if a threat exists, the CEA may be evacuated before evaluations or reports are completed. The theater commander determines disposition of CEA through the TECHINT element and the CMEC. See Figure 12-6, page 12-13, for a diagram of CEA movement in a mature theater.

12-51. In an immature theater, movement to a collection point may be left out to return CEA to the rear. The intelligence element or EOD team notifies the local commander of the CEA. The movement is coordinated within the division or corps by the DISCOM or COSCOM. A TEU team should escort chemical or biological material to the nearest collection point or rear.

EXAMPLE

(Classification)

PRETECHREP

A. Type of equipment and quantity.

B. Date and time of capture.

C. Location (map reference).

D. Capturing unit and circumstances of capture.

E. Enemy formation from which captured and origin.

F. Brief description with serial numbers and, if possible, manufacturer.

G. Technical characteristics with an immediate value, including information or any photographs available.

H. Time and origin of message.

I. Present location of CEE.

(Classification)

Figure 12-4. PRETECHREP Format

EXAMPLE

Confidential when filled in)

COMTECHREP–TYPE B (EOD Report)

Section I. (U) DESCRIPTIVE INFORMATION

1. (U) IDENTIFICATION. See Figure for physical appearance and dimensions. NOTE: This will be an external view (when possible) and not show internal components.

a. (U) Designation. Ordnance designation (if known) with transliteration of foreign alphabet. Example: M45

b. (U) Type. Used to summarize the key functional aspects of the items. Example: This is a High Explosive Rocket Assist (HERA) projectile.

c. (U) Painting and Markings. Record all paintings, surface treatments, and markings.

d. (U) Features. Point out unique or distinguishing external features of the item that are not obvious in the drawings.

2. (U) DESCRIPTION.

a. (U) Material. Include information pertaining to the major external components; for example, "plastic," "aluminum."

b. (U) Weight. Give the approximate weight if known.

Figure 12-5. Type B COMTECHREP Format

EXAMPLE (Continued)

3. (U) HAZARDOUS COMPONENTS.

ITEM QTY LOCATION EXPLOSIVE HE WEIGHT

List Hazardous components (if known).

4. (U) FUNCTIONING. Explain the operation of the ordnance, particularly the components of the ordnance involved with initiating the explosive train.

5. (U) APPEARANCE. It must be known for certain that the item is unarmed if the item is to be treated as such.

a. (U) Unarmed Condition. Example: The item is unarmed if not fired.

b. (U) Armed Condition. Example: Consider the item armed if it has been fired.

Section II. (C) EOD PROCEDURES. (EOD USE ONLY)

6. (U) RENDER SAFE PROCEDURE FOR THE UNARMED CONDITION.

a. (C) PROPOSED: (Develop and record prior to completing RSP).

b. (U) Proceed to disposal.

7. (U) RENDER SAFE PROCEDURE FOR THE ARMED CONDITION WARNINGS.

a. (C) PROPOSED: (Develop and record prior to completing RSP).

b. (U) Proceed to Disposal.
Continued:

8. (U) DISPOSAL PROCEDURE.

a. (U) Unarmed. Transport hazardous components to safe disposal area and dispose of by detonation.

b. (C) Armed.

(1) (Include quantity of explosives used to dispose of item).

(2) Detonate remotely.

(Confidential when filled in)

Figure 12-5. Type B COMTECHREP Format (Continued)

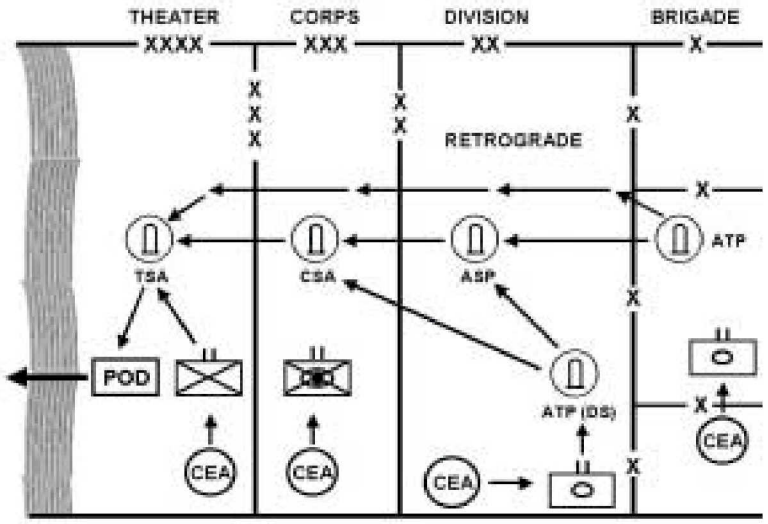


Figure 12-6. CEA Movement in a Mature Theater

CMEC PROCESSING OF CEA

12-52. The CMEC is the first real processor of CEA. When it receives CEA, the CMEC determines its level of TECHINT value. If the item is on the TECHINT requirement list, or it is of TECHINT interest, the CMEC concentrates on exploiting the CEA for immediate tactical or operational use.

12-53. CMEC specialists conduct rapid, initial scientific and technological analyses of CEA in their battlefield laboratory. Any immediate countermeasure, information, or intelligence they develop is quickly distributed to appropriate combat, CS, and CSS units. At the same time, the CMEC quickly evacuates the CEA to CONUS for an in-depth exploitation of the item.

12-54. The CMEC coordinates evacuation of CEA of special TECHINT interest to and from the CMEC. For items that cannot be evacuated, CMEC organizes and deploys a quick reaction team to coordinate the evacuation of the item or to exploit it on site.

MANAGEMENT AND DISPOSAL OF CEA

12-55. CEA must be inventoried and accounted for just like US munitions. If CEA arrives at a collection point unidentified but clearly recognized as a projectile, propelling charge, fuze, and so forth, then a pseudo catalog data record may be designated and entered into SAAS to account for the item. The supporting MMC assigns and standardizes pseudo catalog data records within the theater.

ISSUING CEA

12-56. In unique circumstances, CEA may be issued to using units in the same manner as US munitions. All requests for serviceable CEA are approved and assigned a priority for issue to US units engaged in special

missions or training by higher headquarters. CEA is issued based on the following priorities:

- Intelligence.
- Special warfare.
- Special operations forces.
- Combat units.
- CS and CSS units.
- Substitutes or supplements to US munitions.

DISPOSAL OF SERVICEABLE CEA

12-57. Serviceable CEA is evacuated, collected, and stored wherever directed by higher headquarters. The CMEC, in coordination with the TAMMC or CMMC, usually makes this decision. Emergency or immediate destruction of serviceable CEA takes place under the following conditions:

- If recapture is imminent due to location of the CEA.
- If EOD or TECHINT declares the CEA hazardous to the safety of troops.

If the CEA is to be destroyed, all factory markings should be carefully recorded (and photographs taken, if possible) before destruction.

DISPOSAL OF UNSERVICEABLE CEA

12-58. ASAs routinely destroy unserviceable CEA. However, the following points must be considered before destruction takes place:

- ASAs must first support all demolition requirements of US units with on-hand demolition materials.
- If disposal of US munitions using serviceable demolition material has been authorized by higher headquarters, CEA should be included in that operation.
- Unserviceable CEA will be included only if added demolition materials are not required. Higher headquarters approval is not needed for the addition of unserviceable CEA when sufficient demolition materials are on hand.
- The ASA commander must select an appropriate disposal method for CEA that does not use serviceable demolition materials.

SUMMARY

12-59. Certain types of CEA have high potential for intelligence value. Capturing and support units should understand the importance of adhering to handling, reporting, and transportation requirements. Safety is implicit in the responsibilities of any type unit involved with CEA. Munitions units in particular must exercise caution and follow good management practices in storing, moving, and disposing of CEA. Loss of personnel due to detonation of munitions caused by improper handling, processing, and transportation reduces the significance of any intelligence value.

Appendix A

Ammunition Basic Load

Ammunition basic loads are MACOM designated quantities of Class V supplies that allow units to initiate combat operations. Basic loads are combat-deployable using organic transportation in a single lift. This appendix provides a list of references and general guidelines relevant to all Army units for determining personnel/command responsibilities, implementing requisition and storage procedures, and conducting inventory and quality assurance programs.

RESPONSIBILITIES

A-1. Responsibilities of key personnel/commands for ABL management are as follows:

- *Commanders* at all levels coordinate distribution of ABL data, review ABL computations, approve ABL authorizations, ensure ABL is on hand or on requisition, maintain the unit's ABL file, conduct annual internal reviews of the ABL file, and coordinate with supporting ammunition inspectors to ensure stockpile serviceability.
- *Ammunition Supply Points or Depots* manage stockpiles and coordinate with the supporting MMC to ensure enough ammunition is on hand and serviceable to provide for all supported units. Also, they maintain a suspense file of all prepositioned requests and coordinate requirement updates with supporting units at least annually.
- *QASAS* perform inspections of ABL in the possession of the owning unit at least annually. QASAS also notify owning units of any ammunition information notices that may affect their on-hand ABL.
- *Supporting MMCs* coordinate with supported units and the ASPs/depots to ensure adequate serviceable munitions stocks are on hand. This is accomplished by ensuring that ABL shortages are placed on requisition and providing disposition instructions for ammunition excess to ABL requirements. The installation commander/ammunition office may be required to accomplish the MMC related management.
- *The NGB Chief* prepares ABL data for ARNG units designated to mobilize. Also, he forwards the data to ARNG state headquarters for distribution to units.
- *ARNG state headquarters* distribute automated and manually prepared ABL data to ARNG units for review and update. The headquarters reviews and approves ARNG changes to ABL authorization lists, forwards approved lists and requests for issue to mobilization stations, conducts annual reviews of unit ABL files, and provides status to the chief of the NGB.

BASIC LOAD AMMUNITION

A-2. Basic load ammunition encompasses conventional ammunition and missiles that a unit must have on hand or on request at all times. Basic load can be further broken down and defined as:

- *TAT ABL.* Ammunition that either can be carried by or accompanies the soldier, uploaded on a combat vehicle or on organic transportation, during deployment.
- *Non-TAT ABL.* Ammunition that cannot accompany the soldier or be loaded in or on unit combat or transport vehicles during deployment.
- *Ammunition combat loads.* HQDA designated quantities carried by each deployable weapon system to initiate combat as determined by TRADOC materiel developers.

PROCEDURES AND ACCOUNTABILITY

A-3. AR 710-2 and MACOM policies authorize basic load ammunition. Drawn basic load ammunition is maintained on property books IAW hand receipt procedures described in DA Pam 710-2; records of responsibility are required. MACOMs designate which units are required and able to stock ABL and which will have on hand a properly authenticated request for issue. Guidelines for determining ammunition responsibility and accountability are as follows:

- When a unit is approved to physically draw and store their ABL, they will prepare a properly authenticated DA Form 581 and submit it to the supporting ASP/depot. MACOMs establish procedures for submitting and obtaining required approval on the DA Form 581.
- All other units not designated to draw and store their ABL will submit a properly authenticated DA Form 581 to the supporting ASP/depot for planning purposes. Both the ASP/depot and the unit will maintain a copy of the request. The request is used to ensure that adequate serviceable stocks are on hand and to speed the issue process in event of deployment. MACOMs establish specific procedures for the units to follow.

A-4. Various methods apply to ABL accountability. How ABL is stored determines which of the following methods will be used:

- The storage location retains accountability for the ammunition when the basic load is not issued to the unit and is stored at the supporting ASP or depot. The ASP/depot assigns the ammunition to the MACOM designated account code and accounts for it using the approved ammunition STAMIS (usually SAAS-ASP). The unit should record on the property book page the document number from the DA Form 581 request. ABL managed in this manner need not be segregated from other on-hand stocks at the ASP/depot.
- The unit maintains accountability when the ASP/depot issues the basic load to the unit, posts it as a loss to the ammunition STAMIS, and the unit provides its own secure storage area. Responsibility is assigned to the individual having custody of the keys to the storage area using hand receipt procedures described in DA Pam 710-2-1.

- The unit maintains accountability when the ASP/depot issues the basic load to the unit, posts it as a loss to the ammunition STAMIS, but provides a locked storage location for access because the unit lacks secure storage facilities. Responsibility is assigned to the individual having custody of the keys to the area using hand receipt procedures described in DA Pam 710-2-1.
- The unit maintains accountability when the ASP/depot issues the basic load to the unit, posts the issue as a loss to the ammunition STAMIS, and provides secure storage for the ammunition but does not limit access to the owning unit. Responsibility for the ammunition is assigned to the ASP/depot accountable officer using hand receipt procedures in DA Pam 710-2-1.

INVENTORY

A-5. Basic load ammunition will be inventoried IAW AR 710-2. MACOMs will establish procedures and guidance for maintaining physical security and conducting basic load inventories IAW DA Pam 710-2-1. At a minimum the inventories must–

- Be accomplished monthly when ABL is issued to the owning unit and is stored in a secure location (IAW AR 190-11).
- Be accomplished daily when ABL is in the possession of the owning unit and not stored in a secure location (IAW AR 190-11).
- Be accomplished semiannually (CIIC 1, 5, and 6) and annually (other than CIIC 1, 5, and 6) when stored and accounted for by the ASP/depot.

QUALITY ASSURANCE

A-6. Only Condition Code A ammunition (serviceable, issuable without qualification) will be used to fill basic load requirements. Units will coordinate with the supporting QASAS to have any on-hand basic load inspected at least annually by an ammunition inspector. Units having on-hand ammunition stocks must also coordinate with the supporting QASAS or ASP/depot to ensure that they obtain relevant ammunition information notices of suspensions or restrictions. If on-hand ammunition is determined to be unsuitable for continued use as basic load, the unit will coordinate with the supporting ASP/depot for turn-in and replenishment.

REFERENCES

A-7. The following references apply to this appendix:

- AR 190-11, *Physical Security of Arms, Ammunition, and Explosives.*
- AR 220-10, *Preparation for Overseas Movement of Units.*
- AR 710-2, *Supply Policy Below Wholesale Level.*
- DA Pam 710-2-1, *Using Unit Supply System.*
- DA Pam 710-2-2, *Supply Support Activity Supply System.*
- SB 38-26, *Ammunition Supply Rates (Classified).*

Appendix B

Guidance for Commanders

This appendix contains information for review by munitions company commanders and modular platoon leaders to assist in analysis and evaluation of unit operational readiness for combat or SASO. Checklists should be developed to generate SOP-level of detail. Also, theater and corps level OPORDs and OPLANs should be consulted.

DOCTRINAL CONSIDERATIONS

B-1. Army doctrine requires that munitions units be capable of successfully executing their mission without lengthy adjustments or train-up periods. An effective training program that emphasizes collective and individual training and builds leadership skills is critical to successful execution. Training management is the primary responsibility of the unit commander. METL development and training must focus on the unit's wartime mission.

LOGISTICS CHARACTERISTICS

B-2. Review the five logistics characteristics necessary for munitions support for combined arms operations:

- *Anticipation* of future events and needs of combat commanders.
- *Integration* of logistical support into tactical and operational plans of combat commanders.
- *Continuity* of munitions support for depth, momentum, and initiative.
- *Responsiveness* to changing needs of combat commanders.
- *Improvisation* to allow reaction to unexpected and unanticipated events.

TACTICAL SUSTAINMENT

B-3. Review the four support considerations to be used for tactical CSS sustainment:

- Support combat commander's intent.
- Support as far forward as possible.
- Maintain TAV to support combat forces.
- Rely upon the Army's system of effective leadership to adapt to needs of the battlefield.

B-4. Review the factors to be considered for tactical sustainment:

- Determine combat commander's priorities for support.
- Identify consumption factors for the type of operation being planned.
- Determine status of stockage levels and critical shortages.
- Determine threat to supply operations in the rear and forward.
- Determine tactical contingencies that may have to be supported.

- Identify locations of supporting and supported units.
- Identify locations of MSRs.
- Identify locations of higher headquarters and supporting MMC.
- Review plans for transportation and aviation resupply support.
- Review applicable Class V plans and annexes.
- Determine requirements for retrograde support.

OPERATIONAL SUSTAINMENT

B-5. Review the factors to be considered for maintaining supply operations:

- Establish effective physical security SOPs and plans.
- Determine method of munitions supply.
- Evaluate operational effectiveness of SAAS-MOD.
- Evaluate site location and layout.
- Establish liaison and communication with supporting and supported units, higher headquarters, MMCs, and transportation units.
- Plan for support of tactical movement of unit personnel, equipment, and stocks.
- Identify plans for technical assistance support of combat units.
- Determine requirements for added collective and individual training.

RECEIPT, ISSUE, AND STORAGE

B-6. Review the factors to be considered with receipt, issue, and storage operations:

- Determine availability and adequacy of MHE and personnel (military and civilian) to conduct effective supply point operations.
- Determine compliance with Q-D, explosive safety standards, and licensing requirements.
- Ensure that munitions are being stored safely IAW with DA Pam 385-64.
- Establish SOPs for receipt, issue, and storage operations.
- Establish SOPs for firefighting, physical security, routine and emergency destruction, and NBC and UXO procedures.
- Evaluate munitions management and stock control procedures.
- Ensure that inventory and accountability procedures are maintained with 100 percent accuracy.
- Ensure that munitions reporting requirements are met.
- Determine requirements for added collective and individual training.

MAINTENANCE OPERATIONS

B-7. Review the factors to be considered for maintenance operations:

- Evaluate unit maintenance resources, procedures and priorities.
- Forecast the impact of personnel and equipment shortfalls on unit capabilities.

- Identify plans for maintenance support.
- Identify and establish liaison with supporting maintenance units/activities.
- Identify plans for evacuation of battle-damaged equipment.
- Establish maintenance operations SOP and evaluate availability of supplies and equipment.
- Determine requirements for added collective and individual training.

REDEPLOYMENT OPERATIONS

B-8. Review factors to be considered for redeployment:

- Develop redeployment plans and procedures.
- Determine accurate status of personnel and equipment.
- Ensure that retrograde of stocks is conducted safely, and that all safety standards are enforced.
- Determine requirements for EOD support if applicable.
- Identify plans for transportation, maintenance, personnel, medical, financial, religious, POL, PLL, supply, and other life support.
- Ensure that physical security plans and procedures are followed.
- Coordinate redeployment plans with supporting and supported units to ensure understanding.
- Coordinate changes in redeployment plans with key NCOs to prevent false rumors from damaging unit morale.
- Ensure a safe, secure, and efficient redeployment.

Appendix C

Forecasting and Managing Training Ammunition

Units are authorized by AR 5-13 to use conventional ammunition during readiness training for combat. The Army training goal is a combat ready force prepared to mobilize and deploy on short notice and to fight and defeat the enemy. This appendix provides general guidance on forecasting and managing training ammunition. Specific references to appropriate DA pamphlets are included for calculating and forecasting ammunition requirements.

TRAINING STANDARDS AND STRATEGIES

C-1. The Standards in Training Commission was established in 1982. Its mission is to determine quantities and types of munitions required for soldiers, crews, and units to attain and sustain weapons proficiency relative to readiness levels. Weapons committees (i.e., Air Defense, Armor, Aviation, Engineer, Field Artillery and Infantry) develop weapons training standards and strategies, and the STRAC Steering Committee reviews and approves them. DA Pam 350-38 identifies weapons and weapon systems for which training programs have been written and approved. Commanders must examine each strategy as it applies to the unit's MTOE, METL, training level, time available, and unique training needs. Also, commanders must consider the unit's overall training program and objectives as specified by the applicable SM, CTT, and ARTEP, as well as the availability of simulators and devices.

C-2. Training strategies and ammunition requirements are not prescriptive. Commanders must determine and design strategies that allow their units to attain standards. The STRAC strategies are models for training and resourcing and represent *one way* to attain and sustain standards. Because they are generic and notional, they do not generate specific requirements. Commanders can select from a generic menu of training events that allows them to train towards a specific assigned mission or training goal. This flexibility is intended to accommodate unit requirements.

C-3. Training strategy tables reflect generic requirements. They do not automatically translate into resource authorizations or allocations of rounds on the ground to be fired. Factors affecting annual authorizations for training ammunition include:

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

C-4. DA Pams 350-38 and 350-39 contain requirement computation data for training ammunition. Figures are based on the number of weapons systems assigned, readiness levels, and quantities of ammunition needed to sustain

soldier and crew proficiency. They apply to the weapon and weapon systems used throughout the force for both the Active and Reserve Components. These pamphlets provide commanders and other unit trainers with a common set of standards for weapon and weapon system qualification. Also, they offer suggested weapons training strategies, a model for resource requirements, and measurable standards for evaluating overall training readiness.

FORECASTING

C-5. Forecasting ammunition requirements is a peacetime procedure. It is based on data in the pamphlets cited above and on projected training events such as individual weapons qualification, FTXs, and crew weapons qualification. Factors that impact requirements-determination forecasting include the following:

- Historical and actual ammunition consumption data from previous training exercises.
- Training objectives.
- Equipment/weapon system availability.
- Range time.

C-6. Training ammunition requirements are determined using DA Form 5514-R. This document summarizes the total quantity of each DODIC needed to support training during the coming 12 months. As prescribed by AR 5-13, MACOMs modify and provide requirements to HQDA before the beginning of each fiscal year. HQDA gives MACOMs the authorization for training ammunition based on stock availability, funding, ammunition production, transportation, and other considerations. Units prepare and use this forecast to maintain an up-to-date calculation of ammunition needs. MACOMs use it to determine requisition needs. This forecast also feeds the WARS.

C-7. To get ammunition for training, units must prepare training ammunition forecasts IAW DA Pam 710-2-1 and submit them as directed by the MACOMs. Time frames for submitting forecasts also are prescribed by the MACOMs. Generally, the procedure is as follows:

- Determine planned training requirements for each of the next 12 months.
- Determine the DODIC and quantity needed for each training requirement. Refer to the computation data in DA Pams 350-38 and 350-39.
- Do not exceed a quantity when that quantity remains on the authorized allocation for the current fiscal year.
- Coordinate with the S3/S4, G4, or DOL to ensure that quantities forecast are not excessive and that the correct historical data were used when computing requirements for months in the next fiscal year.
- Use DA Form 5514-R to record the total for each DODIC required for each month in which the unit will draw training ammunition from an ASA.
- Submit the completed forecast to the next higher headquarters.

Each level in the chain of command uses DA Form 5514-R to consolidate and forward the forecasts to the next higher headquarters IAW means prescribed by the MACOM.

MANAGING

C-8. Units that request and receive ammunition from an ASA must maintain training ammunition management and control documents. Use the documents listed below to manage training ammunition and missile authorizations, to control issue of ammunition and missiles, and to ensure that unexpended ammunition and ammunition residue are controlled until returned to the ASA:

- DA Form 5203.
- DA Form 5204.
- DA Form 581 or automated equivalent.
- DA Form 581-1.
- DA Form 3151-R.
- DA Forms 5515 and 5515-1.
- DA Form 2064.

The TAMIS Authorization Report is used to maintain a running balance of the annual training authorization by deducting, from the initial authorization, issues from the ASA. The G-3 or installation DOL usually manages this computer-based report.

PHYSICAL SECURITY AND AMNESTY PROGRAMS

C-9. Upon departure from the ASA, the receiving unit must provide physical security for ammunition IAW AR 190-11 and DA Pam 710-2-1. At the discretion of their MACOMs, AC and ARNG units located OCONUS are authorized home storage of training ammunition. The same storage and inventory procedures that apply to basic load ammunition apply to training ammunition. Also, AR 190-11 outlines construction requirements for ammunition storage rooms and magazines, and DA Pam 710-2-1 provides guidance on field storage and use of residue items for training.

C-10. Installation commanders will establish and implement an amnesty program that does not intimidate the individual or prevent the individual from freely turning in ammunition. The intent of amnesty programs is to ensure maximum recovery, not to circumvent normal turn-in procedures. Commanders will monitor amnesty programs as indicators of effectiveness of ammunition accountability and ensure that they are not used to circumvent accountability. See DA Pam 710-2-1 for more guidance on establishing an amnesty program.

Appendix D

Brass Conversion

The data and procedures contained in this appendix are used to compute the weight and/or quantity of expended cartridge cases. See Figure D-1 below.

Case Type	Weight (pounds)
.22 caliber, brass, short	.0008
.22 caliber, brass, long	.0014
.30 caliber, brass, carbine	.0101
.30 caliber, steel, carbine	.0081
.30 caliber, brass, all others	.0286
.38 caliber, brass, all	.009
.45 caliber, brass, all	.0124
.45 caliber, steel, all	.012
.50 caliber, brass, all	.121
.50 caliber, steel, all	.111
5.56 millimeter, brass, all	.0135
7.62 millimeter, brass, large	.026
9 millimeter parabellum	.009
20.0 millimeter, brass, small	.2
20.0 millimeter, brass, large	.25
25 millimeter, all	.48
Shotgun, brass, all	.036

Figure D-1. Brass Conversion Chart

TO FIND WEIGHT

D-1. Multiply the quantity of expended cartridge cases by the weight. Using the example, brass, short, expended-rounds, .22 caliber, work the formula as shown below.

FORMULA

D-2. Quantity of the item x Weight = Weight of expended cartridge cases.

COMPUTATION

D-3. 39,875 rounds x .0008 lbs = 31.9 lbs.
Work to one decimal place and round down: 31 pounds expended.

TO FIND QUANTITY

D-4. Divide the weight of the expended cartridge cases by the weight. Using the example, brass, expended-cartridges weight of .38 caliber, work the formula as follows:

FORMULA

D-5. Total Weight ÷ Weight of the item = Quantity of expended cartridge cases.

COMPUTATION

D-6. 82.0 pounds ÷ .009 pounds = 9,111.1 rounds.
Work to one decimal place and round down: 9,111 rounds.

Appendix E

Ammunition Condition Codes

Ammunition condition codes are single letters that classify munitions materiel. Each ACC identifies degree of serviceability, condition, and completeness (readiness for issue and use), as well as actions under way to change the status of materiel. This appendix defines ACCs A-H, J-N, and P.

ACC A–SERVICEABLE (ISSUABLE WITHOUT QUALIFICATION)

E-1. New, used, repaired, or reconditioned materiel that is serviceable and issuable to all units without limitations or restrictions. This includes materiel with more than six months shelf life remaining.

E-2. Normal incidental requirements for additional packaging, packing, marking, and so forth that can be accomplished at the time of issue (without requiring added resources, manpower, or delays) do not constitute a restriction.

ACC B–SERVICEABLE (ISSUABLE WITH QUALIFICATION)

E-3. New, used, repaired, or reconditioned materiel that is serviceable and issuable for its intended purpose; however it is restricted from issue to specific units, activities, or geographical areas by reasons of its limited usefulness or short-service life expectancy. This includes materiel with three through six months shelf life remaining.

E-4. Normal incidental requirements for additional packaging, packing, or marking, and so forth that can be accomplished at the time of issue (without requiring any added resources, manpower, or delays) do not constitute a restriction. This includes items restricted to or from a specific mission.

ACC C–SERVICEABLE (PRIORITY OF ISSUE)

E-5. Items that are serviceable and issuable to selected customers, but that must be issued before conditions A and B materiel to avoid loss as usable assets. Includes materiel with less than three months shelf life remaining.

ACC D–SERVICEABLE (TEST/MODIFICATION)

E-6. Serviceable materiel requiring test, alteration, modification, conversion, or disassembly. This does not include items that must be inspected or tested immediately before issue.

ACC E–UNSERVICEABLE (LIMITED RESTORATION)

E-7. Materiel that involves only limited expense or effort to restore to serviceable condition and is accomplished in the ASA where the stock is located. Minor maintenance is exterior to the round or munitions. Includes all

repair of external surfaces and repair/replacement of packaging, packing, palletizing, and marking.

ACC F–UNSERVICEABLE (REPARABLE)

E-8. Economically reparable materiel that requires repair, overhaul, or reconditioning. Includes reparable items that are radioactively contaminated. Major maintenance usually requires replacement of end item components or modification.

ACC G–UNSERVICEABLE (INCOMPLETE)

E-9. Materiel requiring additional parts or components to complete the end item prior to issue.

ACC H–UNSERVICEABLE (CONDEMNED)

E-10. Material that has been determined to be unserviceable and does not meet repair criteria (includes condemned items that are radioactively contaminated). This includes materiel determined to be uneconomically repairable.

ACC J–SUSPENDED (IN STOCK)

E-11. Materiel in stock that has been suspended from issue and use pending condition classification or analysis, where the true condition is not known.

E-12. Includes temporarily suspended materiel pending serviceability determination. Includes USAF materiel identified and held for future test or surveillance requirements, either destructive or nondestructive in nature. May contain formerly serviceable assets that became unserviceable by reason of being reserved for test or that the shelf/service life has expired. Army ammunition that has missed two scheduled periodic inspections is included.

ACC K–SUSPENDED (RETURNS)

E-13. Materiel returned from users and awaiting condition classification. Includes items identified by stock number and item name, but not examined for condition. Stocks in this ACC will be inspected and properly classified as to condition IAW appropriate regulations. When more time is required, an extension may be granted by the applicable supply distribution activity.

ACC L–SUSPENDED (LITIGATION)

E-14. Materiel held pending litigation or negotiation with contractors or common carriers.

ACC M–SUSPENDED (IN WORK)

E-15. Materiel identified on inventory control records, but which has been turned over to a maintenance facility or contractor for processing.

ACC N–(SUITABLE FOR EMERGENCY COMBAT USE)

E-16. Munitions stocks suspended from issue except for emergency combat use.

ACC P–UNSERVICEABLE (RECLAMATION)

E-17. Materiel determined to be unserviceable, uneconomically reparable due to a physical inspection, tear-down, or engineering decision. Items contain serviceable components or assemblies to be reclaimed.

Appendix F

Ammunition Identification

Ammunition is identified by markings and color-coding on the items themselves, the containers, and the packing boxes. The markings and standard nomenclature of each item, together with the lot number, FSC, NSN, DODIC, and DODAC, completely identify each item and are used to maintain accountable records. This appendix gives a basic explanation of markings and color-coding. Because color-coding is a more ready means of identification, it is given greater emphasis here.

MARKINGS

F-1. Markings stenciled or stamped on munitions items include all information needed for complete identification. Components in which all explosive, incendiary, or toxic materials have been simulated by substitution of inert material are identified by impressed INERT markings. Components in which all explosive, incendiary, or toxic materials have been omitted are identified by stamped EMPTY markings.

AMMUNITION LOT NUMBER

F-2. Each item of ammunition is assigned a complete round or item lot number when it is manufactured or is at the LAP plant. See MIL-STD 1168-A for a description of the current system. See MIL-STD 1168 for a discussion of the old lot numbering system. Figure F-1 breaks down a typical ammunition lot number showing both the new and old systems.

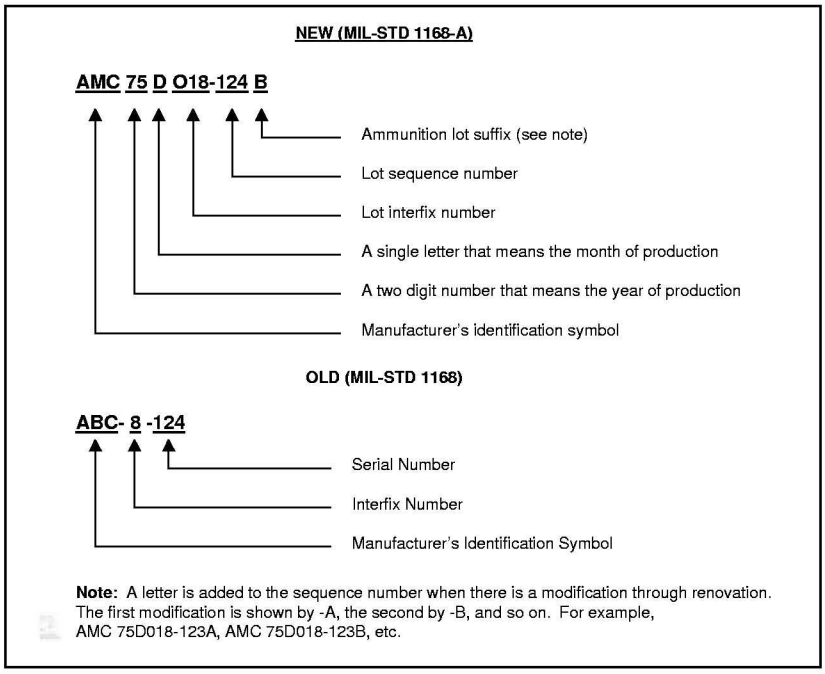


Figure F-1. Typical Lot Number System

CONVENTIONAL AMMUNITION FEDERAL SUPPLY CLASSES

F-3. Conventional ammunition is FSG 13. Within this group, ammunition is further broken down by two more numbers that identify the general type or family in which the item falls. Table F-1 lists the FSCs.

Table F-1. FSC Group 13 Classes

FSC Group 13 (classes)	Ammunition and Explosive Type or Family
1305	Ammunition, through 30mm
1310	Ammunition, over 30mm up to 75mm
1315	Ammunition 75mm through 125mm
1320	Ammunition, over 125mm
1330	Grenades
1340	Rockets and rocket ammunition
1345	Land mines
1365	Military chemical agents
1370	Pyrotechnics
1375	Demolition materials
1376	Bulk explosives
1377	Cartridge and propellant actuated devices and components
1390	Fuzes and primers
1395	Miscellaneous ammunition
1398	Specialized ammunition handling and servicing equipment
1410/20/25/27	Guided missiles

Note: There are other FSC groups, but they are for Class V materiel outside the US Army ammunition inventory. (Look in any current copy of the DOD ammunition listing, volumes 1 through 3, for more information.)

CONVENTIONAL AMMUNITION NATIONAL STOCK NUMBERING SYSTEM

F-4. Each complete round or item of conventional ammunition or associated explosive component is identified by its own NSN. The first four numbers of the NSN is the FSC. It is followed by the National Item Identification Number, or NIIN, which consists of a two-number code identifying the country of manufacture and a seven-number item identification. See Figure F-2 below.

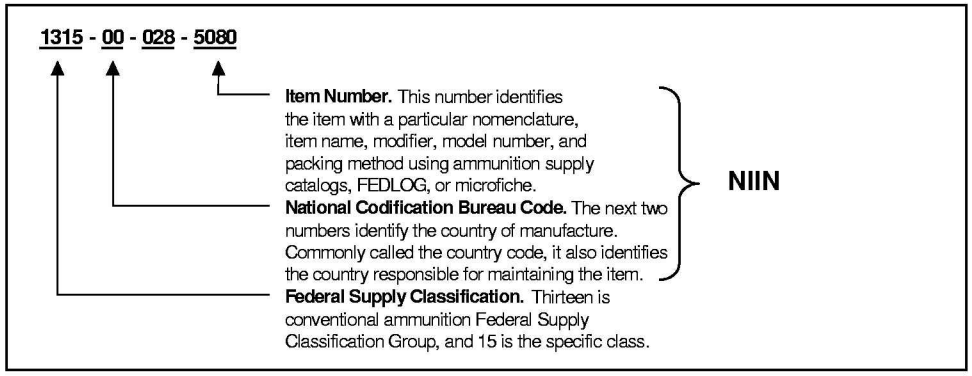


Figure F-2. Example of an NSN

DEPARTMENT OF DEFENSE IDENTIFICATION CODE

F-5. A DODIC is a single letter and three numbers or, in the case of small guided missiles, two letters and two numbers. It is attached at the end of all NSNs to denote interchangeability of the item. Communications between ammunition units often use an ammunition item DODIC. See Figure F-3 for a conventional NSN with DODIC added, demonstrating interchangeability between various model numbers and the designators of an ammunition item.

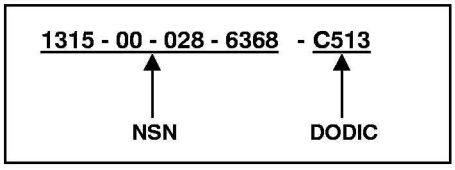


Figure F-3. Sample DODIC

DEPARTMENT OF DEFENSE AMMUNITION CODE

F-6. The DODAC includes the FSC of the ammunition and the DODIC. The code is used on all using unit DD Form 581s, DA Form 3151-Rs, and most ammunition reports. The DODAC is used instead of the DODIC to reduce errors with ammunition transactions. See Figure F-4.

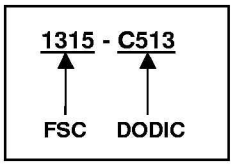


Figure F-4. Example of a DODAC

COLOR CODING

F-7. The main reason ammunition is painted is to protect it from rust. However, the color of the protective coating and markings also makes ammunition easy to identify and provides some camouflage. Ammunition 20mm and larger is color-coded IAW MIL-STD 709C (see Tables F-2 and F-3). Figure F-5 shows typical markings for an artillery round of ammunition.

F-8. Small arms ammunition is not color-coded under MIL-STD 709C. Either the small arms projectiles or the bullet tips are painted a distinctive color so they can be identified quickly. Figures F-6 through F-8, pages F-7 through F-9, show the color codes for types of small arms ammunition up to and including.50 caliber. For more information, see TM 9-1300-200. Significant features of the current color-coding standard are as follows:

- Olive drab. With yellow markings, OD indicates an HE round. However, OD is also being used as a basic color for certain new rounds such as ICMs, the flechette antipersonnel round, and some new illumination rounds for specific field artillery weapons.
- Overpacking. Ammunition overpacked in color-coded bombs, in unit dispensers, or in warheads, must not be color-coded.

- Camouflage. Ammunition containing toxic chemical, incapacitating, or riot control chemical agents must never be camouflaged by painting.
- Standard DOD Ammunition Color Code. MIL-STD 709C contains the standard ammunition color code for 20mm and larger ammunition. Be aware, though, that there is still ammunition coded as specified by MIL-STD 709-B and MIL-STD 709-A. If this is the case, see the appropriate MIL-STD or TM 9-1300-200.

Table F-2. Ammunition Color Code, MIL-STD 709C

Color[1,2]	Fed Std No 595	Interpretation
Yellow	33538	Identifies HE ammunition or indicates presence of HE.
Brown	30117 or 30140	Identifies low-explosive items of components or indicates low explosive. Normally brown band around the item.
Gray[3,4]	36231	Identifies chemical ammunition containing toxic chemical, incapacitating or riot control agent. Used as basic color.
Dark red	31136	Identifies riot control agent filler.
Dark green[3]	34108	Identifies toxic chemical agent filler. Used for markings and bands.
Violet	17100	Identifies incapacitating agent filler. Used for markings or bands.
Black[3,5]	37038	Identifies armor-defeating ammunition or indicates armor-defeating capability.
Silver/aluminum	17178	Identifies countermeasure ammunition (e.g., radar echo, leaflets).
Light green[3]	34558 or 34449	Identifies screening or marking smoke ammunition.
Light red	31158	Identifies incendiary ammunition or indicates highly flammable material (liquids, jellies, solids) that produce damage by fire.
White[3,5,6]	37875	Identifies illuminating ammunition or ammunition that produces a colored light.
Light Blue	35109	Identifies practice ammunition.
Orange	32246	May be used to identify ammunition used for tracking and recovery in tests or training operations (e.g., underwater mines and torpedoes).
Bronze, gold, brass	17043	Identifies completely inert ammunition for use in activities such as assembly, testing, handling, drills, etc., not to be delivered in a delivery system.

Footnote. The following have no color-coding significance:

1. Colors specifically applied to identify the color of smoke ammunition or pyrotechnics.
2. Unpainted or natural color ammunition.
3. Gray black, green, or white on underwater ammunition.
4. Gray on air-launched missiles.
5. Black or white when used for lettering or special marking.
6. White on guided missiles, dispensers, and rocket launchers.

Table F-3. Application of Color Codes for Particular Ammunition Items, MIL-STD 709C

Ammunition	Colors		
	Body	Markings [1]	Bands
HE, except 20mm	Olive drab	Yellow	Yellow [2,3,4,5]
HE, 20mm	Yellow	Black	None
Explosive binary munitions	Olive drab	Yellow	Broken yellow[6]
HEP	Olive drab	Yellow	Black
HEAT	Black	Yellow	None
Antipersonnel and antitank mines	Olive drab	Yellow	Yellow[3]
Incendiary	Light red	Black	None
HEI	Yellow	Black	Light red
API	Black	White	Light red
AP			
With bursting charge	Black	Yellow	None
Without bursting charge	Black	White	None
Canister	Olive drab	White	None
Flechette-loaded	Olive drab	White	White[7] Yellow[8]
Chemical			
Filled with a toxic chemical binary nerve agent	Gray	Dark Green	One broken dark green[9,10,11]
Illuminating			
Separate loading	Olive drab	White	White
Fixed or semifixed	White	Black	None
Practice			
With low explosive to indicate functioning			Brown
With high explosive to indicate functioning			Yellow
Without explosive to indicate functioning			None
Screening or marking			
Smoke ammunition			
Filled with other than WP	Light green	Black	None
Filled with WP	Light green	Light red	Yellow[9] Light red[12]
Inert ammunition not designed to be delivered in a delivery system	Bronze	Black	None
Chemical			
Filled with a riot control agent	Gray	Red	One red[9]
Filled with an incapacitating agent	Gray	Violet	One violet[9]
Filled with a toxic chemical agent other than binary agents	Gray	Dark Green	One dark green[9]
Filled with a toxic chemical binary nerve agent	Gray	Dark Green	One broken dark green [9,10]

Table F-3. Application of Color Codes for Particular Ammunition Items, MIL-STD 709C (Continued)

Footnotes:

1. Color of the letters and figures normally used for the main identification.
2. Circumferential band of yellow diamond-shaped figures on semifixed and separate-loading improved conventional munitions.
3. Circumferential band of yellow triangular-shaped figures on mass scatterable mine and loaded semifixed and separate-loading ammunition.
4. Separate-loading ammunition for shipboard use has a circumferential yellow band besides yellow markings.
5. Bombs have one yellow band except thermally protected bombs, which have two yellow bands besides yellow markings.
6. Circumferential broken yellow band (1/2-inch segments with 1/2-inch gaps) on explosive binary munitions.
7. Circumferential band of white diamond-shaped figures on ammunition containing flechettes.
8. Yellow band put on when the ammunition contains explosives used to fracture the projectile.
9. Yellow band put on to indicate HE burster.
10. Toxic chemical agent ammunition containing a binary nerve agent filling shown by a broken dark green band (1/2-inch segments separated by 1/2-inch spaces).
11. Both color applications are standard. However, for land ammunition use, separate-loading ammunition is olive drab for overall body color with a white band and main identification details marked white. Fixed and semifixed ammunition is white for overall body color with main identification details in black.
12. Separate-loading ammunition for shipboard use has black markings and a light red band.

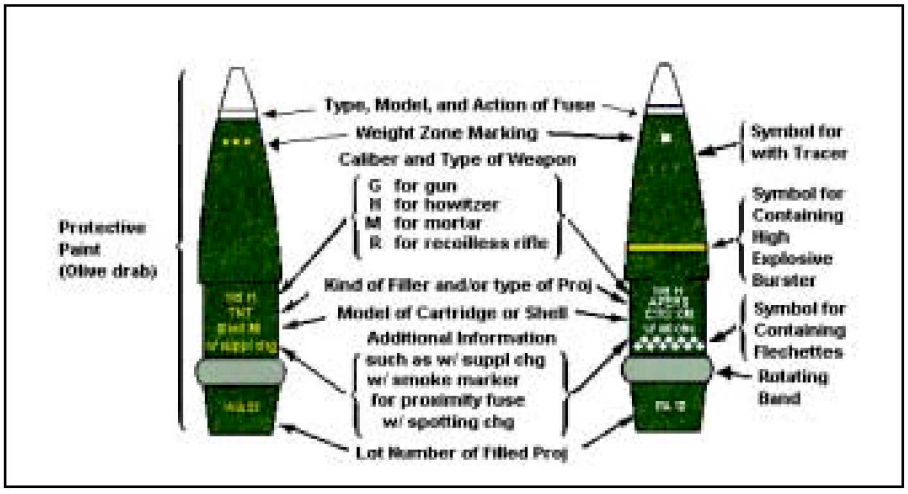


Figure F-5. Typical Artillery Markings

Type		Characteristics
Ball		None
Ball heavy cartridge, for M16A2 and SAW		Green
Rifle grenade		Red rose petal crimp
Tracer		Orange for M856 cartridge for M16A2 rifle; red for M196 cartridge for M16A1
High-pressure test (HPT)		Plain tip/silver cartridge case
Dummy		Copper colored cartridge with fluted case, no primer
Blank		Rose petal crimped case with groove around cartridge case, no primer composition and no bullet
Dummy, inert-loaded		Total cartridge black

Notes:

1. Heavy ball cartridge for the M16A2 rifle is not designed to fire accurately in the M16A1 rifle.
2. Light ball cartridge is authorized only for rifle M16A1.
3. Rifle grenade cartridge may have various colors applied to the rose-petal crimp.
4. HPT cartridge has "HPT" embossed on head.
5. The only clear feature of the blank cartridge is the groove.

Figure F-6. 5.56mm Cartridges

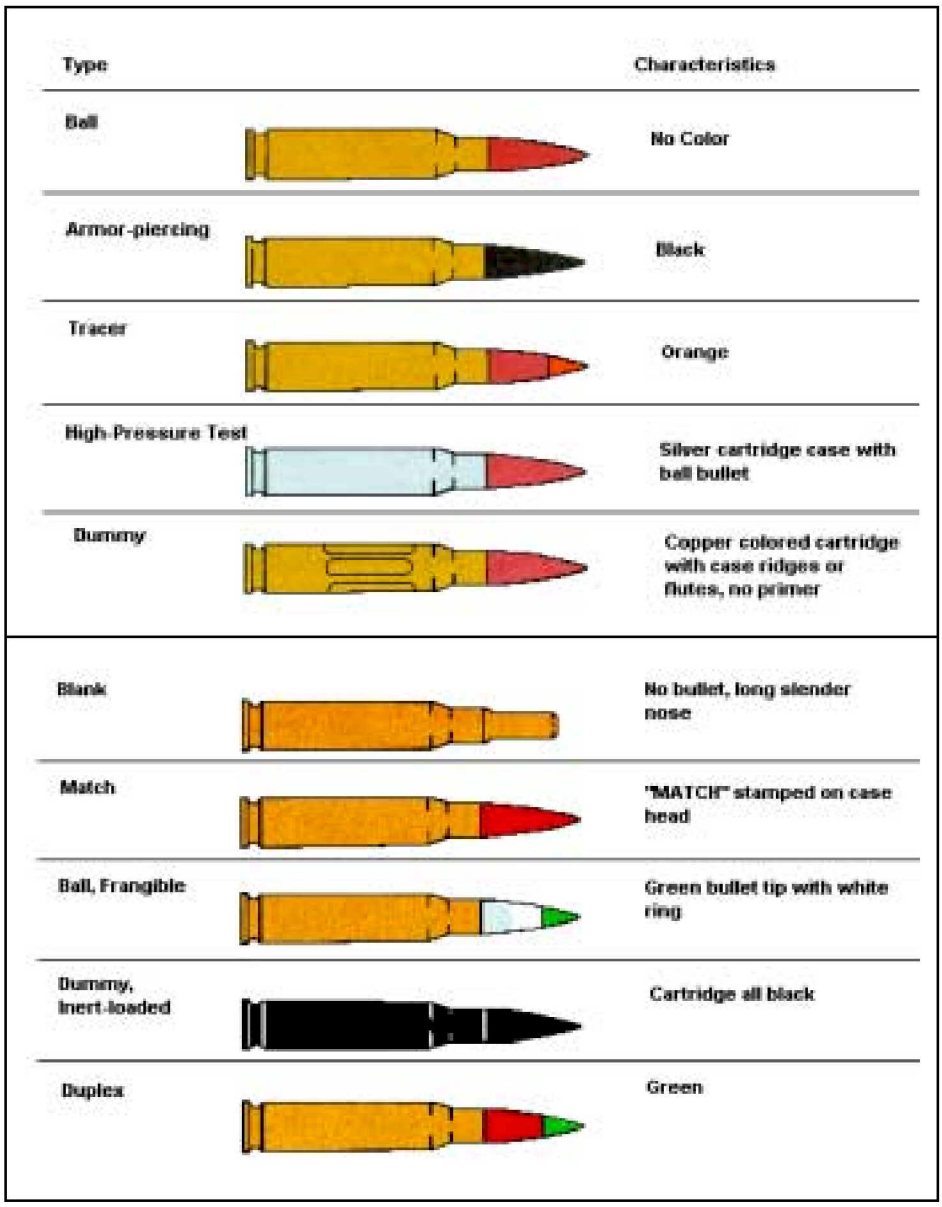


Figure F-7. 7.62mm Cartridges

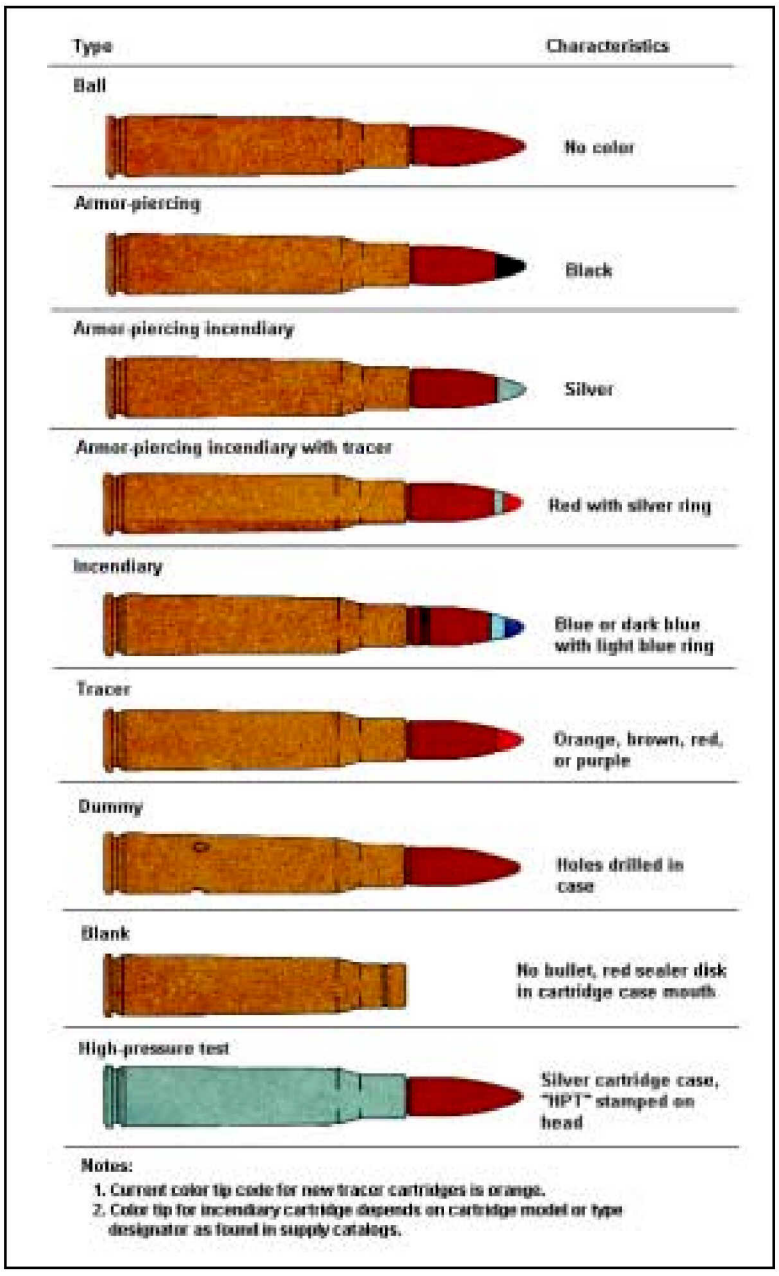


Figure F-8. Caliber .50 Cartridges

Appendix G

Movement Control and Types of Transport

This appendix provides an overview of the responsibilities of movement control organizations. It addresses the importance of these organizations in ensuring that munitions are efficiently moved at the right time and place. Although modular munitions platoons or companies may not always be directly involved in movement control, they depend on an effective transportation system for receipt and shipment of munitions. At times, unit personnel may work directly with movement control teams in coordinating munitions shipments.

OVERVIEW

G-1. In a force projection environment, the employment of military ground forces and combat power decides the outcome of campaigns and operations. The success of these forces often depends on sound, timely deployment and sustainment support. A well defined, integrated transportation system is fundamental to the success of these operations. Movement control is one of the most critical functions of the transportation system. It contributes significantly to the success or failure of any operation. Effective movement control of forces, units, and logistics (particularly munitions) enhances combat effectiveness. Inadequate control results in waste, reduced efficiency, and loss of potential combat power. Movement control incorporates the following actions:

- Planning.
- Validating.
- Allocating.
- Routing.
- Coordinating.
- Force tracking.
- Priority management.
- In-transit visibility.

Also, movement control is the commitment of apportioned transportation assets according to command directives.

THEATER DISTRIBUTION

G-2. Theater distribution involves a fully integrated distribution management system that uses technology, doctrine, and procedures to enhance distribution operations. Effective distribution management coordinates the various sub-elements of the following distribution equation:

- Transportation elements of movement control, mode operations, and terminal and cargo transfer operations.
- Materiel management.

- Supply support.

Movement control is key to developing the distribution plan. Movement programming, highway regulation, and the establishment of movement control interfaces throughout the distribution structure are all critical to the success of the theater distribution plan.

G-3. One of the major tasks of the TSC is development of the theater distribution plan to support the theater commander's intent and concept of operation. This plan fuses transportation and materiel into one system, incorporating RSO&I and sustainment operations. The distribution system is a complex of networks, facilities, procedures, arrangements, and units. The unit's responsibility is to receive, store, maintain, issue, and move materiel, personnel, and equipment.

G-4. The distribution system functions along LOCs that take into account transportation assets and geography of the theater and area of operations. Throughput is a function of the transfer capacity of key nodes along the LOC. Nodes are locations where a materiel or unit movement requirement is originated, processed for onward movement, and transferred to another transport node or terminated. Nodes and LOC security are essential to an effective distribution plan. Nodes for materiel and munitions movements include the SPOD, APOD, TSA, CSA, ASP, and ATP.

MOVEMENT CONTROL INTERFACE

G-5. An effective distribution system requires continuous coordination between materiel and movement control personnel and organizations at every level of command. During the movement program planning process, planners allocate available transportation resources to support requirements based on the commander's priorities. Logisticians at each level are responsible for implementing these priorities. The functions of the movement program are as follows:

- Establishes which requirements can be resourced given available transportation assets, units, and infrastructure.
- Serves as the authority for committing transportation assets.
- Authorizes MCTs to issue TMRs.
- Directs mode operators to furnish assets.
- Alerts receiving units to accept programmed shipments so they can unload transportation assets promptly.

G-6. Planners must be flexible because requirements often change to accommodate changes in priority, unit locations, asset availability, and conditions of the LOCs. Planners coordinate with the TSC and COSCOM regarding the positioning of transportation units and supply activities. Also, they coordinate with shippers and receivers to determine their capability to receive, handle, and load by various transportation nodes. This capability is based on the availability of MHE, CHE, ramps, labor, storage capacity, and other factors that effect transportation services.

MOVEMENT CONTROL ORGANIZATIONS

G-7. The organizations discussed in this section are representative of those involved in the movement of munitions. All units in the munitions support structure must have an understanding of the movement process in the theater of operations and of the responsibilities of these organizations.

MOVEMENT CONTROL AGENCY

G-8. The MCA provides movement management services for all common user transportation nodes, including allied/HN assets when they are committed to support the theater logistics or transportation plan. The MCA performs the following functions:

- Monitors daily transportation movement requirements and capabilities.
- Implements the task force commander's priorities.
- Supervises movement control battalions (EAC).
- Develops and enforces theater highway regulations.

The MCA is a modularly designed organization and is assigned to a TSC.

MOVEMENT CONTROL BATTALION (EAC)

G-9. The MCB (EAC) commands, controls, and supervises MCTs; controls the movement of all personnel, units, and materiel in the theater; and maximizes the use of available transportation assets. It is assigned to a TSC and is normally attached to the MCA. The battalion commands and controls MCTs *behind* the corps rear boundary. It provides asset visibility and maintains ITV of tactical and nontactical moves within the MCA defined geographical area.

MOVEMENT CONTROL BATTALION (CORPS)

G-10. The corps MCB commands and controls MCTs *forward* of the corps rear boundary. It is assigned to a corps and plans, coordinates, and manages movement programming, highway regulation, and transportation support for the corps. The corps MCB provides asset visibility and maintains ITV of tactical and nontactical moves within the corps defined geographical area.

PORT MCT

G-11. The port MCT expedites, coordinates, and supervises transportation support of units, cargo, and personnel into, through, and out of air, land, or water ports (with the exception of bulk POL using a pipeline). The port MCT is assigned to a corps, ASCC, or TSC and is normally attached to an MCB (EAC or corps). It expedites the throughput of cargo through the transportation system and provides ITV of units, cargo, and personnel transiting from/to PODs/POEs. This MCT deploys on an as-needed basis, supporting onward movement and sustainment operations.

AREA MCT

G-12. The area MCT expedites, coordinates, and supervises transportation support of units, cargo, and personnel into, through, and out of air, land, or

water ports. It supports inland transfer points and supply support activities. It expedites cargo throughput and provides ITV of units, cargo, and personnel moving through an assigned geographic area. The area MCT is assigned to a corps, ASCC, or TSC and is normally attached to an MCB (corps or EAC).

DIVISION SUPPORT MCT

G-13. The division support MCT augments the DTO. It assists the DTO with movement programming, highway regulation, and division transportation support. It assists in executing divisional highway regulation for nontactical movements and planning and coordinating division MSRs. Also, the division support MCT provides movement control for tactical and nontactical road marches. It is assigned to a corps and attached to a division.

MOVEMENT REGULATING CONTROL TEAM

G-14. The MRCT operates up to four separate movement regulating points. It is assigned to a corps, ASCC, or TSC and is attached to a MCT (corps or EAC). The MRCT operates on MSRs and other designated controlled routes to regulate convoys and serve as the eyes and ears of the MCB. Based on mission requirements, the unit deploys on an as-needed basis.

CARGO DOCUMENTATION TEAM

G-15. The CDT provides cargo documentation for the transshipment of cargo in water, air, motor, and rail terminals. It is assigned to a corps, ASCC, or TSC and is attached to an MCB (corps or EAC).

TYPES OF TRANSPORT

G-16. A major activity of most munitions units is loading trucks, railcars, and aircraft. The planning and execution of the loading process generally requires some knowledge of the types of transport and their capabilities.

MOTOR

G-17. Motor transport is the backbone of the Army's support and sustainment structure, providing mobility on and off the battlefield. Motor transport operations support a variety of missions depending on unit locations and situations. Motor transport units are usually employed for general support within a specified area or along specific routes. Most munitions units are actively engaged in shipping operations where the capacity of different types of vehicles must be known. Refer to Table G-1 for cargo cube and weight data. For more detailed information, see Chapter 3 of FM 55-15. This chapter contains current mechanical data on authorized motor transport vehicles, including axle weights; truck performance data; center of balance data for single-unit trucks; and dimensions and capacities for prime movers and towed vehicles.

AIR

G-18. Airlift is a flexible and essential element of the transportation system. Army aviation units support theater, corps, and division requirements. The aviation brigade is the Army's primary aviation unit and is found at EAC, corps, and division. Army airlift is not intended to compete with Air Force

airlift. Its purposes are rapid response for high-priority personnel, supplies, and equipment and to supplement the lift capability of other Army transportation systems. Army airlift is essential to the logistic support of Army operations. There are only three approved methods of external air transport: slings, cargo nets, and cargo bags. Data on load capacities and configurations of current Army aircraft are found in FM 55-15, Chapter 2.

RAIL

G-19. Different classification systems exist for locomotives in CONUS and most other countries throughout the world. Information to include characteristics of locomotives, capacities of different types of railcars, maximum load data, and track gauges of the world can be found in FM 55-15, Chapter 4.

Table G-1. Cargo Cube and Weight

Vehicle	Payload in Lbs Weight in Parentheses = Towed Payload	Note(s)	Length in Inches	Width in Inches	Height (1) in Inches	Cube in Feet
Truck, cargo, 1 ¼ T, 4X4, M998	2,500 (3,400)					
Truck, cargo, 1 ¼ T, 4X4, M1097	4,400 (4,200)					
Truck, utility, ¾ T, 4X4, M1009	1,200 (3,000)	1				
Truck, cargo, 1 ¼ T, 4X4, M1008	2,900 (3,000)					
Truck, cargo, 1 ¼ T, 4X4, M1028	3,600 (3,000)					
Truck, cargo, 2 ½ T, 6X6, M35A1, A2	5,000 (6,000)	4	146.8	88	60	441.9
Truck, cargo, 2 ½ T, 6X6, M35A2C	5,000 (6,000)	4	147	87.6	60	440.5
Truck, cargo, 2 ½ T, 6X6, M36A2	5,000 (6,000)	4	210	88	71.8	759.3
Truck, dump, 2 ½ T, 6X6, M342A2	5,000 (6,000)		130	70	24.5	273.8
Truck, tractor, 2 ½ T, 6X6, M275A2	(17,000)	2				
Truck, dump, 5 T, 6X6, M51, M51A2	10,000 (15,000)		123	82	25	297.6
Truck, dump, 5 T, 6X6, M817, M929	10,000 (15,000)		124.8	81.9	27.1	306.3
Truck, dump, 5 T, 6X6, M929A1, M930A1, M931	10,000 (15,000)					

Table G-1. Cargo Cube and Weight (Continued)

Vehicle	Payload in Lbs Weight in Parentheses = Towed Payload	Note(s)	Length in Inches	Width in Inches	Height (1) in Inches	Cube in Feet
Truck, tractor, 5 T, 6X6, M52, M52A1	(30,000)	2				
Truck, tractor, 5 T, 6X6, M52A2	(37,000)					
Truck, tractor, 5 T, 6X6, M818, M931A1, M931A2, M932A1	(37,500)	2, 3				
Truck, cargo, 5 T, 6X6, M54, M54A1	10,000 (15,000)	6, 7	168	88	60	480.2
Truck, cargo, 5 T, 6X6, M54A1C	10,000 (15,000)	6, 7	168	88	60	482.5
Truck, cargo, 5 T, 6X6, M54A2	10,000 (15,000)	6, 7	168	88	61	480.2
Truck, cargo, 5 T, 6X6, M54A2C	10,000 (15,000)	6, 7	168	88.4	60	482.5
Truck, cargo, 5 T, 6X6, M55, M55A2	10,000 (15,000)	8	244	88	61.3	751.5
Truck, cargo, 5 T, 6X6, M813	10,000 (15,000)	8, 9	168	88.3	57.2	468
Truck, cargo, 5 T, 6X6, M813A1	10,000 (15,000)	8, 9	168	88.3	57.4	468
Truck, cargo, 5 T, 6X6, M814	10,000 (15,000)	8	243.8	87.8	60	733
Truck, cargo, 5 T, 6X6, M923, M923A1, M923A2, M925, M925A1, M925A2, M927, M927A1, M927A2, M928, M928A1, M928A2	10,000 (15,000)	8, 9	168	88.3	57.4	468
Truck, cargo, 10 T, 8X8, M977	22,000 (20,000)	10, 11	216	90	48	540
Truck, cargo, 10 T, 8X8, M978	18,000 (20,000)					
Truck, cargo, 10 T, 8X8, M985	21,729 (20,000)	11	216	90	48	540
Truck, cargo, 10 T, 8X8, M984	31,000 (20,000)					
Truck, tractor, 10 T, 6X6, M916	(126,000)	2				
Truck, tractor, 10 T, 6X6, M916A1	(130,000)	2				

Table G-1. Cargo Cube and Weight (Continued)

Vehicle	Payload in Lbs Weight in Parentheses = Towed Payload	Note(s)	Length in Inches	Width in Inches	Height (1) in Inches	Cube in Feet
Truck, tractor, 10 T, 6X6, M920	(99,620)	2				
Truck, tractor, 10 T, 6X6, M123A1C	(80,000)	2				
Truck, tractor, 14 T, 6X6, M915, M915A1	(84,000)	2				
Truck, tractor, 14 T, 6X6, M915A2	(105,000)	2				
Truck, tractor, 16.5 T, 10X10, PLS, M1074	33,000 (50,000)					
Truck, tractor, 16.5 T, 10X10, PLS w/crane, M1075	33,000 (50,000)					
Truck, cargo, 2 ½ T, 4X4, FMTV (LMTV), M1078, LAPES M1081	5,000 (9,520)		144	95		
Truck, cargo, 5 T, 6X6, FMTV M1083, w/MHE M1084	10,000 (21,000)		168	95		
Truck, cargo, 5 T, 6X6, FMTV, M1085, w/MHE M1086	10,000 (21,000)		240	95		
Truck, tractor, 5 T, 6X6, FMTV, M1088	(25,000)					
Truck, dump, 5 T, 6X6, FMTV, M1090	10,000 (21,000)					135
Truck, cargo, 5 T, 6X6, FMTV, LAPES/AD, M1093	10,000 (21,000)		168	95		
Truck, dump, 5 T, 6X6, FMTV, LAPES, M1094	10,000 (21,000)					135

Notes:
1. Highway requirements only
2. Towed load is the total weight of the semitrailer and payload.
3. Vehicles approved for use with M871 semitrailer carrying loads up to 44, 800 pounds.
4. Cubic capacity reduced 6.6 cubic feet for curve of bows.
5. Cubic capacity reduced 8.8 cubic feet for curve of bows.
6. Cubic capacity reduced 26.1 cubic feet for spare tire and carrier in cargo body.
7. Cubic capacity reduced 7.0 cubic feet for curve of bows.
8. Cubic capacity reduced 10.2 cubic feet for curve of bows.
9. Cubic capacity reduced 14.5 cubic feet for spare tire and carrier in cargo body.
10. Cubic capacity reduced 27.0 cubic feet for spare tire and carrier in cargo body.
11. Cube measured to top of spare tire.