FM 55-80

ARMY CONTAINER OPERATIONS

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HEADQUARTERS, DEPARTMENT OF THE ARMY

FIELD MANUAL
No. 55-80

HEADQUARTERS
DEPARTMENT OF THE ARMY

Washington, DC, 13 August 1997

ARMY CONTAINER OPERATIONS

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PREFACE

PURPOSE

This manual has been prepared by the USACASCOM as a consolidated container reference incorporating policy, doctrine, and procedures needed to conduct container operations across the range of military operations. Existing Army policies and doctrine relating to intermodal containerization date back to 1975. Publications are being revised in view of lessons learned from operations in the Persian Gulf, Somalia, Haiti, Bosnia, and other conflicts. The transition from a forward deployed Army to a CONUS-stationed force demands new approaches to operations. Improving force projection depends on maximizing strategic lift, improving force closure, and updating doctrine which incorporates new ways of doing business.

Army units should consult this FM when conducting intermodal container operations. This FM does not preclude the need to consult other regulatory publications to ensure compliance with federal directives and standards when transporting commodities through the DTS.

SCOPE

This manual provides guidance for container users who ship commodities within the DOD intermodal container system. The DOD system includes intermodal containers and container services, either DOD-owned or leased, or commercially provided. It also includes other ANSI/ISO configured equipment held by DOD activities before, during, and after intermodal shipment in the DTS.

The Army's environmental strategy into the 21st century defines our philosophy and commitment in protecting and preserving the environment and natural resources for present and future generations. Sound environmental practices and considerations must be integrated into all Army documents, missions, and operations. In keeping with the Army's vision to be a national leader in environmental stewardship, commanders and leaders must ensure that all local, state, federal, and HN laws and regulations pertaining to the environment are included in the planning process and strictly followed.

The proponent of this publication is HQ TRADOC. Send comments and recommendations on DA Form 2028 (Recommended Changes to Publications and Blank Forms) to Commander, USACASCOM, Directorate of Combat Development for Transportation, ATTN: ATCL-T, 3901 A Avenue, Suite 240, Fort Lee, VA 23801-1809.

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

CHAPTER 1

INTRODUCTION TO INTERMODALISM

This chapter outlines responsibilities within the DTS for implementing containerization policy and procedures. A paragraph on container procurement is included in this chapter. This chapter includes an overview of intermodalism.

1-1. BACKGROUND. The DOD relies on commercial sealift to move 85 percent of cargo during contingency operations. The US and world merchant fleets are dominated by large, fast containerships with supporting corporate infrastructure (for example, CHE, terminals, information systems, tractors/chassis, and experienced personnel). Experience in ODS revealed that DOD was unprepared to use effectively, containers and containerships to move UE and ammunition. This contributed, in conjunction with port saturation and lack of ITV, to the slow deployment of CS/CSS forces and resulted in significant delays in moving Class V resupply. Also, large numbers of small, slow breakbulk vessels were used instead of containerships which resulted in significant costs in time and money.

The transition to a CONUS-based, power projection force increases the need for the Army to be able to rapidly deploy anywhere, anytime. Strategic lift must be maximized to rapidly project power to meet our force projection goals. Strategic lift is supplied by either ocean-going vessels or air transport. Both are limited resources. Having the largest requirement for strategic lift demands that the Army maximize its use of containerization. Containerization increases the types of ships available to support strategic deployment as well as increasing the cargo capacity of other available ships. It also streamlines handling requirements within the distribution system. Other added bonuses of containerization are increased protection against shipping damage and safeguards against pilferage.

1-2. RESPONSIBILITIES WITHIN THE DEFENSE TRANSPORTATION SYSTEM. The trend in container operations is towards the establishment of an intermodal container-oriented distribution system. This system will meet DOD-wide transportation requirements and result in a fleet of containers designed for common-use among the Services. The information in this manual conforms to guidance contained in Joint Publication 4-01.7 (Draft) and DOD Regulation 4500.9-R-1.

The Army's goal is to increase the use of containers to improve the use of strategic lift and improve force closure for UE and sustainment supplies. The Army's effective use of containers improves both materiel distribution throughout the battlefield and field warehousing.

As DOD transitions from a Service-unique container system to a DOD-wide common-use container system, the Army system must have sufficient capability to meet DOD-established required delivery dates for mobilization, deployment, employment, sustainment, and redeployment. The resulting container system must be interoperable among Service components and commercial industry. The DOD container system includes intermodal containers, infrastructure, and information systems. The CJCS, through an assigned lead agent, provides oversight on all the Services' programs in relation to their interoperability within the DTS.

1-3. DEPARTMENT OF DEFENSE. DOD is responsible for providing overarching policy that will enable the establishment of a DOD-wide common-use container fleet. DOD Regulation 4500.9-R-1 specifies the 20- and 40-foot ANSI/ISO containers as the standard for DOD unit equipment and sustainment. The goal is to ship UE primarily in 20-foot containers and sustainment in either 20- or 40-foot containers. The 20-foot ANSI/ISO container is designated as the DOD standard for containerized munitions shipments. Therefore, only 20-foot containers will be used in the CADS fleet. Equipment acquisitions and support systems interface with the DOD intermodal container system. In support of this, ANSI/ISO standards are incorporated into all requirements, designs, and development of military equipment and logistics support.

1-4. ASSISTANT DEPUTY UNDER SECRETARY OF DEFENSE, TRANSPORTATION POLICY. The ADUSD-TP, provides oversight for continued development of the DOD intermodal container system. The ADUSD-TP maintains liaison with federal, executive, regulatory, trade, and private sector organizations relating to container issues. The ADUSD-TP reviews, at least annually, the status of programs supporting containerization within the DTS.

1-5. SECRETARY OF THE ARMY. The Secretary of the Army ensures that organizations are adequately trained, equipped, and manned to operate, support, or interface with the DOD container system. The Secretary of the Army procures and maintains all Army-owned containers to ANSI/ISO standards to ensure compatibility with the commercial intermodal transportation system. He also makes optimum use of the vast capability of intermodal container resources and services furnished by the commercial transportation industry when doing so is responsive to military requirements. In conjunction with the Navy, he supports development of container offload and onward movement capability for LOTS operations.

1-6. SUPPORTED COMMANDER IN CHIEFS. Supported CINCs determine requirements and increase their use of the DOD container system for cargo movement between origin and destination. They ensure container management is carried out within their AORs. Specifically, they provide for the receipt, movement, and return of DOD common-use and CADS containers and associated equipment entering their areas of interest.

1-7. ARMY SERVICE COMPONENT COMMANDER. The ASCC through the TAACOM or, when approved, the future TSC develops and implements procedures that support the container system IAW Army policy contained in AR 56-4. If approved, the TSC proposes to combine all theater CSS functions under a single command structure to provide more responsive logistics support to the commander.

The CINC's logistician should advise the CINC on container issues and recommends delegation of implementing responsibilities to subordinate commands to facilitate container inspection requirements, accountability, maintenance, and distribution of containers throughout a theater. Subordinate units forward their inspection certifications and maintenance report on containers to the servicing MCT. For Army-owned, common-use, CADS, and DOD-owned common-use containers, the MCT forwards the inspection reports and consolidated maintenance information through command channels to MTMC for input into the container master data file.

1-8. COMMANDERS. Commanders at every level are responsible for ensuring Army container policies are enforced. Users of the DOD intermodal container system will benefit by using the guidance in this manual by gaining access to more rapid and flexible deployment options. The

shipping resources that a DOD common-use fleet of containers provides enhanced unit readiness by offering additional deployment options. Failing to follow the guidance provided in this manual as well as other DOD and Army publications results in unnecessary delays as cargo needlessly becomes frustrated and/or damaged. Commanders must also monitor the use of containers to ensure they are available for transportation purposes. Abuses are common as containers have frequently been modified for use as underground bunkers or fighting positions, tactical field shelters, field living quarters, and expedient toilets or shower facilities.

1-9. UNITED STATES TRANSPORTATION COMMAND. USTRANSCOM manages the DOD common-use container systems as the DOD single manager for transportation. As such, they serve as the single manager for DOD common-use containers. They also exercise command authority over all DOD container system assets, except for Service-unique or theater-assigned assets. Management of DOD common-use containers is exercised through the MTMC.

1-10. MILITARY TRAFFIC MANAGEMENT COMMAND. As a USTRANSCOM TCC, MTMC provides operational management and control of DOD common-use containers, as required. Also, when agreed to by USTRANSCOM and the DOD Component concerned, MTMC will provide management support for Service-unique or theater-assigned containers. Lastly, MTMC through its recently formed JTMO, acts as DOD's sole agent to procure and/or lease containers.

As a MACOM, MTMC provides operational management and control, including maintenance and repair, of the Army-owned CADS fleet of containers. MTMC also functions as the single manager for Army-owned or leased ANSI/ISO common-use containers and tracks the location and condition of such assets. MTMC manages container assets through the CFD, an organizational element of MTMC-EA.

1-11. PROCUREMENT AND LEASING OF COMMON-USE CONTAINERS. MTMC acts as the Army's agent to procure containers. MTMC established the JTMO by consolidating staff sections previously aligned separately under MTMC and MSC in August 1996. Except for CADS, the JTMO coordinates container leasing and purchasing requirements for all Services.

a. **Procurement.** The information JTMO requires to process procurement requests is as follows:

(1) Detailed description/type of container or intermodal equipment needed. This includes specifications for ANSI/ISO type and size and any marking or drawing arrangements desired. If MILSPEC is used, provide detailed specification and documentation. Also, any special request, such as the ability to mount RF tags, must be included in the requirements.

(2) Quantity required (option for additional purchases).

(3) Required delivery date and location.

(4) Technical point of contact.

MTMC purchases new commercial containers and intermodal equipment used in day-to-day common-use service. The requesting activity provides the necessary information which the JTMO uses to procure intermodal equipment at minimal cost to the government within the time required. The time to procure equipment varies. Used equipment, depending on availability, can be procured

in a matter of days. New ANSI/ISO containers can typically be procured in 60 days or less. Nonstandard items, such as QUADCON, TRICON, or ISU can take up to six months from the time the request is received until the award is made, provided the information is complete and no changes are made to it during the procurement process. On all purchases, the JTMO will try to consolidate procurements across Services to gain the best price.

Upon receipt of the requirement, the JTMO will estimate procurement cost and request MIPR or fund cite to cover contracting action. The RFP for procurement will not be issued until funding is received.

b. **Leasing.** The JTMO acts as the Service's sole agent to lease containers. The JTMO coordinates all unit requirements on container leasing arrangements. The JTMO will lease new or used containers and intermodal equipment used in day-to-day common-use service. The requesting activity supplies specific information, through channels, to the JTMO to ensure that the equipment is leased at minimal cost to the government within the time required. However, the time to complete a leasing action depends on the requirement. A contract for equipment to be used in a national emergency or contingency can be completed in a few days if equipment is available on the commercial market. Normal leasing time from receipt of request to contract award is 15 working days. Information required typically includes:

(1) Detailed description/type of container or intermodal equipment needed. This must include size, type, and any special items required.

(2) Quantity required (option for additional leases).

(3) Number of containers for unit equipment.

(4) Number of containers required for sustainment (in 30 day increments).

(5) Term of lease (number of days equipment will be leased).

(6) Intended use of equipment. (Equipment must be used for intermodal transportation in the DTS.)

(7) Estimated dates of on-hire and intended redelivery location(s). Equipment drop-off destination. (NOTE: Equipment leased at one location and returned at another requires coordination and must be included in the contract.)

(8) Chassis support. Specify requirement and intended use. State whether chassis is still needed after intermodal containers are loaded.

(9) Reefer support. Specify requirement for additional support; for example, generator sets, spare part kits, and reefer mechanic (shore and/or shipboard) manuals.

(10) Inspection requirements for containers carrying DOD material as shown in MIL-HDBK 138B.

(11) Required delivery date at requester's facility. Give location, hours of operation, address, points of contact, and telephone numbers.

(12) Ship on which intermodal equipment will be loaded, date ship will be at berth, and location.

(13) Whether requester provides intermodal equipment inspector(s) for on-hire/off-hire of equipment.

Upon receipt of the requirement, the JTMO will estimate lease cost and request MIPR or fund cite to cover contracting action. The RFP for procurement will not be issued until funding is received. Estimated lease cost will include lease per diem, estimated repair cost, drop-off charges, funds for special items, on-hire/off-hire inspection fees, and any line haul/drayage fees.

c. **Sources.** Common-use containers are leased, procured, or made available from DOD-owned inventories to support the intermodal transportation requirements of all Services. These containers are managed and controlled, through MTMC, by USTRANSCOM while they are in the DTS. The JTMO leases or procures commercial containers for common-use requirements. The ATCOM centrally procures particular MILSPEC containers when required.

Special containers designed to support Service/program-unique mission requirements include the Navy's Deployable Medical System containers and the Army's contingency containers dedicated to a particular need, such as refrigerated containers for mortuary requirements. These containers are also managed and controlled by USTRANSCOM while in the DTS.

Unit-owned containers in the EDSS family of containers, such as QUADCONs, TRICONs, and ISUs, support the transportation and logistical needs of military units and are listed on the unit's MTOE or CTA.

While the preceding paragraphs provide a general description of the latter two types of container assets, the focus will be on the common-use containers which can be used by all Services.

Commercial containers are generally available through two sources: ocean carriers as part of their intermodal service and container-leasing companies for use in the DOD-operated system. It should be noted that carriers lease a significant number of their containers from container lessors. Initially, DOD must rely on the commercial transportation/container industry to supply containers across the range of military operations. If containers cannot be obtained commercially from the transportation/container industry, the Maritime Administration has authority to allocate containers or obtain priority for their use to meet military requirements.

1-12. NATIONAL-LEVEL MANAGEMENT. DOD container management provides visibility and control of all DOD-owned or leased intermodal ANSI/ISO containers for both common-use transportation and Service-unique missions. DOD ANSI/ISO containers are managed and controlled in four basic categories. These categories are:

- DOD-owned or leased common-use containers.
- Service-owned containers procured for a dedicated need (for example, prepositioning).
- Service-owned UE containers (for example, QUADCONs and TRICONs).
- Commercial containers carrying DOD cargo.

As the DOD single manager for transportation, USTRANSCOM manages DOD intermodal containers while they are moving in the DTS. USTRANSCOM uses the WPS to pass container information to port operators. A deploying unit's equipment and container information enter the WPS through the TC-ACCIS. Once in this data base there are a host of other automated systems that can use this information. Figure 1-1 shows the flow of UMD, which includes containers, from home station to an area of operations. Also shown are some of the other automated systems with which TC-ACCIS interfaces (for example, the GCCS, JOPES, MASS, ALM, and COMPASS). TC-ACCIS capabilities will be incorporated into the TC AIMS II when fielded.

Sustainment cargo, discussed in Chapter 4, is not shown in Figure 1-1 as it goes through a different process to enter the automated information environment. Chapter 5 also provides additional information on these automated systems.

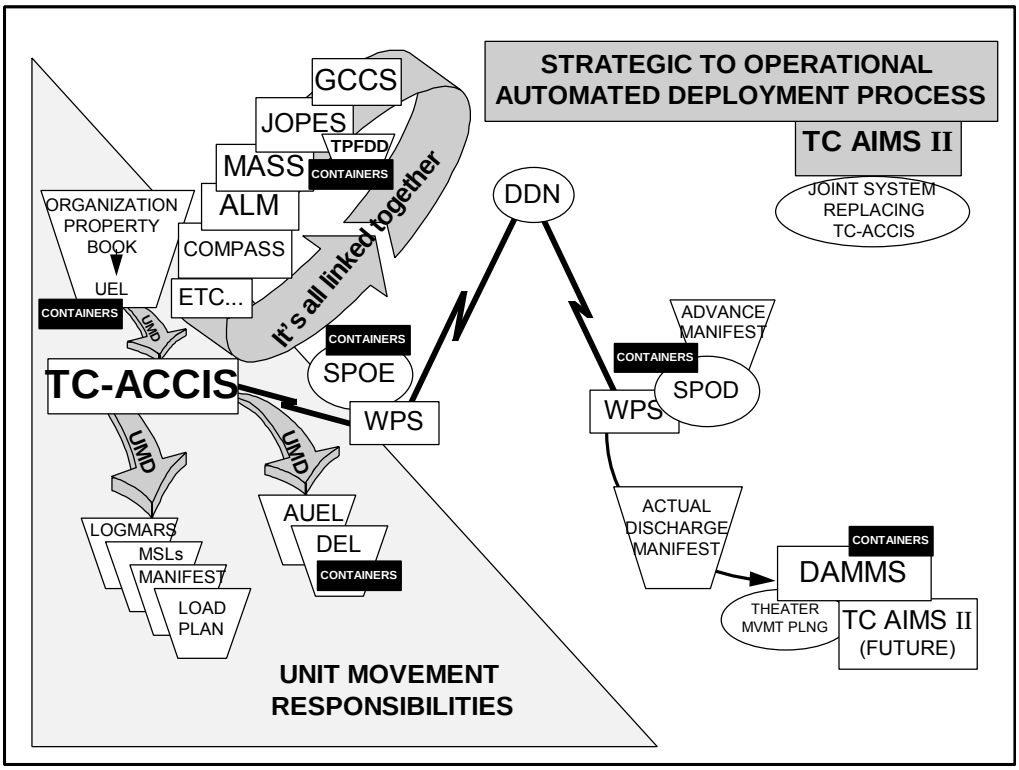


Figure 1-1. TC-ACCIS Automation Interface for Unit Deployments

USTRANSCOM exercises command authority over DOD container system assets, except Service-unique or theater-assigned. It also provides management support to the Services and commanders of unified commands for Service-unique or theater-assigned container system assets when directed by the Secretary of Defense or by agreement with the Chief of a Service or geographic combatant commander. Each Service has Service-owned containers controlled and managed by the owning Service that must be tracked and accounted for in the DTS. This category has two sub-categories:

- Containers procured for transportation of UE.
- Containers for prepositioned or sustainment cargo.

Examples of Army-owned UE containers include hospitals, maintenance facilities, PLS flatracks and modular ANSI/ISO containers, QUADCONs, and TRICONs. Army-owned or leased containers for prepositioned or sustainment cargo are general purpose common-use containers that are managed by MTMC. Containers that are supplied by the carrier or an intermodal marketing company as part of their transportation service remain under their control, even though carrying military cargo.

DOD component and Service-managed general purpose intermodal 20- and 40-foot containers, whether owned or leased, are potential DOD common-use container fleet assets when approved for use by the owning or leasing Service. AWR containers fall into this category and could be released into the DOD common-use container fleet, but strategic planners must consider the ramifications of such a decision.

Some 2,000 plus containers, in the right combination of sizes, would be needed to reconfigure the AWR-3 prepositioned vessels. If these containers are not readily available, a timely reloading of these vessels cannot be accomplished. This would cause significant delays if downloaded afloat prepositioned stocks were redirected in response to another contingency. When prepositioned containers are to be used as part of the DOD common-use container fleet, containers from the ashore stocks should be used first. Planners are advised to treat afloat prepositioned containers as ship's gear and make the decision to offer these containers up to the DOD common-use container fleet only after advising the supported CINC of the ramifications of such a decision.

DOD ANSI/ISO containers are maintained in serviceable condition IAW established standards and regulations to move the cargo for which they are assigned (for example, ammunition, general cargo, and refrigerated cargo). DOD and DOD component regulations delineate accountability procedures and outline acceptable maintenance standards which containers must meet before being permanently added or temporarily transferred to the common-use container fleet.

Through MTMC, USTRANSCOM manages and monitors the status of DOD-owned/ leased and commercial intermodal surface containers while these containers are in the DTS. MTMC also provides operational management and control of the CADS container fleet. As the Army's single container manager, MTMC tracks the location and condition of Army-owned common-use containers. MTMC's single container manager responsibility does not encompass operational control nor include decision authority on inspection or repair. The DOD common-use container fleet can be augmented by leasing and/or procurement of commercial containers, or transfer of DOD component and Service-owned container capability that are not in use, upon request to USTRANSCOM. This transfer is approved by the Service or, when appropriate, by the geographic combatant commander.

During contingency operations, when DOD requirements impinge on the commercial sector, the Joint Staff, in coordination with the DOT and USTRANSCOM, allocates commercial container capability made available by DOT among Services and DOD agencies in support of geographic combatant commanders.

The types of ships available to the commercial maritime fleet largely determine US military use of containers. National transportation policy requires the DOD to use existing commercial

transportation equipment to the maximum extent possible. As such, much of the material that will arrive in a theater of operations will be in containers. Effective logistics support will require the efficient movement and handling of containers throughout the DTS and within SSAs.

Army-owned containers such as EDSS which include QUADCONs, TRICONs, and ISU-60s, -90s, and -96s are moved IAW the provisions of MILSTAMP. Commercial containers while documented IAW MILSTAMP, are moved under the provisions of the JTMO Global Container Contract. The rate guide provides rates, terms, and conditions for worldwide intermodal movement of containerized cargo for the DOD.

1-13. THEATER-LEVEL MANAGEMENT. Regional CINCs are responsible for the management and control of DOD intermodal container assets and systems in their AOR. Intermodal container systems are managed IAW the policies delineated in DOD Regulation 4500.9-R-1 and Joint Publication 4-01.7 consistent with the tactical situation and concept of operations.

Employment of intermodal containers and systems within a theater is essential to the sustainment of forces. As such, CINCs ensure that these vital systems receive command emphasis at the highest levels. CINCs implement their container management programs through the TMCA. The DAMMS is the theater system to maintain control of containers. During the deliberate planning process, the CINC must decide how robust a container capability is needed. CSS units must be deployed early enough to handle reception requirements. Depending on the personnel strength of the TMCAs or MTMC agencies involved, they often will require augmentation to implement the CINCs container mission.

In CONUS, container management is accomplished through the network of ITOs. When OCONUS, the servicing MCT is aligned under the TMCA. The ITOs request all container support through their MACOM to MTMC. Ammunition movements requiring container support will be identified and validated by the JMTCA and forwarded to the CFD for disposition (see paragraph 6-3). The TMCA has the following two options:

- Work through MTMC.
- Coordinate contracts directly through the ASCC.

The servicing MCTs and ITOs are responsible for maintaining location and status visibility of all Army-owned or leased common-use, CADS, and DOD-owned/leased common-use containers in their geographic AORs. This information is provided to MTMC for the master data file. The goal is to raise visibility and reduce the number of containers retained on installations and ultimately decrease unit-owned containers held outside the Army and the DOD common-use container fleets.

Figure 1-2 shows the CONUS ITO and OCONUS TMCA organizations that support the container system. In the division, units request container support through their higher HQ. This request is passed to the MCO who will support the request to the extent of available internal assets. Support requirements which exceed division assets are passed to the DTO who coordinates with forward stationed movement control teams which are DS to the division. These MCTs will coordinate the requirement with corps MCBs. The MCT reports container status to its MCB, and these reports are forwarded to the TMCA. The TMCA, as the theater container manager, compiles the theater data base for containers and passes this information onto MTMC. MTMC provides visibility of arriving and departing containers through two MTMC agencies (OCCA and OCBO).

These agencies are assigned to the MTMC area command. MTMC supports ammunition movement through CFD and leasing and procurement services through the JTMO.

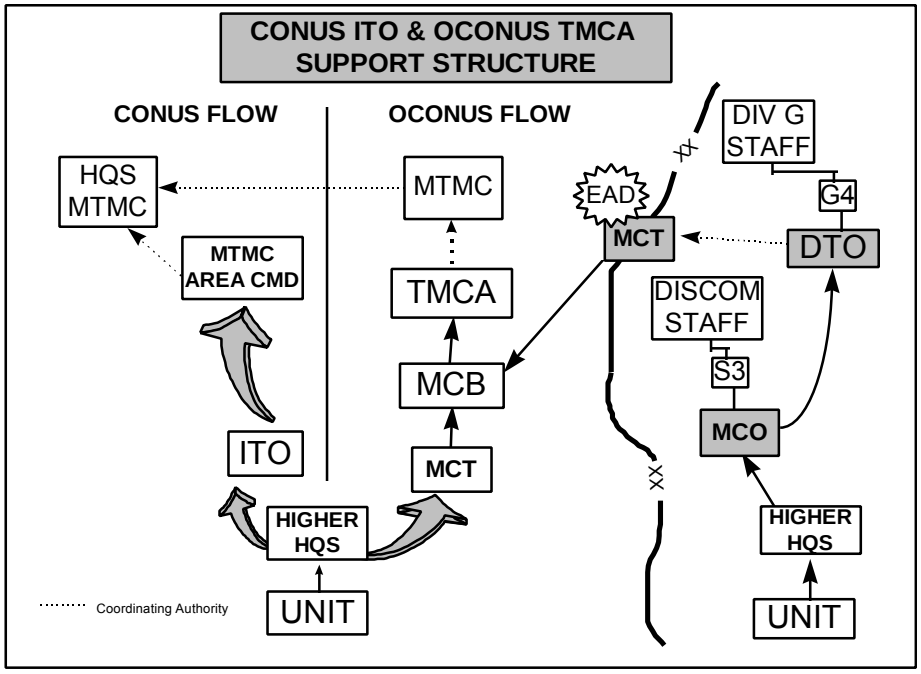


Figure 1-2. Container Request Flow

1-14. FUNDAMENTALS OF INTERMODALISM AND INTERMODAL CONTAINER USE. Army operations involve intermodal movement of personnel, equipment, mail, and supplies by air, land, and sea from installations, depots, or commercial vendors to areas requiring the deployment of Army forces. Intermodalism is the transferring of passengers or transshipping of cargo among two or more modes of transportation (for example, sea, highway, rail, or air). Containerization, in concert with intermodalism, facilitates and optimizes carrying cargo without intermediate handling of the container contents. Figure 1-3, page 1-10, summarizes six principles which apply to intermodalism. They improve efficiency and effectiveness when using containerization to improve mobility and transportation support.

1-15. PRINCIPLES OF CONTAINERIZATION. An understanding of these principles helps readers make effective use of intermodalism. Applying these principles to containerization will help achieve Army goals expressed throughout this manual when using containers.

a. **Seamless Flow of Materiel and Information.** A factory to foxhole distribution system aims to eliminate boundaries between wholesale and retail logistics. This improves responsiveness to soldiers in the field.

The Army designs and employs assets and systems to facilitate the rapid movement of personnel, equipment, supplies, and information which decreases impediments in the deployment flow.

In the surface transportation system, a significant number of the vessels are self-sustaining RO/RO which are characterized by large cargo capacities and rapid loading and discharge rates. Containerships are usually nonself-sustaining and are equipped to carry only containers without associated equipment, in all available cargo spaces, either below or above deck. RO/RO vessels and containerships are linked to land transportation (highway/rail) through port and water terminal systems. RO/ROs provide the primary means of strategic sealift for initial unit deployment and UE (for example, tanks, towed artillery, armored personnel carriers, and rolling stock). Containerships are the ideal means of transport for sustainment and resupply. Due to the limited numbers of RO/ROs and force closure requirements, all units/forces with container compatible equipment should be prepared to deploy by containership. A unit's accompanying supplies and equipment, to include ammunition, are well suited for containerization and rapid deployment using containerships.

Other ship types (for example, breakbulk and large ocean going barges) are also intermodal sealift assets, but they will primarily augment RO/RO vessels and containerships. Their capabilities are used when RO/ROs and containerships are insufficient or impractical for the operation being undertaken, when theater infrastructure constraints dictate, or when the tactical mission or situation precludes the use of containers in delivering materiel and equipment.

Seamless Flow of Materiels and Information

Mobility and Readiness

Throughput Distribution

Standardization

Container Status/In-Transit Visibility

Cargo Integrity, Security, and Safety

Figure 1-3. Principles of Containerization

b. **Mobility and Readiness.** The efficient and effective use of containerization increases flexibility with regards to strategic lift options resulting in faster deployment and improved force readiness.

DOD uses intermodal transportation that is flexible and fast to build a ready force with the required mobility to accomplish its mission.

The DOD airlift system is keyed to fast response using military aircraft and commercial aircraft as required. Common-use organic military aircraft and certain commercial aircraft can be configured to rapidly load containers using RO/RO ramps. More typically, cargo destined for transport via airlift is configured on 463L pallets. These pallets share common documentation practices with containers.

The CONUS land transportation system uses highway and rail as well as inland waterway systems to move materiel to APOE or SPOE for loading and transport on strategic airlift and sealift assets. Rolling stock can be loaded directly on rail cars via end ramps to facilitate fast loading at originating points and discharge at ports of debarkation during deployment operations. Intermodal containers can be quickly loaded and unloaded from rail cars using specially designed CHE or overhead cranes. Containers moved by highway can proceed directly to pier side for loading aboard containerships using commercial shore-based terminal cranes, referred to as gantry cranes or the ship's self-sustaining cranes. They may also be offloaded from the chassis by specially designed CHE and positioned in the terminal's container yard for subsequent loading aboard ship. Containers moved by rail car usually require CHE for off-load and transfer to pier side.

The DOD sealift system is keyed to provide rapid support using government-owned and chartered vessels. Commercial containership capability is available to DOD through time or voyage charters and on a day-to-day basis via worldwide container agreement rate guides and other dedicated/special agreements.

RO/ROs and containerships can be efficiently loaded using intermodal systems at established facilities. Planners should consider the offload destination while the ship is being loaded to determine what assets will be available to discharge the ship. Experience gained during ODS at the port of Ad Dammam, Saudi Arabia revealed that commercially available MHE/CHE could not perform all the handling procedures required when a piece of cargo or container was loaded at the port of embarkation with MHE/CHE assets which were not available at the port of debarkation.

Prior planning, training, and preparation to deploy UE, ammunition, and follow-on sustainment using rail, land, air, and sea transport ensures responsive and effective support to the CINCs.

c. **Throughput Distribution.** The increased application of throughputing materiel from origin to destination reduces stops along the way, reduces delivery time, and raises customer satisfaction.

As shown in Figure 1-4, page 1-12, effective intermodal movement of personnel, equipment, and supplies begins at or near the origin and continues unimpeded to or near the final destination.

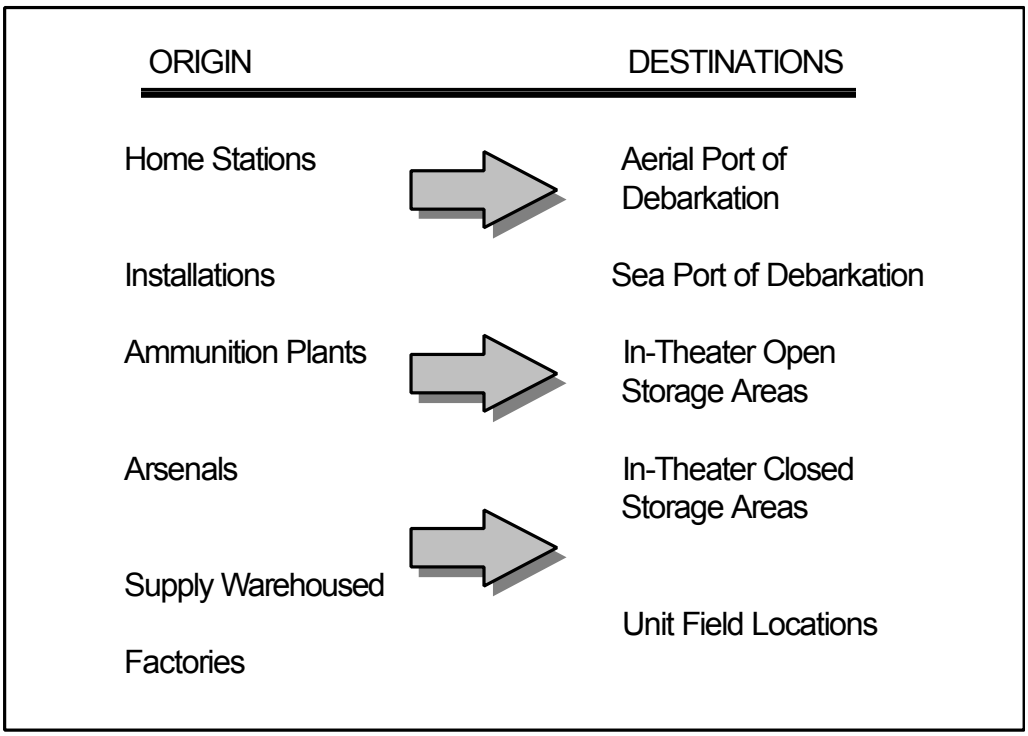


Figure 1-4. Effective Intermodal Movement

d. **Standardization.** Standardized procedures allows all users of containers easier understanding of shipping requirements and regulations and ensures efficient operations among the Services.

Intermodal containers are transportation assets designed to improve cargo throughput with minimum handling of cargo at mode transfer points. This capability demands standardization for ease of handling. Intermodal containers used within the DOD surface transportation system for international shipping are designed to conform to the ANSI/ISO specifications. DOD specifies the 20-foot and 40-foot ANSI/ISO containers as the standard for DOD unit equipment and sustainment. Intermodal containers used within the airlift system conform to the military 463L pallet standard. These include both pallets and containers.

e. **Container Status/In-Transit Visibility.** ITV provides commanders with accurate near real time logistics information capabilities vital to the CINCs concept of operations.

Container status and ITV are essential for effective and efficient use of intermodalism employing containerization. Supported CINCs need to know where their critical resources are and when those resources will arrive to execute or modify courses of action during contingencies. This information also provides the necessary data needed to prioritize, allocate, and reroute resources between theaters if required. Because of the volume of containers moving in the DTS and the resulting inventories, this capability should come via an automated system.

Identification and status information should include type of ANSI/ISO container, its location, and whether it is loaded or empty. The DOD is developing and refining information management systems to provide ITV capability. These should be interoperable with commercial systems and other DOD supply, transportation, and in-theater systems.

f. **Cargo Integrity, Security, and Safety.** Our goal is to ship unit equipment, sustainment stocks, and multiple vendor shipments on the same vessel. The ability to lock and seal the container affords better cargo security, protection, and detection of pilferage.

The large size of containerships, state-of-the-art commercial and developing DOD ITV systems, and the inherent security of ANSI/ISO containers facilitate unit integrity and cargo security. When using intermodal lift capability, unit integrity objectives of the customer will be adhered to and maintained at the highest level possible. Unit integrity is dependent on cargo type and capability/capacity of vessels involved. Intermodal containers decrease pilferage, injury to personnel, and damage to equipment and supplies. This is particularly important when moving Class V (both unit basic loads and resupply).

1-16. PRIORITIZING INTERMODAL RESOURCES. Effective and efficient use of intermodal containers should be applied across the range of military operations. The following aspects of container operations should be considered to ensure a CINC receives continuity in logistical support throughout the execution of an OPLAN/OPORD:

- Deployment.
- Reception.
- Staging.
- Onward movement.
- Distribution of container system assets.
- Stuffing and unstuffing.
- Retrograde.
- Appropriateness of CSS force structure.

All activities regardless of command, location, or service who receive, ship, transship, and/or stuff/unstuff DOD common-use, CADS, or Army common-use containers must report container related actions to MTMC's CFD in accordance with DOD Regulation 4500.9-R-1.

Since intermodal resources are finite, their use should be prioritized by USTRANSCOM in conjunction with a regional CINC's operations plans during the deliberate and crisis action planning processes. Two examples of planning actions aimed at ensuring the effective and efficient use of intermodal resources in support of DOD and national security objectives are:

- Pre-designating containerships for movement of ammunition and sustainment.
- Establishing priority use of 20-foot intermodal containers for ammunition movement.

Another example could involve the theater container distribution plan. Since both force structure and CHE are limited, planners should consider where in the AOR, 20- and 40-foot containers are to be delivered.

During deliberate planning, all UE and sustainment cargo suitable for containerization should be identified and appropriately coded for inclusion in the OPLAN TPFDD consistent with theater infrastructure capabilities and the geographic combatant commander's concept of operations.

Containerships and intermodal systems can help improve closure of the force by augmenting RO/RO capability. Closure profiles using containerships for movement of UE should be made available to the supported CINC during the deliberate planning process, particularly when lift shortfalls for moving UE are identified.

Shipment of containerized cargo should be identified in OPLANs. The procedures in JOPES must be strictly followed to produce accurate TPFDD. Output from TPFDD provides detailed information which identifies materiel for possible containerization. This is done to identify and source appropriate strategic lift. This data enhances the planning process and assist receiving and shipping activities. The inclusion of accurate data in the TPFDD allows USTRANSCOM to assess the CINC's strategic mobility requirements. Failure to accurately identify containerized cargo requirements results in inadequate or inefficient sourcing of required lift. Additional guidance is contained in Joint Publication 1-03.21, the Joint Publication 5-03 Series, and the Logistics and Mobility Supplements to the Joint Strategic Capabilities Plan.

Another objective of prioritizing containerization during planning is to gain maximum effectiveness of strategic lift when projecting the force. In peacetime, cost/benefit efficiency is maximized while meeting CINC/customer RDDs.

DOD's readiness to use fast commercial intermodal transportation systems is critical to provide a rapid, continuous flow of cargo from shipper to receiver in support of DOD and national security objectives. Containers will be used in peacetime to train for war, to meet peacetime transportation requirements, and to reduce transportation costs.

National transportation policy requires that DOD use existing commercial transportation equipment to the maximum extent possible. Commercial intermodal containership service will be the primary means used to ship sustainment cargo. Army-owned or leased containers will normally be used to ship accompanying supplies and certain UE in support of deploying forces. Use of Army-owned or leased containers to move these type items will help the Army maintain better control of these assets and allow for the use of these containers to support storage and distribution requirements in an AOR. Commercial containers should be unstuffed and returned expeditiously to the DTS to support continued DOD and industry shipping requirements. Commercial containers will be used to ship accompanying supplies and UE when Army-owned containers are not available. When DOD-owned, Army-owned, or leased containers are planned to be used, the following factors should be considered:

- Availability and location of DOD-owned, Army-owned, and commercial containers.
- Time and resources required for positioning containers and related transport equipment (for example, CHE at stuffing points and download sites).
- Origin and destination capability at SPOEs and SPODs.
- Infrastructure for reception, staging, and onward movement.
- The CSS force structure available to conduct the operation.

When sustainment cargo is not sufficient at the source for efficient container stuffing, it can be forwarded to a DLA/Service-operated container consolidation point or depot. Or, it can be shipped to a military ocean terminal as indicated by the MTMC routing authority for release unit shipments or as prescribed by DOD Regulation 4500.32-R, MILSTAMP, Volume 1, Appendix H, for "less-than-release unit shipments."

Release unit shipments are shipments of a specific commodity, weight, size, or mode which requires an export release. Approving authorities are:

- Ocean Cargo Clearance Authority.
- Water Clearance Authority.
- Air Clearance Authority.

Figure 1-5 explains each of these agencies responsibilities. A less-than-release unit shipments can be shipped without requiring an export release from the appropriate authority.

Effective logistic support, with some exceptions, will require the efficient movement and handling of containers throughout the transportation system. Shipping activities and supporting units should take into account factors such as cargo hold time, single or multiple consignee delivery, configuration and density of cargo, and availability of different types of containers.

Deliberate planning requires continuous updating, evaluation, and analysis of information and intelligence. When the plan is developed, the CINC's and the Service components' staffs develop a detailed transportation analysis. This transportation analysis identifies transport requirements for the movement of all resources into the AOR to support the planned concept of operations and then an appropriate logistics support plan is developed.

OCEAN CARGO CLEARANCE AUTHORITY

The Military Traffic Management Command activity which books DOD-sponsored cargo for sea movement, performs related contract administration and accomplishes export/import surface traffic management functions for DOD cargo moving within the Defense Transportation System.

WATER CLEARANCE AUTHORITY

The DOD activity which controls and monitors the flow of cargo into and/or out of ocean terminals. For the Army MTMC operates an ocean cargo booking office.

AIR CLEARANCE AUTHORITY

A service activity which controls and monitors the flow of cargo into and/or out of the airlift system.

Figure 1-5. Authorities for Release Unit Shipments

1-17. TRANSPORTATION MODES. The movement of containers within the theater of operations will challenge available transportation resources. Plans to use rail, highway, air, and inland waterways should be developed.

Rail, when available, is the most cost effective and expeditious means of moving large quantities of containers when an inland waterway infrastructure does not exist from the sea port to a hub or GSSA. The hub and GSSA, depending upon the operation, may be collocated. Also, rail is the least affected by adverse weather conditions. Virtually all ANSI/ISO containers can be transported by rail. However, rail cars may not have pier side access in the port, therefore, containers may have to be handled twice when loaded onto a rail car. Rail movement requires detailed planning and preparation by the unit being transported. Coordination is necessary between the moving unit, traffic management office, rail facility, movement control center, and rail operations team from supporting beach and terminal operations units.

Military or HNS motor transport may be used throughout the AOR for the movement of containers. Motor transport may be the primary mode of transportation forward of the GSSA to the DSSAs and beyond. Motor transport is the most flexible mode for the movement of containers and will be employed in line haul, local haul, terminal clearance, and transfer operations.

CHAPTER 2

THEATER CONTAINER OPERATIONS

The transportation distribution system to support container movements (depicted in Figure 2-1) is tailorable, flexible, and expandable to accomplish missions IAW METT-T as the theater grows and matures. There are vehicles best suited for long distance runs to support throughput missions from POEs into the corps area. The corps has a combination of smaller line haul and off-road tactical vehicles which are suited to the corps mission to provide support to forward units in the division area.

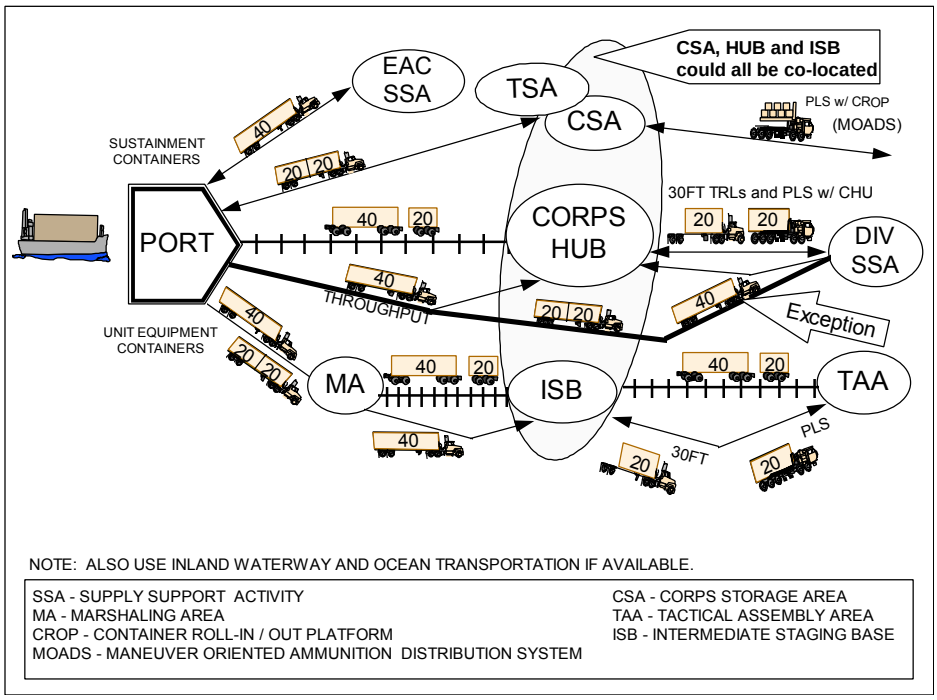


Figure 2-1. Container Onward Movement

2-1. THEATER CONTAINER DISTRIBUTION. Within the theater, 20-foot and UE containers should be throughput as far forward as practical. This will be based primarily on the capability of receiving units to off-load and unstuff containers. This is tied to the availability of CHE and MHE. With the introduction of the CROP, the container can be stripped at CSAs and Corps SSAs and only the CROP flatrack must be transported forward.

Figure 2-2, page 2-2, shows three primary channels that containers transit during onward movement in a theater. Shown from top to bottom are the ammunition, sustainment, and UE LOCs. Depending on the intermodal activities required to accomplish distribution along these LOCs, force structure and CHE must be in place to handle the arriving container. Appendix A provides an

overview of force structure capabilities and Appendix B provides the capabilities of available Army CHE.

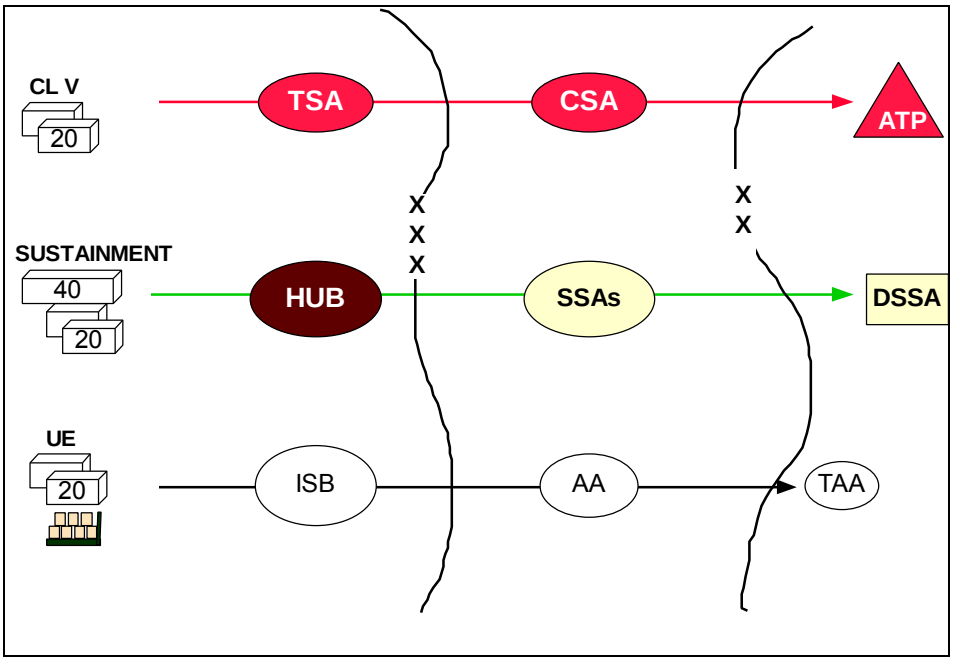


Figure 2-2. The CSS Container Mission

Ammunition uses only 20-foot containers and is delivered to the TSA and CSAs on theater transportation assets. Working in these storage areas are ordnance ammunition companies (see Appendix A, paragraphs A-1 and A-2) who receive strategic configured loads and build mission configured loads for onward movement to the ASPs and ATPs. The CROP is pulled from the container at the CSAs by a corps-assigned PLS truck and the CROP flatrack moves forward loaded with ammunition. Figure 2-3 depicts the Class V distribution process.

Unit equipment primarily uses 20-foot containers and flatracks. The goal is to deliver UE directly to units in their assembly areas. This is dependent on the desired theater destination and the arrival of the supported unit. UE might transit the same channels as sustainment on the way to the final assembly area. Figure 2-4 depicts the UE distribution process.

Sustainment comes in 20- and 40-foot containers. The goal is to use 20-foot containers to support the initial deployment. This will allow the theater time to get CHE into place to handle 40-foot containers at the planned destination nodes. Figure 2-5, page 2-4, shows this process. The CTC is the Army's only company designed to handle intermodal transport missions. The CTC has four modular platoons capable of supporting sea, air, rail, and truck terminals. The CTC can work in four separate terminals simultaneously. Theater-assigned or trucks provided by HNS are the only assets capable of transporting a 40-foot container inland. In Figure 2-5, the exception refers to the delivery of 40-foot containers to the division area. Twenty- and forty-foot containers routinely move to GSSAs and DSSAs throughout the corps. Class I, water, and other selected commodities which

routinely come in 40-foot containers will be throughput to the division. Delivering a 40-foot container to the division presents challenges. The division has no CHE. Therefore, the container will remain uploaded on the chassis until it is unstuffed and ready for retrograde. When this requirement exceeds the theater's ability to support, the container and chassis is left in the division area. In this situation, the platoons from a CTC must be forward positioned to handle the throughput of 40-foot containers to the division.

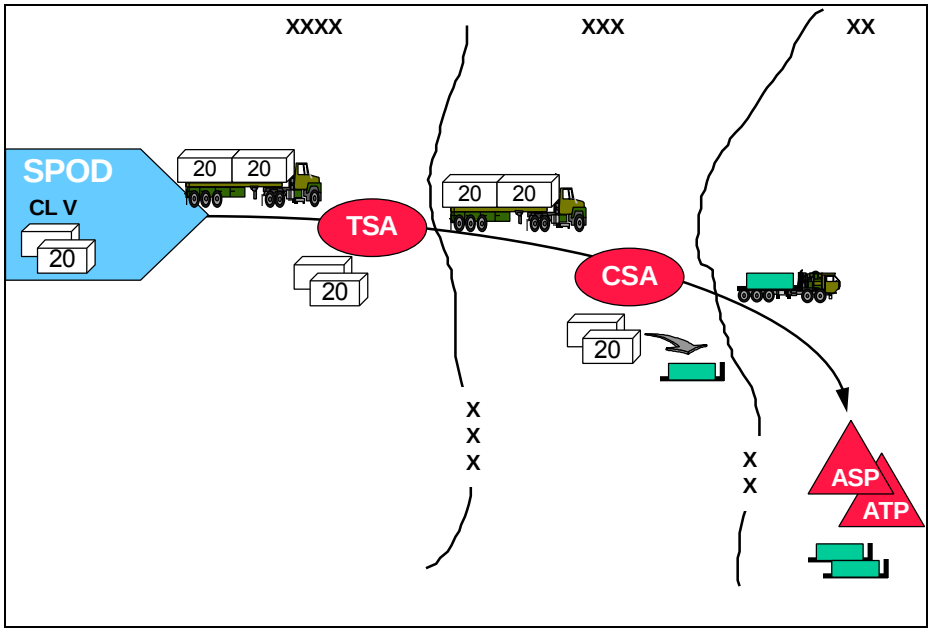


Figure 2-3. Class V Container Distribution

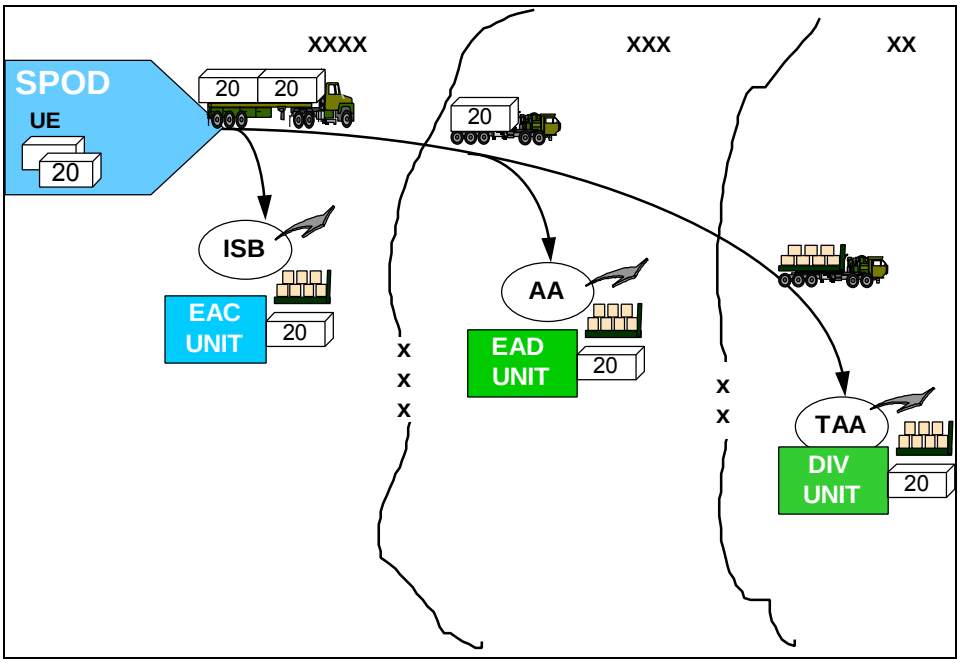


Figure 2-4. UE Container Distribution

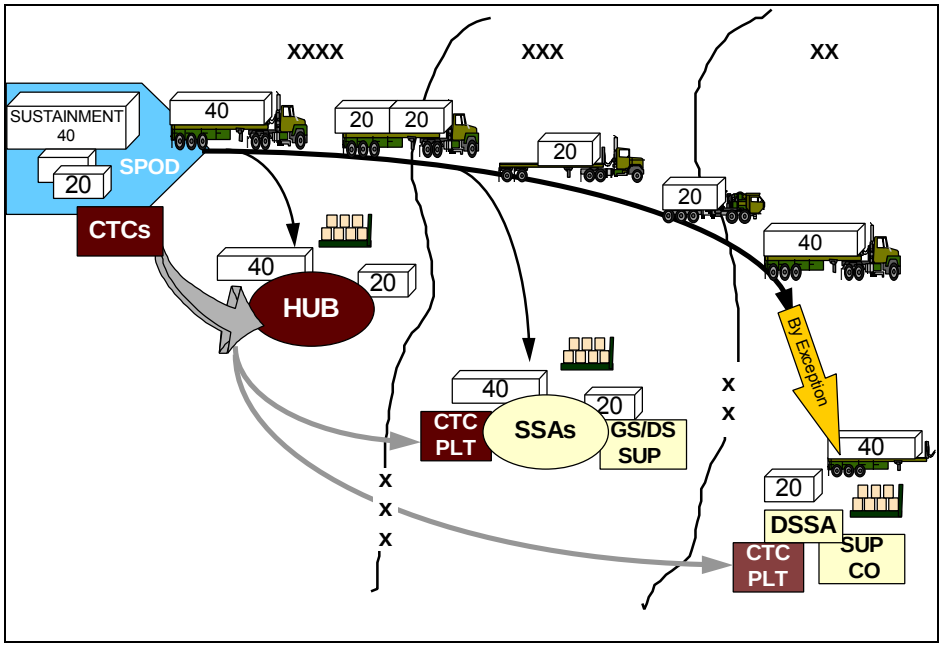


Figure 2-5. Sustainment Container Distribution

Forty-foot sustainment containers will generally be moved to GS supply echelons. DS supply echelons either do not have adequate CHE and MHE to unload 40-foot containers or they do not require the volume of material at one time that 40-foot containers provide. A 40-foot container throughput to the division area would be an exception as discussed above. Figure 2-6 summarizes the distribution of containers arriving in theater. Shown in the figure is the in-theater movement of containers to hubs, SSAs, by exception to division DSSA, and to users throughout the COMMZ, corps, and division areas.

2-2. THEATER CONTAINER MANAGEMENT ACTIVITIES. The TMCA will develop, disseminate, and monitor policies and procedures for containerized shipments moving in the theater. Appendix C provides a sample SOP for container management. TMCA responsibilities may include:

- Tracking the movement of containers consigned to activities within the theater.
- Coordinating and approving reconsignments with the origin and destination MCTs.
- Receiving, diverting, staging, and release from staging requests from theater commodity managers and MCTs.
- Ensuring reconsignment, diversion, staging, and release from staging information is quickly submitted to the ports and MCTs.
- Assisting, through the servicing MCT, shippers in planning the proper stuffing of containers with multiple consignees.

The TMCA movement information division's responsibilities are to:

- Receive all container movement information transactions and ensure they are quickly submitted for input into an automated system.
- Monitor automation-generated data and automatic digital network transmissions to supporting HQ.
- Ensure that automated cargo forecasts are promptly forwarded to the concerned organizations.

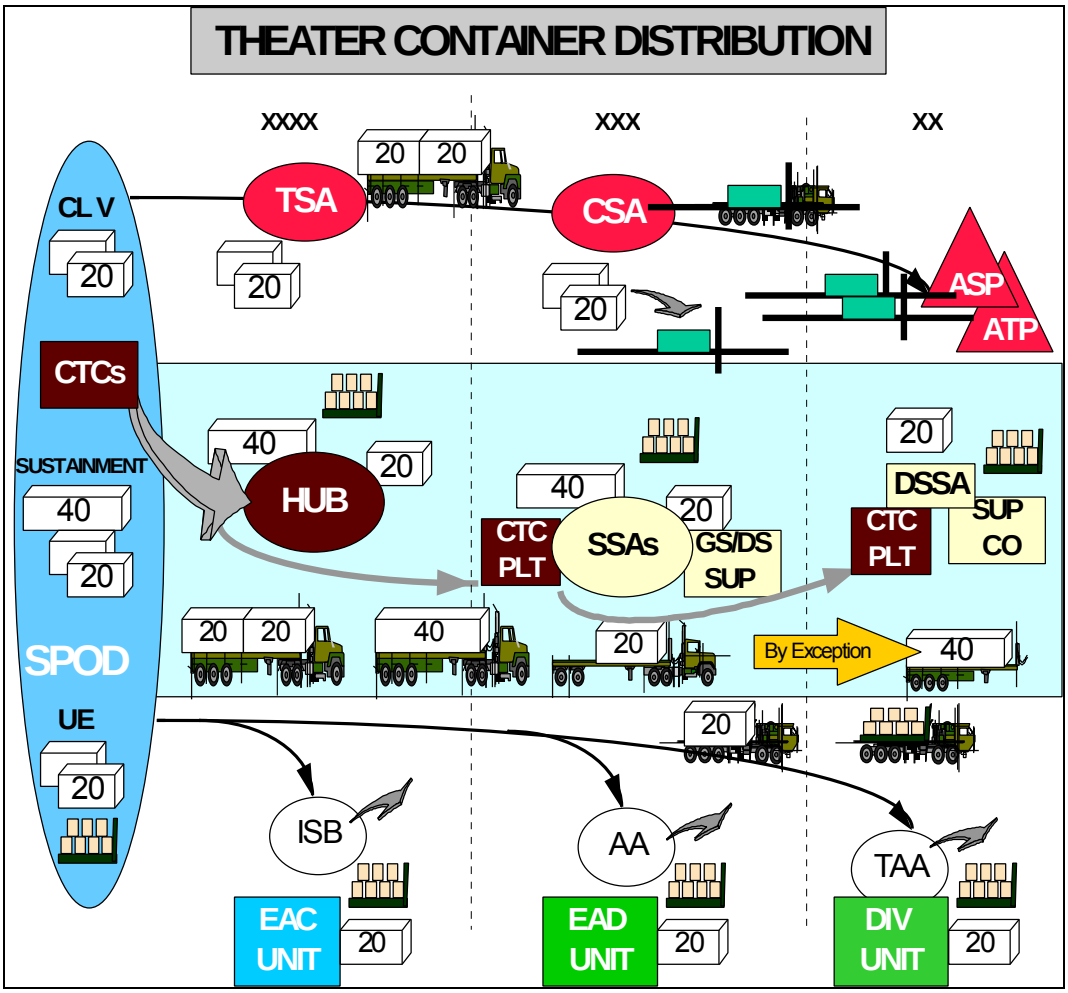


Figure 2-6. Overview of Theater Container Distribution

The transportation battalions and corps MCCs, through their subordinate MCTs, may:

- Provide inbound container and CADS information to MCTs to be passed to consignees.
- Provide disposition instructions to the TMCA based on information received from the MCTs and customers.
- Ensure the MCT notifies consignees of the impending arrival of multi-stop containers and the need for priority discharge of these containers at intermediate stops.
- Monitor arrival, unstuffing, and pickup of containers within their AOR.
- Maintain a container log that reflects all containers forecasted or received within their AOR.
- Report the receipt of unforecasted containers to the TMCA.
- Report all empty containers to appropriate mode operators and coordinate pickup.
- Notify the TMCA when a consignee reports receipt of an unserviceable or damaged container or cargo damage.
- Receive and process requests for reconsignment action from customers.
- Monitor retrograde operations.
- Ensure MCTs reduce retrograde backlog.

2-3. CONTAINER MANAGEMENT OBJECTIVES. When developing container management procedures, the TMCA must consider the following container management objectives. These objectives represent goals which will improve theater distribution of containers.

- Consolidate shipments for single consignees versus multiple consignees or breakbulk points.
- Minimize the time for holding or consolidating cargo to fill up containers.
- Maximize container cube use to achieve economical movements.
- Expedite the movement of throughput and high-priority container shipments.
- Maintain 100 percent ITV of containers and contents.
- Ensure optimum use of container equipment.
- Ensure containers do not become congested in yards. Keep them moving.
- Move containers as fast as mode operators can transport them and consignees can accept them.
- Ensure containers are unstuffed and released back to the transportation system as soon as possible.
- Integrate the military and commercial intermodal container management system.
- Ensure that mode operators are responsive to the needs of consignees as well as transportation managers.
- Use containers for retrograde movements as much as possible without slowing down the system.

2-4. OCONUS CONTAINER MANAGEMENT. Planning for reception, staging, and onward movement of containers at water terminals requires advance notice of a ship's cargo manifest to facilitate efficient movement of arriving containers. Under the SPM concept, the MTMC, as port manager, receives an advance ship's manifest through WPS. The port MCT also has the capability to receive its own copy of the advance ships manifest through WPS.

During early entry operations in an austere environment, a composite transportation group HQ may serve as the port manager and operator until the MTMC becomes operational.

2-5. PLANNING. MTMC, working with the TMCA, provides an advance manifest of inbound containers that the TMCA matches to UIC. TMCA works with the port operators and unit representatives to coordinate the discharge times for UE. Containers arriving at the port must be efficiently discharged and expeditiously moved forward where supplies and equipment are needed. The port manager must plan for and be fully aware of theater reception and onward movement requirements to plan container operations.

To effectively and efficiently support the reception, discharge, onward movement, and inland management and movement of containers, traditional port reception support organizations and CSS functions may need to be modified or augmented. This might include specialized MHE/CHE, transport equipment, and command and control functions.

Ad hoc Joint or Combined staffed CCE, like the one established in Operation Joint Endeavor, may be needed. They would be responsible for sorting and moving inland containerized cargo. Once established, they would be assigned to a theater or corps support command depending on the supported CINCs requirements. These CCEs would forward reports to a Joint or Combined movement control center. CCSs are established to receive, identify, direct inland distribution, and retrograde containers. CCSs are locations where vehicles deliver containers from a port or beach area to the CCE where CHE/MHE is available to unstuff, sort, and prepare cargo for movement inland.

Another method which might be used is the hub-and-spoke distribution system. Containers entering the system for reception and onward movement requires assets such as CHE/MHE and trucks to support container operations.

If a situation does not allow the off-loading of containers at a port facility, a LOTS or intra-theater SLOC may be established.

During the deliberate planning process, CINCs develop requirements and work with USTRANSCOM and DOD logistics agencies to improve the use of the DOD container system for movement between origin and destination of all classes of supply and unit equipment, consistent with the CINC's concept of operations. Figure 2-7, page 2-8, shows the percentage of containerized sustainment cargo a theater can expect to receive in containers. These planning factors are found in volume I of the AFPDA document.

Unified commanders should integrate the DOD container system into their exercises to improve the readiness of their forces to use effectively and efficiently intermodal containers and systems in the field. USTRANSCOM works with the DOD logistics agencies and CINCs to perform the following:

- Determines overall intermodal container scenario-based contingency requirements.
- Recommends the size and composition of the DOD-owned nucleus container fleet.
- Coordinates with the Services to program acquisition.

USTRANSCOM develops agreements with industry to provide intermodal capability during contingencies for containers, chassis, containerships, terminal services, and ITV systems. For example, when the applicable sealift program VISA/SRP is activated, shipping companies whose containerships are acquired, in addition to their vessels, must provide at least three sets of containers, chassis, and other support equipment.

During operations, USTRANSCOM provides DOD container capability through purchase, lease, or when appropriate, by requesting transfer of Service-owned container capability not in use.

MTMC develops and maintains contingency plans and positions DOD common-use and CADS containers based upon requirements of the DOD components once validated by USTRANSCOM and Services respectively.

Through MTMC's Joint Traffic Management Office, USTRANSCOM negotiates intermodal rates and procures related services to meet DOD intermodal transportation requirements. The JTMO also acts as the DOD agent for procurement (lease or buy) of commercial ANSI/ISO intermodal containers, flatracks, and support equipment for DOD common-use container system service or, upon request, for Service-unique requirements. Chapter 1 provides an overview of these responsibilities.

During the deliberate planning process, USTRANSCOM plans for optimizing the DOD container system for the origin to destination movement of all classes of supply and unit equipment IAW the supported commander's concept of operations and logistical support. Container requirements need to be defined and submitted to USTRANSCOM for planning purposes including development of the TPFDD. USTRANSCOM provides transportation intelligence for CINCs that includes theater intermodal infrastructure assessment, CHE availability, port throughput capabilities, and other types of transportation intelligence.

PLANNING FACTORS FOR PERCENTAGE OF CONTAINERIZED SUSTAINMENT CARGO
(Expected to arrive in theater)

General Cargo (Consumables) 100

Non-regulated II & III (Pkg) 100

Conventional Class V.....100

Class IV.....75

Class IX (non-ALOC).....80

Source AFPDA

Figure 2-7. Percent Sustainment Containerized Cargo

2-6. CONTAINER CONTROL. Control of containers should be centralized and established at an echelon that permits surveillance of the overall container situation. Centralized management is necessary to ensure visibility of containers and that the containers are used primarily for transport and not for other purposes such as field bunkers or sleeping quarters. Within the theater, that echelon is the TMCA or senior MCA HQ present. Operating within broad theater Army policy directives, the TMCA develops specific policies and procedures for container use and monitors compliance.

The TMCA, coordinating with the TMMC, sets priorities for container shipment, diversion, or reconsignment. To do this, timely and accurate reporting of information to the TMCA is essential as the theater container manager. The TMCA maintains information on the location and status of all containers in the theater. Each terminal consignor and consignee notifies its supporting MCT of the receipt, unstuffing, stuffing, and release of containers. The MCT relays this information through its HQ, either the corps MCC or transportation battalions to the TMCA. Each mode operator and each designated reporting point (such as a trailer transfer point) submit in-transit reports to its higher HQ. The types of transportation assets available to deliver containers to unit destinations makes it possible to limit the number of containers which must be left with the customer.

Figure 2-8 shows the theater organizations supporting container requests and movement. Depicted are the customers, movement control agencies, and mode operators. This figure also reflects the cargo transfer company's mission to support cargo operations in the division by sending a platoon forward when needed. This mission was added to Section I of the TOE effective April 1995. Now when divisions have requirements to conduct cargo transfer operations or establish a limited container marshaling yard, they can request to be augmented to perform this additional cargo transfer mission.

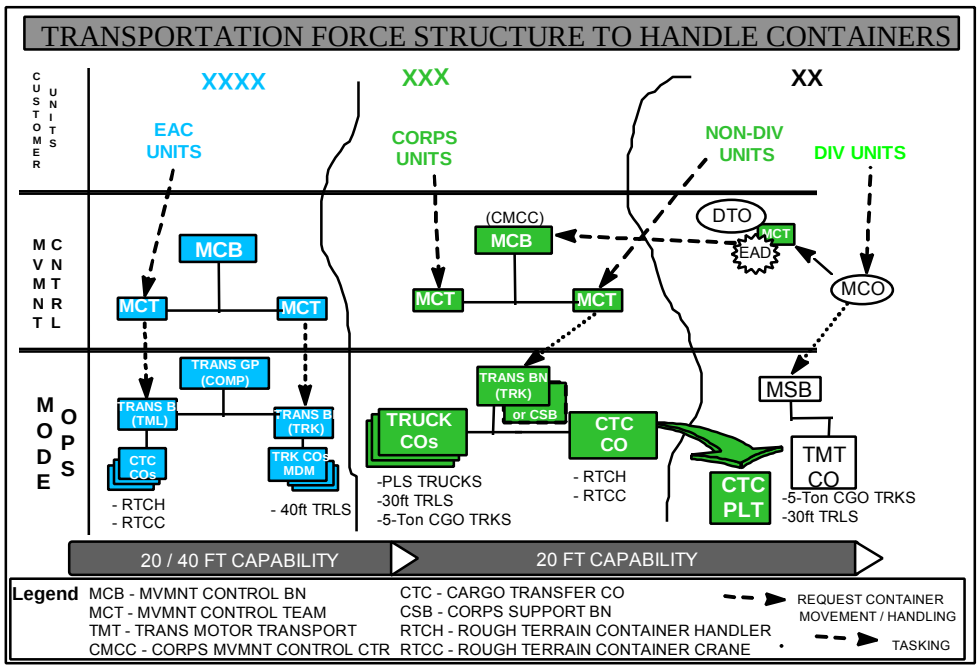


Figure 2-8. Container Requesting and Movement

2-7. PORT OPERATIONS. The CINC must ensure containers arriving in the theater are promptly discharged and prepared for onward movement. The port manager coordinates with the TMCA who develops the movement program that allocates transportation for the movement of all cargo and personnel from PODs. The TMCA also establishes container management policies and procedures. The transportation command staff provides transportation supervision for onward movement of containers. It may also provide trailer transfer, liaison, or mode operating units at the ports. The supporting MCB will normally assign an MCT to manage the flow of cargo from ports of debarkation.

In combined operations being conducted from friendly soil, the HN may choose to exercise its territorial responsibilities and continue to operate ports in the theater. The responsibilities of US forces at these ports will be based upon agreements between the US and the HN governments.

2-8. CONTAINER DISCHARGE AT SEAPORTS. Fixed-port terminals normally provide suitable facilities to off-load containers and transfer them to inland transportation nodes. These can be hub-and-spoke systems, railheads, or trailer transfer points. Fixed-port facilities will be used to the maximum extent possible because large numbers of containers can be processed rapidly. Also, commercial CHE may be available and they have access to inland transportation networks. Off-loading containers in-the-stream can be used in conjunction with fixed-port operations if berthing space is limited, the port has been damaged, or deep draft approach channels have been blocked. FM 55-17 and FM 55-60 provide additional information on terminal operations.

LOTS operations are another means of providing support when established ports are not available or are not adequate. LOTS operations involve discharging ships anchored offshore using Army lighterage and bringing the cargo over the beach or through a degraded port. LOTS operations are inherently less efficient than fixed-port operations. This is due to a lack of shore-based CHE and weather conditions affecting sea states which adversely impact operations. While LOTS operations will be avoided where possible, LOTS capabilities may be the only available option or be needed to supplement fixed-port capabilities. During ODS, with all the capabilities the port of Ad Dammam offered, Army lighterage was still required to meet deployment and redeployment timelines.

2-9. SEAPORT CLEARANCE. The theater first gains visibility of inbound containers from the ocean cargo manifest available through the WPS data base. The manifest is sent from the MTMC or Navy command responsible for operating SPOE. MILSTAMP requires transmission of the manifest to the SPOD within 72 hours after the vessel departs from the SPOE. The ocean cargo manifest is compiled from two primary sources: the advance TCMD from the shipper and LIF data from the ocean carrier. The following actions occur upon receipt of the manifest.

Port managers begin preparing documentation to clear the containers through the port. If the containers are shipped under the provisions of the MSC container agreement that requires the ocean carrier to provide inland transportation, it will be annotated on the manifest. If the manifest indicates delivery to the ocean carrier's terminal only, inland transportation arrangements are made by the port MCT.

The port MCT provides this data, through its MCB to the TMCA, which maintains theater visibility of containers. The port MCT produces and transmits the ETA forecast to the consignee (if possible), the destination MCT, the TMCA, MCC, and transportation battalions.

The TMCA processes the manifest into its automated system. This is compiled into an initial master record of every container expected to arrive in the theater. This information is provided to the MCBs and becomes an inbound forecast.

Upon receiving the forecast from the MCB, destination MCTs coordinate with the consignee to determine disposition instructions, delivery location, and capability to handle the containers. They provide instruction back to the port MCT as follows:

- Free flow the container to the manifested consignee.
- Expedite the container to the manifested consignee.
- Divert the container to another consignee.
- Stage the container at the port or other inland nodes.

The port MCT receives disposition instructions and plans onward movement before the ship arrives at the SPOD. The MCT must receive any instructions to divert or stage containers before arranging onward movement. If required, the MCT will coordinate movement clearance.

The advance ocean cargo manifest is only a planning document. Port operators perform 100 percent reconciliation during off-loading. The actual containers discharged will be matched against the advance ocean manifest and all discrepancies noted. If there are differences, the port MCT must notify the TMCA and destination MCTs for disposition instructions. The port MCT and TMCA will update their accounting system.

Port operators, the TMCA, and the transportation command should strive to move containers from the ship directly to the mode of transportation for onward movement. This will prevent accumulation at the port. Immediate transportation may not always be possible or desirable and containers will be held in marshaling yards to await movement. The marshaling yard is a temporary holding area for containers awaiting transportation. It should be organized to promote rapid and continuous movement to and from the port and/or beach. The marshaling yard should be located as near the port operation as possible to reduce handling time.

Marshaling yards may be needed if there are shortages of line haul assets. Using a marshaling yard allows mode operators to program their assets and not have to have those assets sitting idle while the ship is being discharged. The tactical situation may not allow immediate movement due to higher priorities for use of transportation modes or MSRs. Containers may also be staged in a marshaling yard for transportation via rail, highway, inland water, or HNS carriers. FM 55-60 provides information on marshaling yard operations.

Rail, when available, is the most efficient method of moving large quantities of containers from the ports. Rail should be used to move containers as far forward as feasible. Rail is less affected by adverse weather than other modes, but its flexibility is limited because it depends on a fixed roadbed which may be vulnerable to enemy action. Operations in the division area usually do not include rail movement as highway remains the normal mode used to transport containers.

Highway transport is the most flexible method of moving containers and will be employed in line haul, local haul, terminal clearance, and transfer operations. This will be the primary mode to forward containers from rail terminals directly to the consignee. Highway transport will be required for multi-stop containers. Port clearance is a good use of HN transportation support and should be planned for if possible. The MCT may need to coordinate off-loading capability with consignee.

Inland water transport can be used when there are sufficient assets, units, and facilities. This mode can help relieve pressure on rail and truck transportation modes. Inland water is the slowest mode and requires the most container rehandling. Due to variable tides and water depths during seasons, this mode may not be available year round. The advantage is that large quantities can be moved in a single lift.

HNS carriers may move containers. However, they will not normally move CADS containers. CADS will normally be moved by theater assigned assets to TSA/CSA, for onward movement on corps PLS assets using the CROP.

The consignee should report to the servicing MCT the arrival of all containers and when they are available for pickup. A realistic standard would be to have all leased and/or common-use containers unstuffed within 72 hours. Leased containers might incur detention charges if containers are held beyond 72 hours at the consignee destination.

If upon delivery of the container it is found that the container needs to be delivered to another consignee, the MCT has the following two options:

- Reconsign the container to the proper consignee with the same mode operator.
- Unstuff the container and deliver the cargo using other modes of transport.

2-10. CONTAINER OPERATIONS AT ECHELONS ABOVE CORPS. Throughput distribution of 20- and 40-foot containers from sea ports or theater marshaling areas to GSSA in the corps will be accomplished when feasible and only when containers are destined for a single consignee. Typically, only 20-foot containers will be throughput into the division area. Throughput distribution is based on priorities and requires coordination between the TMCA and TMMC.

Although the objective is to unstuff containers within three days and return them to the transportation system, this objective may not always be met. Planners must anticipate that units will want to use grounded containers for limited temporary field storage purposes. The TMCA monitors the distribution of containers within the theater and informs the CINC, through the TAACOM, when temporary storage of containers negatively impacts on the DTS. Containers used for storage must be limited so that sufficient containers remain available for transportation purposes. Containers authorized for temporary storage should be Army-owned containers or leased containers and not liner agreement containers. Holding liner agreement containers generates detention charges against the consignee. When units desire to hold containers, the TMCA must be advised so that accountability can be maintained.

Once containers are approved for limited temporary storage, they must be off-loaded from the trailer or chassis as quickly as possible. The TMCA, through its MCTs, must ensure that these activities have CHE to ground the containers. The containers then may be unstuffed over a period of time as supplies are issued or reconsigned.

When containers are available for intra-theater movement, they may be used to consolidate shipments to supported units.

2-11. CONTAINER OPERATIONS AT CORPS AND DIVISION. The geographic location, requirements for increased mobility and dispersion, and lower stock levels, differentiate theater and corps supply activities. However, most of the container-handling concepts at EAC outlined above remain valid for corps. The biggest difference is in the method containers are delivered. Beginning in the corps and throughout the division, the PLS is the primary conveyance for moving 20-foot containers to unit locations without CHE. The corps has limited organic capability to handle 40-foot containers and CHE is extremely limited in the division. Forty-foot containers may require modal operations to unstuff and transship at GSSAs before final delivery can be made to the customer. When a requirement exists to operate a limited container marshaling yard in the division area, cargo transfer units from EAD assist in establishing the container yard. Division commanders requests augmentation to their logistics capability through the supporting COSCOM. The COSCOM is the first level where a transportation cargo transfer company is attached.

The commodity orientation of GS supply units normally allows them to receive containers stuffed with one commodity. Twenty-foot containers will routinely be moved as far forward as possible to support division units. Containers, less REEFER vans, should not be delivered into the BSA. If delivery to a BSA is required, the container should be immediately unstuffed and retrograded to the rear.

Another container configuration is the CADS stuffed with the CROP flatrack device. These containers are used to throughput Class V to the TSA and CSAs. Once in the TSA/CSA, the CROP is removed from the container and the container is retrograded to the rear. The CROP, minus the container, is the asset used to move Class V from the TSA/CSA to ASPs and ATPs. The CROP will be exchanged on a one-for-one basis at the Class V user location and returned to the TSA/CSA for repacking and reuse. CROPs are monitored like containers. They remain a corps asset with the primary mission to move ammunition until redeployment.

The CROP also has the potential to move other classes of supply. When the CROP is used to move cargo (less Class V) to forward areas, the goal is to have the cargo offloaded immediately and the container made available for retrograde. METT-T will determine the need to use containers for field warehousing. In any event, the CROP presents the opportunity to leave fewer and fewer containers in the hands of the customer allowing for greater ultimate control of the container. Figure 2-9, page 2-14, shows the distribution of containers stuffed with CROPs in the corps forward areas. Also shown in the diagram is the CHU. The CHU is capable of handling 20-foot ANSI/ISO containers and the CROP will transport container loads with a gross weight of 36,250 pounds.

2-12. RETROGRADE USE OF CONTAINERS. Containers should be used for retrograde cargo if the cargo can be containerized, if the cargo is on-hand for movement, and if it does not interfere with the reception and onward movement of containers. The TMCA, in coordination with subordinate MCTs and MMCs, must plan for the retrograde use of containers.

All plans should include policies and procedures for retrograde of empty containers. There should be provisions to establish a RSA near the logistics base receiving containers. RSAs would be operated by theater and corps elements. These would likely be near sea ports and corps storage areas to facilitate redeployment or redistribution of containers. If the number of containers being forwarded to the division is significant, then a hasty RSA might be established near the DSA. Transporters returning from forward areas with empty containers are directed to the RSA. The RSA informs the CCA on the status of containers in the staging area.

MCTs responsibilities for retrograde operations include:

- Querying customers to find out if they have retrograde cargo that requires movement or receive transportation requests from customers. Determine if the cargo is container compatible and if it is at or near the final destination of the inbound container.
- Forwarding container retrograde requests through their HQ to the port. The port will forward approved shipping dates and an ETR to the origin MCT.
- Coordinating movement of empty containers to a consolidated container collection point if the approved method of retrograde is to line haul retrograde cargo to consolidation points.
- Coordinating for CHE/MHE as needed.
- Supervising loading and stuffing of containers when required.
- Tasking the appropriate mode operator to transport containers.

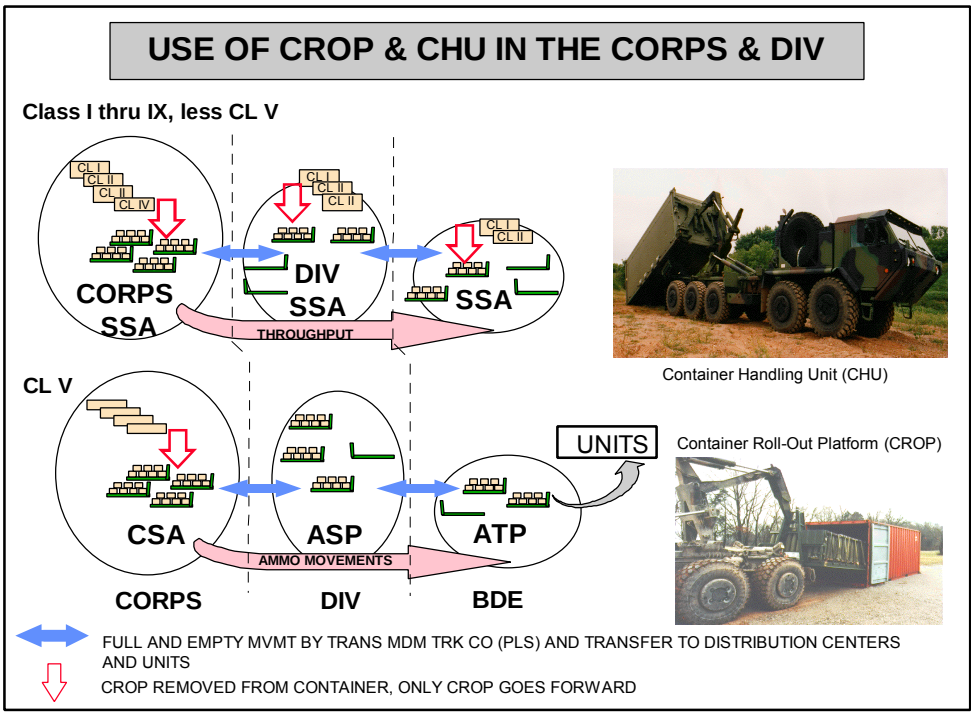


Figure 2-9. Corps Onward Movement

2-13. INTERFACE WITH CONUS. The TMCA, through MTMC, provides the link between the CONUS and theater for container control. As appropriate, TMCA advises MTMC of the status of military-owned or leased containers in the theater.

The MTMC port manager will provide ITV for containers arriving/departing the theater. It will manage their discharge from the vessel and make disposition based on theater guidance. The port MCT will coordinate with the MTMC port manager for redeployment/retrograde of containerized cargo and empty containers. The JMCC, MTMC, or Service component commander can also provide visibility over intermodal container systems entering and departing the theater. The MCB will have MCTs stationed at theater APODs and SPODs to ensure timely and accurate reporting.

The CINC may direct the TAACOM to establish a CCA to ensure that a viable theater container management program is established, maintained, and enforced to the maximum extent possible consistent with the tactical situation. This CCA would initially be resourced from organic assets. The CCA ensures that critical intermodal container-handling resources (personnel and equipment) are deployed in sufficient time to allow for smooth reception, onward movement, and accountability of cargo and containers. The CCA monitors the appropriate use, efficiency, and effectiveness of the intermodal container system.

The CCA should maintain communication with MTMC to ensure availability of adequate and timely information on the containers and contents inbound to the theater. It advises the supported CINC and keeps MTMC informed of problems encountered. The accountings for, unstuffing, and return of containers entering the theater are managed by the CCA. The CCA coordinates with ITOs and organizational points of contact to ensure continuous accountability of all containers arriving, departing, and moving within the theater. If the Army is not the Service designated to establish a CCA, it may establish its own CCA. For example, each EAC movement agency, such as the TMCA, may manage containers used by Army units.

2-14. INVENTORIES. DOD-wide container inventories are conducted on an annual basis upon direction of the CFD, HQ MTMC, Eastern Area. This inventory is used to maintain the DOD ANSI/ISO container register. For the CADS fleet, this inventory will be used to verify property accounting and financial records as well as external reporting requirements.

The US Department of Transportation's Maritime Administration publishes an annual report entitled, "Inventory of American Intermodal Equipment," that identifies quantities and types of containers held in the inventories of US flag marine carries and leasing companies in the US. Distribution of this report can be obtained by writing to Maritime Administration, Office of Port and Intermodal Development (MAR-810), 400 Seventh Street SW, Washington, DC, 20590.

The Army is responsible for verifying Army-owned containers on property records among the various MACOMs.

2-15. CONTAINERS LOST, DAMAGED, OR DESTROYED. DOD common-use and CADS containers which cannot be located and/or accounted for during the inventory require the initiation of a property adjustment document. A property adjustment document is defined as a report of survey and/or transportation discrepancy report. The Commander, HQ MTMC, Eastern Area, is the approving authority for property adjustment documents.

Army-owned containers lost, damaged, or destroyed will be accounted for and adjusted using report of survey procedures IAW AR 735-5.

During operations, CINCs are responsible for containers in their AOR. Containers should not be indiscriminately used for purposes for which they are not intended (for example, bunkers, shower stalls, shelters, and so on). Containers should be retrograded from forward areas to marshaling areas for integration back into the DTS.

CHAPTER 3

TECHNOLOGY

This chapter discusses technology relating to automated shipping and tracking management systems. Automated ITV initiatives were used in operations in Somalia, Haiti, and Bosnia. Several of these test projects using automated tracking capabilities proved effective in tracking, locating, classification, prioritization, and content identification of containers from origin to final destination.
Accurate shipping documentation decreases the possibility of cargo becoming lost or frustrated. When this happens, frustrated cargo reduces confidence in the distribution system and subsequently operational readiness.

3-1. BACKGROUND. The increased use of containerization, both for UE and sustainment, demands a responsive management system to track shipments from origin to destination. The supported CINC needs accurate logistics information when planning, modifying, or committing resources in support of operations. Logistics considerations often are the unknown variables planners need to make decisions affecting a planned operation. Detailed and timely logistics information is often unavailable. Lessons learned in ODS, Somalia, Haiti, and Bosnia demonstrated the need to improve the quality of logistics information. With each deployment, the increased use of automated tracking technology on containers has resulted in improved, near real time visibility of Army assets in transport.

3-2. DOD TRANSPORTATION POLICY. DOD transportation policy requires shippers of cargo to generate transportation information IAW procedures established in DOD transportation regulations. Joint Publication 4-0 delineates that DOD Regulation 4500.32-R, MILSTAMP, be used to document the transportation requirements of cargo in the DOD intermodal container system. MILSTAMP prescribes standard data elements, codes, formats, documents, forms, rules, methods, and procedures required by DOD components and other US Government Agencies/civil authorities, in the transportation and movement of materiel to, within, and beyond the DTS. DOD Regulation 4500.9-R, DTR, Part II, Cargo Movement, prescribes policies and procedures and assigns responsibilities for performing traffic management functions initiated or sponsored by DOD activities.

3-3. AUTOMATED INFORMATION SYSTEMS. DOD automated information systems are designed to interface with commercial transportation information systems to receive and pass required personnel, unit, and cargo movement data and other transportation information to appropriate commands and agencies throughout the DTS. This capability exists to the extent commercial carriers have formatted their EDI reports to DOT standards.

3-4. AUTOMATIC IDENTIFICATION TECHNOLOGY. AIT is a suite of equipment and storage media which supports source data automation to facilitate the rapid collection, consolidation, storage, and retrieval of data to and from a particular STAMIS or joint AIS. In regards to commercial industry, EDI is recognized as the most cost effective and efficient means of information transfer from commercial carriers to the military for data acquisition and support of ITV objectives.

However, the requirement for direct vendor linear bar coding of DOD shipments is mandated contractually.

a. **Strategic Automation Information Systems.** The strategic AIS refers to those automated systems which provide visibility and status of resources from the vendor/depot level through the DTS. Data elements from item shipment through port of debarkation forward are sent via EDI, and/or MILSTAMP transaction sent to the GTN. Supply status MILSTAMP transactions are forwarded to the Army LIF. TAV is the user level application to gain access to aggregated movement/status data.

b. **Total Asset Visibility.** TAV consists of three subordinate parts; in-storage, in-transit, and in-process visibility. In-storage visibility provides visibility of resources in static inventory. ITV provides information on resources moving through the strategic, operational, and tactical logistics pipelines. In-process provides visibility of resources while in maintenance, calibration, or acquisition . The TAV concept is being implemented to track resources throughout the world. TAV supports cross-leveling, shipping, or redirecting assets in support of mission requirements. However, no execution module exists to perform redistribution tasks on-line. TAV/ITV data will be accessible from NDI office automation equipment already available in support operations sections at each echelon. Programs are also being developed to run on NDI office automation equipment which will allow access to the various STAMISs through a Windows-NT operating environment for the purpose of easier access to the various current systems.

c. **Integrated Combat Service Support System.** The ICS3 establishes the overall architecture and needs for CSS automation and communications and will be the focal point for the future. It supports the need to bring about the total integration of CSS automation and supporting communications into a single, responsive, and seamless configuration. STAMIS interface and communications capabilities are vital to linking CSS automated systems from the factory to the foxhole.

The use of AIT enables the rapid execution of battlefield distribution in a power projection scenario, builds confidence in the supply system, and answers difficult questions like, “What’s in the distribution pipeline and where is it?” A combination of AIT media can be used to facilitate the overarching battlefield distribution and DOD total asset visibility goals.

3-5. RADIO FREQUENCY IDENTIFICATION. RF identification, RFDC, OMC, bar coding, and two-dimensional bar coding each have advantages based on their unique capabilities. Each of these technologies will be used at one or more locations within the total distribution system in support of operational requirements. All AIT media is considered complimentary and should be used concurrently.

After experimenting with several technologies through the battle lab process, CASCOM determined that omni-directional, read/write RF tags currently meet the Army’s requirement for nodal ITV and in-the-box visibility, classification, and prioritization at the operational and tactical level. Given the limitations in providing assured communications, RF technology is unmatched in the austere environment. The read/write, omni-directional capability of this technology reduces the need for soldiers to manually process data thereby reducing source data errors.

Currently the BD concept is neither policy nor doctrine. Figure 3-1 shows a notional BD distribution flow and the management functions at the various levels. The BD concept employs a DMC which includes elements of the MMC, MCC, and MMMC. The DMC controls, de-conflicts, and prioritizes the distribution process. The AIT enabling technology to accomplish this is provided via the use of bar coding, OMCs, and RF tags.

When RF technology is employed in a contingency, the ASCC would be responsible for allocating assets to support the implementation of the technology. Needed are personnel to form an 'ad hoc' fusion cell and personnel to setup, operate, and maintain the ancillary RF equipment. This support would typically come from the TAACOM and certainly the CSS command subordinate to the TAACOM would play key rolls. CINCs must realize that until this technology is fielded and Army units are properly trained in the use of this equipment. Contractor support is required to assist in the set-up and maintenance of this equipment.

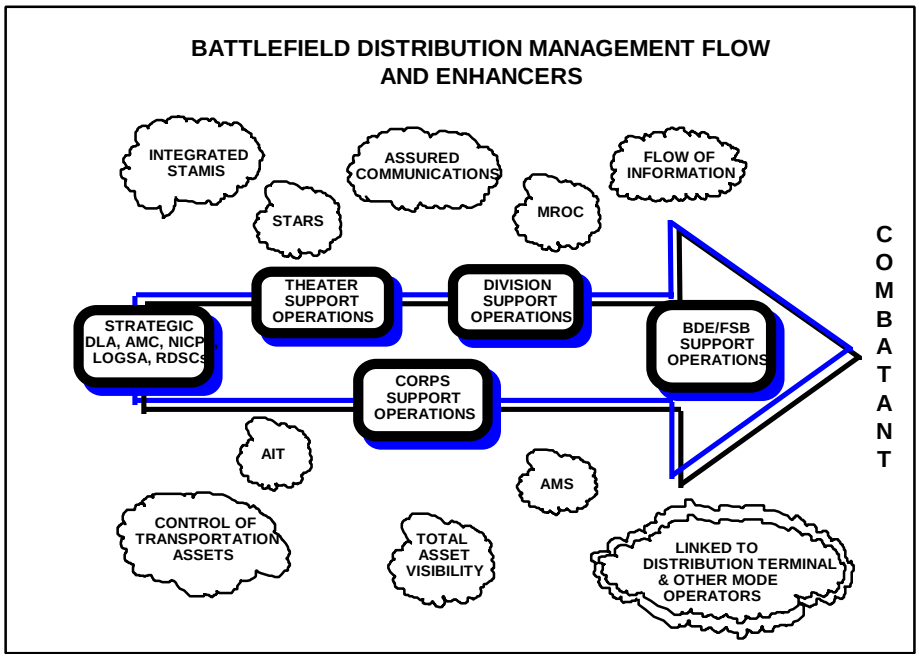


Figure 3-1. Battlefield Distribution

3-6. OVERVIEW OF RF TECHNOLOGY. The need to know what you have, where it is, and how to find it anywhere in the logistics system is critical in projecting and sustaining the force. Effective and efficient distribution management depends on reliable logistics information. It is in this setting that the unique capabilities of RF technology far exceed the simple source data capabilities normally associated with other forms of AIT, such as OMCs. Whether in a port, SSA, staging area, cargo transfer point, or ammunition storage point, RF technology offers advantages which are essential to effective distribution.

Radio frequency identification uses radio wave transmission and reception to pass MILSTRIP/MILSTAMP shipment information about objects that need to be identified or tracked. These objects can be vehicles, aircraft, watercraft, pallets, containers, or other intermodal

equipment. The information is stored on the tag with media storage capability similar to a computer's random access memory. Antennas or "interrogators" can read the information contained on the tag attached to the item and pass it back to a central database. Under certain conditions, it will also be desirable to write to the tag from an interrogator in order to update information concerning the tagged item. It is this remote "stand-off" read/write capability that sets the RF tag apart from other automatic identification technologies such as bar coding and OMCs. Currently these tags can be manipulated at a range of approximately 250 feet between the RF tag and interrogator.

RF tags, by the nature of their construction, allow a greater flexibility than traditional bar coding in placement on the tagged item. Omni-directional radio wave propagation allows the tag to be read even when the interrogator is not in a direct "line of sight" with the tag. It is possible to read identification information off the tag while the item is moving. The identification information, in conjunction with RF tag MILSTRIP/MILSTAMP initial "write" records, provides near-real time nodal ITV via GTN and ultimately TAV. This means that the distribution process is not interrupted because in-transit items no longer have to be stopped and physically accounted for on arrival or departure. RF tags can also assist in locating/identifying commodities placed in a physically inaccessible location (for examples stacked containers and during hours of darkness or obscured vision). However, tag reading can be disrupted or degraded by metal obstructions that prevent the radio waves from reaching the tags.

RF technology can significantly improve the overall operation of the battlefield distribution system. It is one of the essential enablers needed to support ITV requirements identified in the TDAP. RF technology will be used to:

- Automate source data input requirements.
- Facilitate future processing and documentation.
- Automatically report events that occur in the distribution system.
- Locate and identify major end items.
- Intensely manage supply items and the contents of containers and air pallets.

CHAPTER 4

SUSTAINMENT OPERATIONS

Sustainment supplies will come in containers to the maximum extent possible. Containers will be stuffed at origin, at the nearest CCP, or at a container stuffing activity. In the US, the two DLA-operated CCPs are the primary sustainment consolidation points.
DLA's two CCPs consolidate cargo for onward movement to create full containers. MTMC-operated container stuffing activities, located at SPOEs, also perform CCP functions for the less than container load shipments arriving at the port.
These CCPs have evolved to make more complete use of 20- and 40-foot ANSI/ISO containers, 463L pallets, and the benefits associated with reduced cargo handling. Since most shippers do not regularly generate full containers of cargo for shipment direct to receivers, the CCP provides a means for combining shipments from multiple shippers. All customers of a single SSA may have their shipments consolidated for delivery to the servicing SSA or a container may be stuffed in delivery priority sequence.

4-1. CONTAINER CONSOLIDATION LOCATIONS AND CAPABILITIES. DLA's consolidation and containerization points are located at the New Cumberland Depot, New Cumberland, Pennsylvania and the Sharp Depot, Stockton, California. MTMC has container stuffing activities located at the following ports:

- Fleet Industrial Supply Center, Norfolk, Virginia.
- Military Ocean Terminal, Oakland, California.
- Pacific Northwest Outport, Seattle, Washington.

The capabilities of military installations to outload, stuff, and receive containers are documented annually on DD Form 1726 and provided to MTMC. It includes daily container outload capabilities for peacetime and mobilization. Reports are received from all DLA distribution depots, MTMC container stuffing activities, and Service designated installations. This data is essential to MTMC in determining if the capability exists to move materiel from depots through SPOEs IAW the CINC's TPFDDs.

4-2. FORECASTING CONTAINER REQUIREMENTS. During the deliberate planning process, requirements for the containerization of sustainment materiel are developed through the detailed sourcing of operation plans. Requirements are determined by the CINCs and then sourced by the Services and DLA in support of the CINC's concept of operation. Service item managers pass requirements to DLA. DLA consolidates these requirements and then determines what items can and will be containerized at their two CCPs. MTMC container stuffing activities will determine, by exception, items that will be consolidated and containerized at the container stuffing activities.

4-3. CONSOLIDATION PROCEDURES. Individual shipments usually arrive at CCPs accompanied by the appropriate TCMD information. At inland CCPs, a copy of the TCMD should

be found in a waterproof envelope on the number one (lead) box of each shipment unit. The TCMD for shipments arriving at MTMC container stuffing activities must be provided ahead of time to the port through the WCA. The CCP/container stuffing activities uses any available data and the assistance of the shipper and sponsoring Service to prepare documents for shipments arriving without TCMDs. The CCPs receive automated advance TCMD-type data from shipping depots. This helps them create TCMD data for the containers they build and ship.

Upon receipt of inbound trucks or rail cars, the CCP will verify shipment unit count and note discrepancies on the carrier's freight bill. These discrepancies are reported IAW DOD Regulation 4500.9-R, Part II. Materiel is accumulated and positioned in separate locations by ALOC, DODAAC, and mode of onward movement (for example, surface or air). All consolidated shipments received with a shipping depot TCN will be directed through the small package sorting line. Incoming small package cargo will be sorted by priority and by ALOC DODAAC. The accompanying documentation is checked for availability and accuracy and when required, documentation is prepared for cargo arriving without documentation. Packages are consolidated by consignees into large shipment units and forwarded to the appropriate staging area (surface or air) to be consolidated with other cargo. GSA vendor shipments will be examined for transportation damage, erroneous markings, and other discrepancies. The required discrepancy reports will be prepared. Purchase order(s) will be annotated with CCP receipt date and processed accordingly. Vendor receipts, other than GSA, will be processed in the same manner as freight.

4-4. CONTAINER BOOKING. The CCP begins the container booking process by projecting the requirements for containers. To preclude a substantial increase in processing time and storage facilities, the cargo does not have to actually be on-hand at the CCP to determine the container requirements. Instead, the CCP forecasts based on experience and insight into future trends.

The CCP develops the container requirements for each destination stated simply by number and size. The CCP submits the requirement to the OCCA/booking office which books the total number of containers required with the appropriate ocean carrier. Having secured the booking, the OCCA booking office then furnishes the CCP with a block of TCNs, one per container. The CCP coordinates directly with the ocean carrier's agent for spotting of empty containers.

The CCP coordinates directly with the ocean carrier's agent for pickup of full containers as indicated in the ETR instructions. The line haul or drayage of containers is generally specified by the OCCA under the terms of the MSC Container Agreement and Rate Guide. The service is provided by ocean carriers through interline agreements with commercial line haul carriers. Other alternatives for line haul or drayage which may be used (when indicated in the ETR) include using organic equipment and commercial tariffs, tenders, or other contracts.

Upon release of the container for delivery to the POE, the CCP submits complete advance TCMDs for the container to the WCA or OCCA. The advance TCMD is the notification to the OCCA and terminal that the container is stuffed and en route to the SPOE. In addition, the TCMD ties together the container TCN, the container serial number, and the container contents.

After completing a shipment, the CCP maintains records detailing the actions undertaken including a TCN cross-reference file between shipment units and containers. Various Service publications detail the length of time and method for keeping such files.

4-5. AUTOMATED MANIFEST SYSTEM. The AMS automates the process discussed above. The AMS is currently being used by DLA to replace the manual inventory process. AMS is a credit card sized data file readable by magnetic scanners. The card is loaded with shipping, inventory, and destination data and accompanies the container. The lead TCN on cargo inside the container triggers an imbedded data base loaded on the card. This data base can then be monitored providing ITV for not only the container, but also the contents of the container. The AMS data base can be transferred to other data bases, eliminating the need to manually enter the data upon arrival at destination.

4-6. CARGO EXCLUDED FROM DLA CONSOLIDATION AND CONTAINERIZATION POINTS. The following materiel and/or shipments should not be routed to a DLA consolidation and containerization point:

- Release unit shipments or combination of less than release unit shipments which economically fill a container for a single consignee or overseas breakbulk activity.
- Single items oversize to a 20-foot container (maximum item dimensions 85 inches x 85 inches x 228 inches) or occupying 50 percent or more of the space in a 40-foot container (for example, vehicles or construction equipment).
- Air-eligible items, including special projects such as Army's ALOC and Remote Area Support, outsized to a 463L pallet (88 inches x 92 inches x 96 inches) or over 10,000 pounds.
- Air Force, Marine Corps, or Navy high-priority (TP1 and TP2 designated 999, 777, 555, N_, and E_, or required delivery date (at destination) under 21 days) which have not been downgraded to surface.
- Shipments that are "Parcel Post" eligible and more economical to ship via Fleet Post Office and Army Post Office to the overseas destination. (NOTE: More economical evaluation must include cost of CONUS as well as OCONUS transportation.)

CHAPTER 5

UNIT DEPLOYMENT OPERATIONS

The preferred method for unit deployment by sea is to use LMSR, FSS, and other available RO/RO ships. However, the limited availability of these ships and the dominance of containerships in the US flag, US-owned, and world merchant fleets requires that the Army train and maintain the capability to deploy UE by containerships using both containers and commercial or military flatracks.
CINC's should prioritize the necessary CSS force structure to support container reception, staging, onward movement, and retrograde or ensure the availability of adequate HNS.
Planning is essential for effective use of containers. Units should know what equipment can be containerized, the number of containers they will need, and what they will stuff into the containers. They should also know which containers should be unstuffed upon arrival at the SPOD and which containers are to accompany the unit through to final destination.

5-1. PLANNING. When deploying UE (including vehicles) both advantages and disadvantages of container use should be considered. Commanders should realize that local inconveniences will not override USTRANSCOM's primary concern which is to meet the required delivery dates established by the supported CINC's operations order, TPFDD, concept of operations, and logistical support requirements for all units preparing to deploy.

All units have equipment that can move in containers, but not all units can move all their equipment in containers. The key to successfully using a combination of RO/RO and containerships is to identify units with high percentages of equipment which can be containerized.

The advantages for deploying units using intermodal container systems and containerships lie primarily in movement to and operations at the SPOEs and SPODs. Intermodal container systems can speed handling of cargo through seaports by reducing the handling of each piece of cargo and time spent loading/unloading the unit's equipment to/from the ship. Containerization also enhances security of the shipment and reduces public visibility of a unit move or deployment.

The disadvantages lie in increased equipment preparation time by the unit and increased CHE/MHE support requirements needed at the installation and in theater. When using flatracks and containers, vehicles must be prepared, loaded, and secured in a manner different from RO/RO shipping. Available loading docks, CHE/MHE, and cargo documentation requirements are also considerations. However, time spent at the unit and installation is more than compensated for by savings in vessel load/discharge times at SPOEs/SPODs. Field training exercises demonstrate that unstuffing vehicles in a theater requires minimal time and personnel training.

USTRANSCOM, through its surface components MTMC and MSC, can provide planning assistance to unit commanders to facilitate deployment by intermodal container systems. Also, the JTMO can contract to provide commercial door-to-door service for follow-on units, but this

capability may not be feasible early in an operation. This type of service can decrease the stress on the limited RO/RO ships being used to move combat forces during initial surge operations. FM 100-17 and FM 55-65 provide deployment planning guidance.

Once a unit is notified that it will deploy using containers, the plans which the unit has developed are implemented. Good planning will help avoid hurried last minute stuffing of containers. This results in the following:

- Units not knowing what was loaded.
- In what container to look.
- Not knowing when equipment is missing if containers are delayed in transit.

5-2. KEY PLAYERS. Having soldiers properly trained and appointed in writing can greatly improve unit readiness. The roles of the UMO, unit load teams, and hazardous cargo certifying official are explained below.

a. **Unit Movement Officer.** In each company size unit and independent detachment, a UMO (E6 or above) and an alternate (E5 or above) will be appointed. They should be trained IAW applicable regulations or a Service school. FORSCOM has an excellent manual, FORSCOM Regulation 55-1, covering unit deployment responsibilities. The UMO becomes the unit deployment trainer and should be thoroughly familiar with the following:

(1) Movement information published in this FM and in other manuals such as FMs 55-9, 55-10, 55-30, 55-65, TB 55-46-1, TB 55-46-2, and DOD Regulation 4500.9-R (Volume III). UMOs must also be familiar with their specific MACOM regulations, such as FORSCOM Regulation 55-1.

(2) Air Force/Army airlift operations.

(3) The roles and duties of the UMO.

(4) The transportability of UE.

(5) The characteristics and capabilities of the types of vessels, aircraft, or rail cars the unit may use to deploy.

(6) Highway, rail, and port operations.

(7) Preparation and shipment of HAZMAT.

Formal training is available through the US Army Transportation School, Joint Strategic Deployment Training Center for unit commanders and their UMOs. US Army Transportation School, JSDTC, offers several resident courses including the following:

- Air Deployment Planning Course (AMC certified).
- Unit Movement Officer Deployment Planning Course.
- Strategic Deployment Planning Course.
- TC-ACCIS.

- Mobilization Deployment Planning Course.

On request, JSDTC offers mobile training team services. To obtain information on course offerings, mobile training teams, and related doctrine, contact US Army Transportation School, Joint Strategic Deployment Center, ATTN: ATSP-TDJ, Fort Eustis, VA 23604-5363 or call DSN 927-2039 or commercial (757) 878-2039.

The Army Reserve Training Center (DSN 280-7295) or commercial ((608) 388-7295) also conducts Unit Movement Officer Training and Mobilization Planning courses.

b. **Unit Load Teams.** Each unit should have personnel trained on container stuffing/unstuffing, vehicle preparation, aircraft and rail loading, and unloading techniques to allow the unit to meet deployment timelines. All these areas require knowledge of proper BBT procedures. Appendix D provides guidance on container stuffing. TM 38-230, Volumes I and II, and MTMCTEA Reference 96-55-23 contain additional packing assistance. MIL-STD 129 prescribes DOD marking and labeling requirements and MIL-HDBK 129 provides application guidance on marking and labeling requirements. All soldiers who handle hazardous cargo must also be trained (see paragraph 5-4). Training includes the following:

- Preparation of vehicle load plans.
- Preparation of vehicles for shipment by reducing operational dimensions, protecting fragile components such as windshields and mirrors, and weighing and marking procedures for all modes of transport.
- BBT procedures for equipment transported by air, highway, rail, or ship.
- Operation of unit vehicles in conditions simulating loading and unloading techniques for aircraft and rail.
- School trained/certified soldiers supervise loading of hazardous cargo and prepare documentation.

5-3. HAZARDOUS CARGO CERTIFYING OFFICIAL. To ensure the safe transport of HAZMAT IAW Federal, State, Local, and International Laws, each HAZMAT shipping unit must be properly certified by qualified personnel. Improper preparation/certification of hazardous cargo can result in frustrated cargo, causing mission failure, and/or result in the loss of life or equipment. Certification requirements can be found in DOD Regulation 4500.9-R, Part II and TM 38-250. To certify HAZMAT, each unit should have a primary and an alternate school-qualified person officially appointed by the unit commander. Hazardous material training teams visit most installations at least annually. Consult the ITO/TMCA for scheduling details.

5-4. DEPLOYMENT TRAINING. Deployment training usually requires a great deal of simulation and challenges commanders to provide realism. Training should focus on particular segments of the deployment operation or key personnel and should rehearse or exercise that one element. Training exercises may range from a brigade SEDRE to testing the load plan of any given vehicle in the unit. A SEDRE is an extension of the EDRE which brings into play the actual loading of UE aboard a ship.

Commanders should ensure that their units train for deployment using containerization. Commanders must also ensure that key individuals or elements in their units are properly trained to carry out their special deployment duties when containers are to be used. Ensure UMOs, load teams,

and certified container inspectors are trained. Ensure that personnel required to handle and or prepare HAZMAT for shipment are trained and records of this training are maintained IAW Title 49, CFR, Part 172, subpart H, and DOD Regulation 4500.9-R, Part II, Chapter 204, paragraph E, Training. Ensure units validate their UE container load plans to prevent a last minute rush to stuff equipment in containers.

5-5. EMERGENCY DEPLOYMENT READINESS EXERCISE. An EDRE or SEDRE is designed to exercise unit readiness and movement plans to deploy. As a goal, all deployable units should participate in an EDRE at least annually. An EDRE is not a test for the commander. It is a tool to allow the commander, with assistance from higher HQ, to identify unit training strengths and weaknesses and use the results to set training priorities to correct shortfalls. If executed properly, an EDRE can be a valuable evaluation process for commanders at all levels to determine their unit's readiness. FORSCOM Directive 525-5 contains more information on conducting EDREs. For a realistic training event, commanders should:

- Actually issue basic loads.
- Ensure that units physically load MTOE equipment and maximize secondary loads. Units should exercise container requests, movement, and stuffing procedures.
- Adhere strictly to proper packing and documentation procedures so all potential problems and exact amounts and types of material may be identified. (Some executing procedures may have to be simulated if the exercise can not extend beyond the home installation.)
- Use external evaluators.

A properly planned EDRE identifies the need for support personnel, maintenance assistance teams, food service support, security, PSA, A/DACG, and marshaling and staging area operations.

A successful EDRE gives each level of command the opportunity to experience the challenge associated with equipment readiness and equipment transfers in deployment. Units with a short notice deployment may have to acquire equipment from cross leveling among units or other sources on the installation. Units should practice technical inspections, procedures for receiving filler equipment, geographic or mission specific training requirements, adjusting PLL, and any alterations made to the unit movement plans as a result of the EDRE.

The commander of the evaluated unit should participate in developing evaluation criteria for their unit's EDRE. Timelines should be devised for following-up on noted deficiencies. Once corrective action is taken, these areas should be reevaluated. Finally, leaders should review available lessons learned and apply as appropriate. The CALL and the JULLS offer excellent data base resources for leaders to review when planning exercises.

5-6. STRATEGIC TO OPERATIONAL MOVEMENT. Planners at all levels must understand the connectivity of the strategic documentation process. Mistakes, shortcuts, or failure to use the system as intended can result in the following:

- Lack of visibility in the logistics pipeline.
- Delay the delivery of UE and supplies to the unit at the destination in the area of operations.
- Cause the UE and supplies not to be delivered at all.

All these foster a lack of confidence in the distribution system which further leads units to not use the system properly. A detailed discussion of the process units should follow is presented next.

Detailed listings of the unit's total anticipated movement requirements consisting of all UE, accompanying supplies, and baggage comprises UMD. The UMD or UEL is used to create the data base that permits movement planners (like USTRANSCOM or the supported CINC) to plan strategic lift, theater reception, onward movement, and CHE requirements from origin to the units tactical assembly area. The TC-ACCIS produces the source data used to create the UEL. Detailed UELs include a comprehensive description of the unit cargo to be moved along with transportation descriptive information such as length, width, height, and cube. Also, movement codes prescribed by the MILSTAMP to identify hazardous and/or movement characteristics of the cargo to be moved are available. As part of a joint service effort, the capabilities of TC-ACCIS are to be incorporated into a joint unit level transportation operating system called the TC AIMS II for capturing UMD and building/reporting UEL. Once inputted into TC-ACCIS, the UEL becomes an AUEL. AUELs are commonly used for general or notional planning purposes. When the unit determines what equipment will actually deploy, the AUEL is finalized and becomes the DEL. UMD should be updated at least quarterly. Some high profile units do this monthly in conjunction with the submission of their USR. In any event, it must not become a last minute requirement in the midst of a mobilization and deployment.

The DEL for CONUS units are transmitted to FORSCOM for deliberate planning, exercises, and crisis action or contingency deployments. It is also transmitted to MTMC Area Commands when exercising an actual deployment and to FORSCOM. FORSCOM uses the UMD for force planning, strategic mobility analysis, and to update JOPES operations plans. MTMC uses the UMD for rate, route, and terminal operations planning.

The TC-ACCIS program produces barcoded MSL IAW MILSTAMP specifications. Unit movement personnel affix two MSLs to each piece of equipment and shipping container destined for movement. In addition to the to/from addresses, each MSL contains key data pulled from the DEL to assist the DTS in shipping the cargo and ensuring delivery to the unit destination. The MSL also contains the model nomenclature; UIC; bumper number; serial number; item description; length by width by height, weight, cube; and TCN. The TCN for unit moves (prescribed by MILSTAMP) contains the UIC and the SUN directly from the DEL which are used to provide unique item identification (ownership) of the cargo. The TCN is displayed in barcode symbology as well as in-the-clear markings. These MSLs are readable with a PBCR.

Once UE arrives at the SPOE, its arrival is captured and reported into the WPS by scanning the MSL. Ship stow planners then use this data and DEL reported to MTMC to stow plan the vessel using the CODES. The ICODES will supersede CODES when it is fielded. As UE is loaded, the MSLs are scanned to record actual stowage location and this data is added to the WPS database. The WPS data will be used to electronically transmit a detailed ocean cargo manifest to the port of debarkation for offloading and onward movement planning. Unit representatives can also obtain information on which ship and in what stow location the UE has been loaded by accessing WPS or ICODES (when available).

Figure 5-1 shows an overview of some of the key automated systems supporting the deployment process. While the diagram is busy, it is intended to reinforce the importance of working with the available transportation systems which support strategic deployments. All these systems, in some form or another, come into play whenever units are sent from one AOR to another. For example, when USAREUR sent units from Germany to Bosnia, the new operating area was still within the USAREUR area of influence, but TPFDD was needed to manage highway, rail, sea, and air movements. Managing UMD, needed to provide deployment information to the CINC, requires all command and control systems to be standardized. Failure to use the established systems fosters a lack of confidence in the CSS community which can result in loss of control.

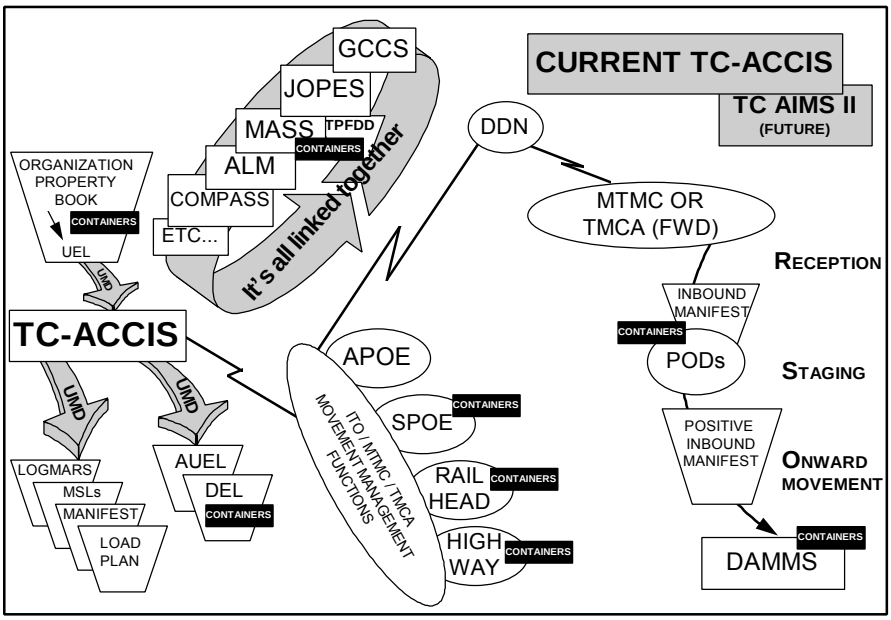


Figure 5-1. TC-ACCIS Supports Unit Deployments

5-7. CONTAINER REQUIREMENTS. As part of unit deployment planning, units must determine their container requirements. Units should identify equipment which can be containerized or moved on commercial/military flatracks. When load planning for containerized deployment, dimensions for UE must be accurate. Load plans should be validated so the appropriate containers and transporters are ordered. Once stuffed and properly documented, the ITO/TMCA coordinates for the containers to be delivered to a truck, rail, air, or sea terminal for staging and embarkation.

5-8. CONTAINER PLANNING FACTORS. There is no standard formula for calculating container requirements for UE due to the diversity of equipment and composition of various units within the Army. However, MTMC publishes a Deployment Planning Guide, MTMCTEA Reference 94-700-5, Sep 94, which provides estimates of the numbers of containers required for Army combat, CS, and CSS units. The factors below are based on ODS data.

a. **Ammunition.** To estimate 20-foot container requirements for ammunition (Class V), first determine the total weight in S/T of the ammunition requirement. If PLS CROPs are used, the total weight in S/Ts will be the sum of the weight of the CROP, tiedown devices, and ammunition. Then to calculate the number of 20-foot containers required, divide the total weight in S/Ts by a factor of 13.9.

b. **General Cargo.** To estimate 20- and 40-foot container requirements for sustainment (excluding Class VII), first determine the total weight in S/Ts of the cargo requirement. If PLS CROPs are used for the 20-foot container requirement, the total weight in S/Ts will be the sum of the weight of the CROP, tiedown devices, and cargo. Then calculate the 20- and 40-foot container requirements by dividing the total weight in S/Ts by factors of 15 (for 20-footers) and 23 (for 40-footers).

5-9. PRE-DEPLOYMENT PREPARATIONS. Unit requirements are consolidated at the brigade level and coordinated with the ITO for CONUS units, TMCA for OCONUS units. These requirements should then be reviewed and updated at least quarterly. Some commands have their units update this information monthly with the submission of USR.

Units should stipulate in their movement plans when only 20-foot containers can be accepted to meet their deployment requirements. Otherwise, a 40-foot container might be substituted for two 20-foot containers. Weight restrictions vary, but unless very dense cargo like ammunition is loaded, the maximum weight allowance of a container will rarely be exceeded.

The ITO/TMCA should also be prepared to estimate/obtain commercial flatracks should a unit be deploying by containership. Commercial carriers can provide technical expertise for intermodal container/flatrack requirements for stuffing/loading and transportation particularly if origin to destination service is used.

Requests for containers beyond those owned by the unit are passed to the servicing ITO/TMCA. The ITO/TMCA fills requests with containers by cross leveling available inventories of containers or obtaining additional containers through MTMC. The unit provides a date, time, location, and unit point of contact to sign for the container upon delivery. The unit and the ITO/TMCA may also use these requirements to determine MHE/CHE and transportation requirements to support operations.

5-10. RECEIVING THE CONTAINER. Units receiving containers for deployment perform limited inspections on the containers. Paragraph 7-2 describes what to inspect when a unit receives containers. Basically, the unit performs a visual check of the container for obvious defects and verifies the certification of the ANSI/ISO container. When recording container damage, include each container's ANSI/ISO alpha prefix and serial number.

Containers require recertification in the 60th month (5 years) after manufacture. Thereafter, containers should be recertified every 30 months or after any major maintenance/repair has been performed on a container. Most commercially-owned containers are certified under an Approved Continuous Examination Program and are marked 'ACEP/USA/(year)' on the CSC Safety Approved Plate (Builders Plate). Any container, 58 months or older without this marking should have a decal or sticker indicating the date it was recertified. DD Form 2282 is used by DOD inspectors to show reinspection and is punched with the month through which the recertification is valid. Any container with less than 2 months until its next recertification is due should be recertified.

Two months are allowed in order to allow a container which is being used to reach its destination. If the container requires recertification, notify the supporting ITO/TMCA. Certification/recertification of containers must be performed by certified inspectors.

5-11. EQUIPMENT PREPARATION. Equipment preparation for movement is a unit responsibility. The responsibility to properly stuff, BBT, and inventory the contents of unit containers rest with the unit. The unit stuffs and BBT the containers IAW the unit's load plans. Once stuffed and properly documented, the ITO/TMCA coordinates for the containers to be delivered to a truck, rail, air, or sea terminal for staging and embarkation.

Because of the way a PLS operates and the increased use of the PLS truck to carry containers, makes proper container stuffing and BBT even more critical. During the loading/unloading process the container is tilted and cargo improperly loaded can shift resulting in damage. Leaders must ensure that units properly stuff and BBT cargo in containers.

Unit personnel reduce vehicles IAW the mode of transportation and the carrier's additional instructions. PSA and A/DACG personnel can assist in reducing vehicles so they will fit into containers or on flatracks. However, the PSA and A/DACG are not the primary source for equipment preparation.

5-12. VEHICLE REDUCTION STANDARDS. Prepare UE for shipment IAW the mode of transportation and type of move planned. To load in a container, prepare vehicles IAW MTMCTEA Reference 96-55-23. Generally, HMMWVs, CUCVs, and single axle trailers make up the majority of containerizable vehicles.

a. **Reception.** Once the containers have transited the system and arrive at the SPOD, the unit may unstuff its containers in a theater staging area near the port or request onward movement of the containers to a forward staging area. If containers are unstuffed upon arrival, the unit informs the port MCT when the containers are empty. The port MCT will then contact higher HQ for disposition.

b. **Redeployment.** If units anticipate the need to retain the containers it deployed with and ends up redeploying with the same containers used for deployment, the unit should notify the ITO/TMCA. This is to limit the detention charges which are incurred on leased containers. In this situation, arrangements can be made from the beginning to either use Service-owned containers or buy the container from the onset. Units requesting containers for redeployment follow the same request procedures as for deployment. The ITO/TMCA has the responsibility to ensure that containers are returned to a vendor once the unit is through with them. Containers are identified by ANSI/ISO alpha prefix and serial number. The ITO/TMCA will inform MTMC of the disposition requirements and coordinate for transportation of the containers.

Agricultural and customs inspections are required for shipments going from one theater to another. Containers must be inspected during unit stuffing operations by certified personnel. Once the container is stuffed and sealed by the inspector, the container should not be opened. If opened, the container is subject to reinspection.

c. **NonUnit Documentation.** When the container is loaded and ready for shipment, the installation transportation officer will send the TCMD data (DOD Regulation 4500.32-R, Volume 1, MILSTAMP) to the MTMC Area Command through the Defense Data Network for manifesting aboard a ship. The TCMD data automatically generates an ocean cargo manifest which is transmitted electronically to the receiving terminal at the overseas port. The data is passed to the senior movement control organization in the theater for entry in the theater container management system.

Prior to sealing the container, the CCP places a contents list (TCMD listing) in a waterproof envelope labeled "Load List." The envelope is securely attached to the inside of the container loading door. Both consolidated and partial load lists are made when the container is loaded for stop-off deliveries. The CCP adds necessary container information (van number, SPOE, and stop-off indicator) to the TCMDs received from the shipper for each shipment in the container.

A TCMD or other document containing TCMD data is prepared by the CCP for container shipments moving to a SPOE under terms of the MSC Container Agreement and Rate Guide. The CCP maintains one signed copy to record acceptance by the original inland carrier. The CCP provides the inland carrier with two copies of the document. The inland carrier gives one of its copies to the ocean carrier's representative (for example, gate guard or checker) when delivering the container to the carrier's container yard.

When the container is moved to the POE by a negotiable document, the CCP prepares a commercial bill of lading or GBL. The bill of lading includes the container TCN, the TCN for each shipment unit (contents), and the complete van and seal numbers. The detailed procedures for completing and distributing the bill of lading are contained in DOD Regulation 4500.9-R, Part II for CONUS and in appropriate theater directives overseas.

When a container carrying classified materiel, certain hazardous materiel, or RU quantities of inert components is shipped by an inland CCP, the CCP sends a REPSHIP to the next trans-shipper (for example, the SPOE). The REPSHIP is sent by ETM (or telephone confirmed by ETM) as soon as possible to ensure its receipt at least 24 hours prior to receipt of shipment. Complete details on REPSHIP procedures are contained in DOD Regulation 4500.32-R.

The inland CCP also completes an in-transit data report received for GBL shipments. Details for completing and forwarding the in-transit data are also contained in DOD Regulation 4500.32-R.

5-13. UNIT DOCUMENTATION. For unit deployments, cargo is documented by using a DD Form 1387 or MSL. The MSL consists of bar coded information that contains a TCN. The TCN provides ITV and helps to locate UMD stored and maintained on a computer file. Units maintain their UMD on a UEL. MTMC helps manage and control cargo movement to and through the DTS.

Before the unit commander gets deployment specifics through the movement order, he has already submitted accurate movement data to the appropriate MACOM through UEL updates. When he gets the specifics, the unit commander submits a final listing of the modes of travel for each item on the DEL. The ITO/TMCA will submit the updates to MTMC. At this time, MSLs are printed for each item on the DEL that will travel by surface or air. Because labels are printed from the DEL, they are only as accurate as the data the units submit.

MSLs are obtained through the ITO/TMCA if your higher HQ is not equipped to produce them. The deploying unit affixes them to the unit cargo. The PBCR reads the label as each piece of cargo passes through the various segments of the transportation pipeline. The PBCR, a hand-held microcomputer, is uploaded into another computer containing the UMD. It is used to manage, control, and provide ITV of the cargo.

5-14. TRANSPORTATION CONTROL NUMBER. The TCN for a piece of cargo is a 17-character number consisting of the UIC and a five-digit SUN. This number is on the UEL/DEL. This TCN is for unit deployments only. See also MILSTAMP DOD Regulation 4500.32-R, Appendix G. A TCN identifies a shipment unit based upon TC-ACCIS generated SUN. The shipment unit is a piece of cargo, equipment, or container that moves through the transportation system as a single package. The contents of a shipment unit are not normally separated until the cargo reaches the final destination. For example, a unit deploys a 5-ton truck and trailer as two separate shipment units because the prime mover is likely to be separated from its trailer during rail or ship loading.

5-15. CARGO IDENTIFICATION PROCEDURES. Deploying units must ensure that containers are properly marked. The deploying unit does the following:

- Affix MSLs on the secured container door and an adjacent side of each container stuffed.
- Affix a packing list to the door of each stuffed container.
- Affix HAZMAT warning labels or placards (as appropriate) to containers.
- Prepare and affix purging statement to bulk fuel tanks.

NOTE: Units do not own DOD or Army common-use containers. These containers are prepositioned at installations for the units to move equipment to deployment locations. Immediately afterwards, these containers are put back into the transportation system. Therefore, these containers should not be stenciled or permanently marked. Instead, only MSLs and packing lists are affixed to the outside door and adjacent side of the container.

Do not cover MSLs with tape, acetate, or any other material. Bar code readers will be unable to read the label's bar code data. The UMO (or other designated person) should verify the MSLs against the DEL. MSLs must match the vehicle, equipment, or cargo on which they are applied. Since mismatched MSLs cause significant delays at the POE, discrepancies or changes should be brought to the ITO/TMCA's immediate attention.

5-16. LOAD DIAGRAM AND SHIPMENT UNIT PACKING LIST. All containers should have a load plan. Containers cannot be properly loaded without a load plan. Merely stuffing items into a container as they arrive at the load site results in an improperly loaded container. The items to be stuffed should be laid out in a logical manner considering weight, proper space utilization, and what will be needed first as you unstuff the container. Also, commanders should make container load plans an inspection item.

Development of a packing list is required for all containers. However, if the contents are marked or listed on the container's exterior, development of another packing list is not required. An example is an inventory of tools or a parts list such as those found in supply bulletins. Do not list classified and sensitive materiel on the packing lists. Packing lists in weatherproof envelops must be securely affixed to the interior contents and exterior door of deployment containers. Personnel will prepare five copies of the packing list for distribution. Distribute copies as follows:

- One copy is filed in the movement plan and retained by the UMO.
- One copy is put on the outside of the shipment unit where it is easily visible or accessible. (This copy is put inside a weatherproof covering.)
- One copy is put inside the shipment unit. (This copy should be placed so that it is visible and accessible to personnel who first open the container doors.)
- One copy is prepared for the unit's representative (liaison team or supercargo).
- One copy is retained by the hand receipt holder.

CHAPTER 6

HAZARDOUS MATERIALS AND SENSITIVE CARGO

Packaging, shipping, handling, and inspecting of HAZMAT is mandated by US and international laws. These laws apply to the use of intermodal containers and container equipment. This chapter provides an overview of doctrinal guidance and tactics, techniques, and procedures that are common to DOD and other US government agencies and organizations. This chapter also applies to the selection of standard ANSI/ISO commercial- or military-owned intermodal containers that meet the standards for shipment of Class I explosives and other HAZMAT. See Chapter 7 and MIL-HDBK 138 for compliance with container inspection criteria.
All HAZMAT must be properly prepared and documented IAW DOD Regulation 4500.9-R, Parts II and III; TM 38-250; and other service or command regulations. Documentation must include the total HAZMAT quantity and a certification statement stating that the HAZMAT has been properly classified, described, packaged, marked, and labeled. Only specially trained individuals are authorized to certify HAZMAT for transportation (see paragraph 5-5). Contact the ITO for assistance in determining what certification requirements apply to each container being prepared for shipment.

6-1. PREPARING/DOCUMENTING HAZARDOUS MATERIALS. The following steps may be used as a guide when preparing HAZMAT for shipment:

- *Step 1*. Determine proper shipping name, hazard class, UN/ID number, and packing group from the Hazardous Materials Table in Title 49 CFR. Also identify any subsidiary hazard classes.
- *Step 2*. Determine the mode(s) of transport from origin to destination. The shipper must ensure that the shipment complies with the various modal requirements. Mode of transport can affect the packaging, quantity per package, labeling, and/or segregation of HAZMAT. (Refer to: Title 49 CFR; vessel shipments - IMDG Code; commercial air - IATA; or, military air - TM 38-250 (joint regulation).
- *Step 3*. Determine and select the proper packaging IAW the proper modal regulations. When selecting an authorized container, consider the quantity per package. The DOD Performance Oriented Packaging PC III database should be used to determine appropriate and certified packaging. (Contact DLA, DOSO-DH, DSN 695-4788 or (804) 379-4788, FAX X3793, to obtain access to this program.)
- *Step 4*. Packaging shall be marked IAW MIL-STD 129 and applicable modal regulations.
- *Step 5*. Select the proper labels and apply as required. Refer to the Hazardous Materials Table. Labels are not needed for fuel in vehicle fuel tanks.
- *Step 6*. Prepare packing lists according to instructions. List HAZMAT packed inside containers or vehicles first (refer to paragraph 5-16). Only authorized abbreviations are permitted for HAZMAT. Refer to Title 49 CFR.

- *Step 7*. Determine segregation requirements for HAZMAT based on each mode of transport or combination thereof. Segregation requirements are found in Title 49 CFR, Parts 173 through 177, and are specific for each mode of transport.
- *Step 8*. Determine the proper placards IAW Title 49 CFR.
- *Step 9*. Ensure HAZMATs are loaded, blocked, and braced IAW with Title 49 CFR and DOD-approved specifications. Container loading diagrams for ammunition/explosive items can be obtained by contacting the US Army Defense Ammunition Center, ATTN: SMCAC-DET, Savanna, IL 61074-9639.
- *Step 10*. Ensure water commodity and special handling codes are used on the UEL/DEL.
- *Step 11*. Prepare shipping documentation. Ensure the shipping papers (GBL, CBL, DD Form 836, and so forth) contain the required entries: proper shipping name, hazard class and division, UN/ID number, packing group, total HAZMAT expressed in metric units of measure with the English equivalents following in parentheses, certification statement, and applicable emergency response information (see DOD 4500.9-R, Part II).

Also, a dangerous goods declaration/certificate will be provided for each vehicle or freight container in which HAZMAT are loaded (see DOD 4500.9-R, Part II).

All rules and regulations governing the shipment of HAZMAT must be met. When in doubt about shipping or classifying any hazardous or questionable materials, contact the ITO or installation safety office. Failure to follow these rules can result in frustrated cargo and ultimately effect the mission. These actions delay shipment, hamper cargo accountability, and also increase the through-the-port work load and congestion. The deploying unit must ensure the following:

- All ammunition and explosives are properly secured in containers and vehicles. Ammunition is not permitted into the port or aboard vessels without prior authorization from MTMC.
- That the provisions of DOT Exemptions, which may be used for shipment are followed (for example, vehicle fuel tanks will be no more than three-quarters full when shipping under DOT Exemption 7280). Otherwise, fuel tanks must be only one-quarter full when shipping aboard a commercial vessel that is carrying civilians in addition to military cargo.
- Fire extinguishers, that are in racks designed for them, are not removed from motor vehicles.
- Oxygen and acetylene tanks are labeled, marked with the prime mover UIC/SUN and removed from the vehicle and placed on a separate pallet.
- Trailer mounted equipment containing combustion engines (such as generator sets) are only 50 percent full.
- Five-gallon fuel cans, field cans, water heaters, gasoline lanterns, portable generators, blow torches, and similar equipment (in which combustibles or fuel other than diesel are used or stored) are completely drained and cleaned before shipment. Under a declared national emergency, fuel may be carried in 5-gallon fuel cans. These cans must remain in built in cradles designed for such purposes.
- The battery box and cover are serviceable. The battery box and cover must be positioned so as not to touch the terminals and to prevent arcing.
- Batteries of nonself-propelled equipment (such as generators) are disconnected and terminal ends are protected from arcing and corrosion.

- Bulk fuel carriers are drained and have the proper placards affixed. If required, units will purge bulk fuel carriers IAW the respective TM.
- When motor vehicles with fuel in tanks are shipped in closed freight containers, battery cables must be disconnected and secured and the following warning affixed to the access door: "WARNING-MAY CONTAIN EXPLOSIVE MIXTURES WITH AIR-KEEP IGNITION SOURCES AWAY FROM OPENING."

6-2. AMMUNITION. Ammunition shipments are normally scheduled through military ammunition ports. To meet deployment requirements, ammunition may be moved through a commercial port. If the unit is deployed through a commercial seaport and must carry basic load ammunition with them, the MTMC manager for the port must be notified of the intent to ship ammunition. The unit submits the following data through the ITO/TMCA early in movement planning:

- The DOD Ammunition Code.
- DOT proper shipping name.
- Total quantity.
- Number of packages.
- Total net explosive weight in pounds.
- Weight of each package in pounds.
- Cube of each package.
- UN identification number.
- Classification code consisting of hazard class and division number followed by compatibility group letter.
- Shipment configuration (for example, vehicle upload, container, and so on). This will allow processing of DOD explosives safety waivers and Coast Guard permits.

6-3. RESPONSIBILITIES. The Joint Munitions Transportation Coordinating Activity under the command and control of the Commander, Industrial Operations Command, consolidates all services containerized munitions movement requests for OCONUS shipment aboard common-use sealift. Also, CONUS distribution (for example, ABL training) movements are identified for applicable container use by the JMTCA. In coordination with the Container Fleet Division of the Military Traffic Management Command, Eastern Area, IMDG-certified containers (commercial-and military-owned) are used to satisfy movement requirements.

The CFD is responsible for the accountability and control of the CADS fleet. The CADS fleet contains the following ANSI/ISO container types:

- Restraint MILVANs.
- Commercial end opening and side opening containers.
- Half-height containers.
- Flatracks.
- Support equipment such as the CROP.

Refer to Appendix E for a discussion of container characteristics and types.

The JMTCA is responsible for determining the container type to employ for each shipment. This determination will be based upon the specific physical characteristics of the munitions, operational requirements, outloading efficiency, and overall cost effectiveness. The JMTCA will request outloading comparisons from the US Army Defense Ammunition Center, as required, to assist in the analysis of all possible munitions load configurations. The JMTCA uses the Munitions Transportation Management System to consolidate all Service munitions movement requirements for Single Manager Conventional Ammunition and Non-SMCA munitions for OCONUS. The JMTCA, using MTMS prepares the export traffic release requests and transmits the information to the appropriate MTMC area command in order to create port call files to facilitate routing preparation and munitions being called forward to seaports of embarkation. Data incorporated into the JMTCA ship planning/DOD Identification Code roll up messages allows CINCs to influence the munitions mix and the mode and time frame for receipt in-theater.

JMTCA is responsible to coordinate with CFD to ensure distribution actions are taken to preposition containers by type at applicable shipping installations. This enables the JMTCA to meet initial and sustainment munitions movement requirements in support of contingency and peacetime operations.

6-4. CONTAINERS LOADING. Shipment of ammunition is approved in MILVANs with or without mechanical load bracing systems and in ANSI/ISO containers when loaded using internal blocking and bracing methods described in approved USADAC drawings. Over-the-road movement of HAZMAT within foreign countries must comply with HN rules/regulations and CINC requirements for movement between NATO countries and/or to and from a seaport for import/export. HN rules, which differ from country to country, generally involve additional precautions in preparing cargo and loading vehicles.

6-5. CLASSIFIED AND PROTECTED SENSITIVE CARGO. Classified cargo is cargo that requires protection in the interest of national security. Classified cargo shipments have characteristics that require them to be identified, accounted for, secured, segregated, or handled in a special way to ensure their safeguard or integrity. Sensitive cargo is cargo that could threaten public safety if it is compromised. Sensitive cargo must be properly secured and identified to port personnel so sufficient security can be provided. Do not identify security cargo or classified cargo on the outside of the shipping containers.

6-6. CLASSIFIED CARGO. When transporting classified material, enclose it in two sealed containers, such as boxes or heavy wrappings. For detailed instructions when packing classified material refer to AR 380-5. In implementing this requirement, the following considerations apply:

- The classified information inside a packaged item of equipment, the outside shell, or body may be considered as the inner enclosure if it does not reveal classified information.
- If the classified material is an inaccessible internal component of a bulky piece of equipment that is not reasonably packaged, the outside body of the item may be considered a sufficient enclosure if it does not reveal classified information.
- If the classified material is a piece of equipment that is not reasonably packaged and the shell or body is classified, conceal it with a covering that hides all closefisted features.
- Specialized shipping containers may be used, including lockable cargo transporters, instead of following the above packaging requirements. In such cases, the container may be considered the outer wrapping or cover.

- Packaging material must be strong and durable enough to provide security protection while in transit to keep items from breaking out of the container and to help detect any tampering with the container. The wrappings must conceal all classified characteristics.
- Closed and locked vehicles, compartments, or cars will be used for shipment of classified material except when the appropriate authority authorizes another method.
- When classified material is transported, it will not be stored in any detachable storage compartment such as automobile trailers, luggage racks, aircraft travel pods, or drop tanks.
- When transporting classified material across international borders, arrangements must be made to ensure that customs, border, or other inspectors (either US or foreign) do not open the material.
- A serial-numbered seal will be placed on doors of containers, vehicles, or compartments that contain classified or protected cargo. The serial number must be entered on the shipment unit packing list and on all shipping documents.
- The unit authorizing the transport of the classified equipment must notify the ITO/TMCA and appropriate carrier in advance.

When traveling by motor convoy, escorts must ensure constant surveillance of classified material. Classified material must stay within the escort's personal possession and observation at all times. Larger pieces of secret shipments, such as missiles, may require outside storage. If so, take special protective measures to include constant and continuous surveillance by at least one or more escorts in the area.

6-7. SENSITIVE CARGO. For sensitive cargo, units must adhere to the following:

- Remove crew-served weapons from vehicles. Place them in containers that are sealed and secured with an approved device.
- Be sure packaging material is strong and durable enough to provide security protection while in transit.
- Secure containers, vehicles, or compartments with an appropriate locking device as directed by the installation security officer. Also place a serial-numbered seal on the door. Enter the serial number on the shipment unit packing list.
- Identify sensitive items in the commodity code on the unit's UEL/DEL.
- Do not indicate on the outside of the container, vehicle, or compartment that it contains sensitive items. Identify this fact on the unit's UEL/DEL.
- Shipping sensitive/classified material by rail, may require commanders to provide guards/escorts. For shipments other than sensitive/classified material, guards/escorts will be provided at the commander's discretion.

Use the DOD forms shown in Appendix F when packaging, shipping, handling, and inspecting HAZMAT and sensitive cargo.

CHAPTER 7

MAINTENANCE AND INSPECTION

This chapter outlines DOD requirements for container maintenance and inspection from receipt to shipment at user activities for both common-use and Service-owned containers. Service-owned containers include MILVANs/ commercial ANSI/ISO containers used in the CADS used throughout the DOD and MILVANs/commercial ANSI/ISO containers authorized and controlled by a unit/activity within a Military Department (DOD-component). This applies to 20-foot ANSI/ISO standard containers, QUADCONs, and TRICONs.
This chapter does not apply to ISU shipping containers or obsolete CONEX containers. These containers are CTA items on the organizational property book and are maintained IAW installation maintenance procedures. However, ISUs must meet certification standards for air transport which is the intended use for this container.

7-1. RESPONSIBILITIES AND FUNDING. User activities (for example, installations, depots, ports, units, and supply points) are responsible for proper maintenance and repair at the organizational (user) level while common-use or CADS containers are in their possession. MTMC assumes this responsibility above user level.

Funding authority for acquisition, maintenance/repair, and disposal of DOD-owned common-use and CADS containers used in peacetime operations will be in the MTMC portion of the DBOF-T budget. However, funding authority for strategic mobility/surge containers will be Army appropriated funds (Operations and Maintenance) for CADS containers and pro rata Service-appropriated funds for DOD-owned common-use containers.

Funding for maintenance, repair, and replacement of Service-owned containers is programmed through the applicable Service and includes acquisition through disposal.

Funding for organization (user) maintenance for common-use and CADS containers is programmed by those activities that receive and ship cargo in these containers. MTMC will reimburse activities through resource management channels once repairs are accomplished.

Funding for depot-level repair for DOD common-use and CADS containers in peacetime operations will be in the MTMC portion of the DBOF-T budget, with reimbursement through port handling rates. However, funding for strategic mobility/surge containers will be Army-appropriated funds for CADS containers and pro rata Service-appropriated funds for DOD common-use containers.

Funding for container inspections is the responsibility of the activities who last acknowledged receipt and ownership of the container.

7-2. USER CHECKS. The general condition of the container is vital to safe arrival of goods at the ultimate destination. Given proper attention to the container at the start will lessen the chances of cargo damage.

When the container arrives at your facility, check to see if it is the type you ordered. A complete examination of the container should be conducted with consideration to the following:

a. **General Condition.** Examine the sides, top, and floor. Have they been repaired? If so, do the repairs seem to restore the original strength and weatherproof integrity? Look for dents and bulges which may interfere with cargo loading.

b. **Cleanliness.** Check to see that the container is free from odor which may taint the cargo. Look for splinters, nails, screws, and debris from previous cargoes that may interfere with loading, that will endanger the cargo, or that may create a safety hazard to personnel.

c. **Weatherproofing.** The container should be relatively watertight. One way to check this is to walk inside the container and close the doors behind you. If light enters, water can too. This check should be adequate in most situations. When absolute weatherproofing is needed, a smoke bomb can be used to check the container. If smoke escapes, the container is not totally weatherproof.

d. **Fittings.** Check the adequacy and condition of the interior fittings for securing the stow. Tie-down cleats or rings, if provided, should be in good condition, well anchored, and in sufficient supply.

e. **Exterior Doors.** Be sure the doors can be securely locked and sealed. Check that gaskets are in good condition and watertight when closed. Look to see if the doors can be removed with simple tools from the outside without breaking the seal or lock. If so, it is an attractive invitation to the professional thief. Return the container.

f. **General Outside Condition.** Check that there is no external damage that can affect material strength, function, or sealing qualities. Examine all sides, including the top and bottom of the outer shell. Be sure they are free of dents, bulges, holes, or corrosion which may affect the carriage of the goods. Look for rivet heads which may have popped.

g. **ISO Corners.** Look at the top and bottom corner castings which are essential to lift and secure the container to see what may be damaged or unsafe. Look to see that other handling devices are free of foreign matter and are in good condition.

The age of the container should not retard the inspection process. Recently manufactured general-purpose containers which appear to be cosmetically sound may have defects which will affect the safe carriage of the goods. On the other hand, there are containers in use today which have been in service for many years, traveled thousands of miles to all corners of the globe, and are in very good condition. The age and appearance of the unit should have no bearing on completing a thorough inspection. If you find the container cracked or out of line, it has been misused. It will be inadequate for safe carriage of your cargo and presents a serious threat to the safety of all who will come in contact with the container. Return the equipment to the supplier immediately and report the

deficiencies to the ITO or TMCA as appropriate. MIL-HDBK 138 provides complete container inspection procedures for certified inspectors.

7-3. MAINTENANCE. Activities possessing DOD-owned common-use and CADS containers when deficiencies are noted, are responsible for coordinating with MTMC to ensure maintenance/repair is performed to acceptable standards. For maintenance requirements above organizational level, MTMC will arrange maintenance or issue disposal instructions to the activity possessing the container.

Component-owned containers are maintained, repaired, and inspected to ensure they meet International Safe Container Act of 1980 (46 U.S.C. app. 1501 - 1507) standards promulgated in CFR 49, Parts 451 through 453 and IMDG standards promulgated in CFR 49, Part 176, as required, for serviceability of containers.

MELs are maximum dollar amounts that can be spent for one-time repair to return a container to fully serviceable condition. MELs for MILVANs are identified in TB 43-0002-40. MELs for DOD-owned common-use and CADS commercial containers will not exceed 65 percent of acquisition cost. DOD components will establish MELs for all their containers.

7-4. CONTAINER INSPECTION CRITERIA. An intermodal freight container may not be offered for the carriage of any type of cargo through the marine environment unless the container is structurally serviceable as evidenced by a CSC Safety Approval Plate and verified by a detailed visual examination

7-5. REGULATORY MANDATES. The International Convention for Safe Containers Safety Approval Plate and the visual examination must conform to the mandates of Title 49 CFR, Parts 450 through 453. Also, before a freight container is loaded with cargo, it must be free of any residue of previous cargo. Its interior walls and floor must be free from protrusions and it must also meet specific structural serviceability requirements as prescribed by the IMDG Code and mandated by Title 49 CFR, paragraph 176.172. If a container has any safety related deficiency or damage that could place any person in danger, it is not used.

The US Army Defense Ammunition Center located in Savanna, IL, offers a three day container certification course entitled "*Intermodal Dry Cargo Container Reinspections*." CONUS installations should train enough personnel in container certification to meet mission requirements. OCONUS installations should consider their span of control and determine how many inspectors they need to meet their mission requirements. Inspectors require recertification every 48 months.

7-6. MARKINGS AND DATA PLATES. A container must bear legible ANSI/ISO markings conforming to ANSI/ISO Standard 6346. A container must also bear a legible CSC Safety Approval Plate or a Consolidated Data Plate marked IAW CSC format requirements. Mandatory ANSI/ISO identification markings (for example, owner code, serial number, and check digit) must be located on each side and each end of the container. Mandatory ANSI/ISO operational markings (for example, tare weight and maximum gross weight) must appear on at least one location (such as on the door). The CSC data may be in any conspicuous place as long as it is securely affixed to the container and it meets CSC format requirements. All maximum gross weight markings on the container must be consistent with the maximum gross weight on the CSC plate. Figure 7-1 shows an example of a DD Form 2282, page 7-4.

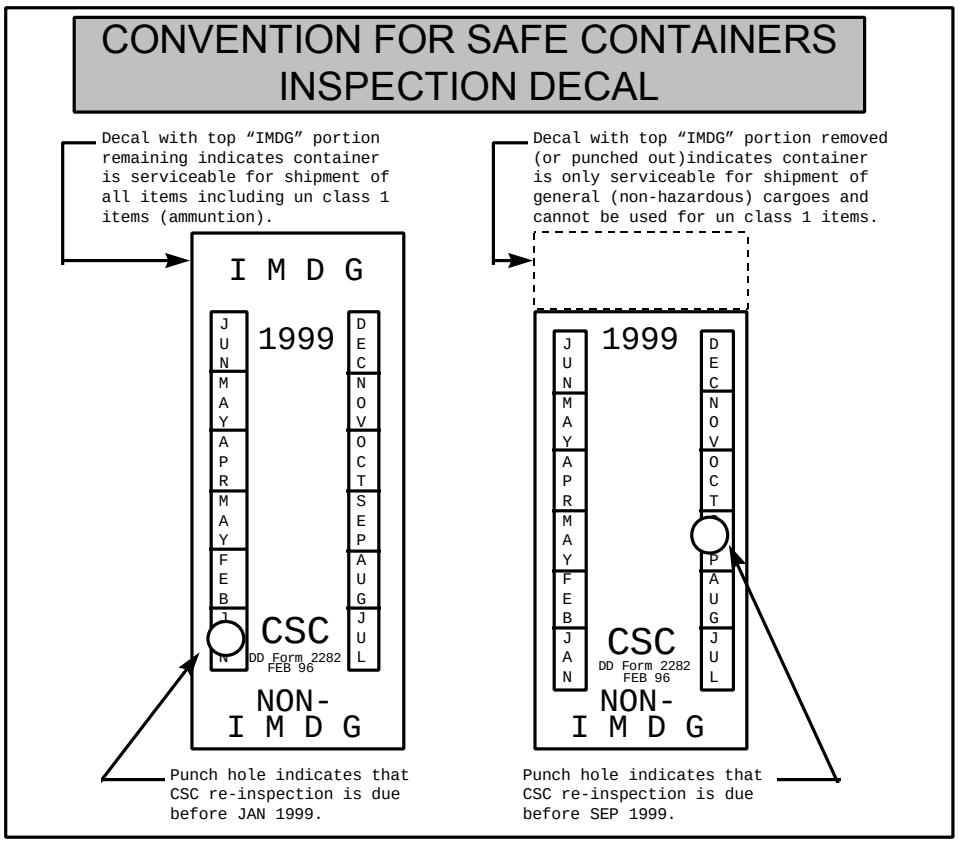


Figure 7-1. DD Form 2282 Inspection Decal

APPENDIX A

FORCE STRUCTURE FOR CONTAINER HANDLING

This appendix outlines the capabilities of units to handle containers in the distribution system. The units in the Army structure which have CHE/MHE to transport, receive, and stuff/unstuff containers are found in the Ordnance, Quartermaster, and Transportation Corps.
Ordnance units receive and account for containers stuffed with ammunition. They transship or reconfigure SCL and prepare MCL for onward movement. They prepare ammunition for retrograde. The Ordnance Corps provides C2 at TSAs and CSAs.
Quartermaster units receive, account for, transship, and stuff/unstuff sustainment containers (less Class V) once received at SSAs. The Quartermaster Corps provides C2 at GSSAs and DSSAs.
Transportation agencies receive, book, and account for containers while in the DTS. Transportation units provide C2 at PODs, receive, account for, and transport containers from PODs to destinations. In a mature theater, they perform limited stuffing/unstuffing of containers at hubs. During the early stages of deployment, C2 at hubs might be provided by COSCOM through subordinate CSGs. In a mature theater, responsibility for hubs may shift to a TAACOM and be operated by a subordinate TRANSCOM or ASG freeing the COSCOM to focus on operational and tactical level logistics.

A-1. ORDNANCE COMPANY, AMMUNITION (PLS/MOADS) (TSA), TOE: 09633L000. This company establishes and operates an ammunition supply facility in the TSA supporting the receipt, storage, re-warehousing, container unstuffing, and issuing of conventional ammunition using the PLS/MOADS doctrine. For planning purposes it receives 2,333 S/T, re-warehouses 2,333 S/T, and issues 2,333 S/T of ammunition for a total of 6,999 S/T per 24-hour period. At full ALO this company has 14 RTCCs.

A-2. ORDNANCE COMPANY, AMMUNITION (PLS/MOADS) (CSA), TOE: 09433L000. This company establishes and operates an ammunition supply facility in the CSA supporting the receipt, storage, re-warehousing, combat configuration, and issue of conventional ammunition using the PLS/MOADS doctrine. The unit has the capability to handle 7,000 S/T in a 24-hour period. This planning factor is based on receiving 3,500 S/T (50 percent delivered on PLS and 50 percent delivered breakbulk on semi-trailers) and having a 3,500 S/T re-warehousing capability. At full ALO this company has six RTCC.

A-3. TRANSPORTATION COMPANY (CARGO TRANSFER), TOE: 55819L000. This company discharges, loads, and transships cargo at air, water, rail, and truck terminals. It operates up to four separate air, rail, or truck terminals on a 24-hour basis. When operating in a water terminal the entire unit normally collocates at the SPOE/D and supports ship discharge operations. This does not preclude the company from sending a cargo transfer platoon to a remote terminal.

At rail and truck terminals each cargo transfer platoon handles 800 S/T breakbulk cargo or 200 containers per terminal per day. At APOE/Ds each cargo transfer platoon handles 550 S/T of non-containerized cargo or 160 twenty-foot container equivalents per terminal per day. In SPOE/Ds, with pier side facilities, the company can handle 500 containers per day.

In LOTS operations and when augmented by a port operations cargo detachment (TOE 55560LF00) the cargo transfer company can handle 300 containers per 24-hour period. At inland terminals, the unit can re-document transship cargo or containers. The company has 8 RTCCs and 16 RTCH.

A-4. TRANSPORTATION TERMINAL SERVICE AUGMENTATION TEAMS, TOE: 55560L. These detachments and teams augment companies engaged in terminal operations. They are dependent on a parent unit for administrative, maintenance, and other logistic support.

A-5. PORT OPERATIONS CARGO DETACHMENT, TOE: 55560LF. The port operations cargo detachment augments the cargo transfer company in ports and LOTS operations. In SPOE/Ds or LOTS operations, the detachment supports the cargo transfer company's mission to handle 500 (sea port) or 300 (LOTS) containers per day.

A-6. CARGO DOCUMENTATION TEAM, TOE: 55560LA. Provides documentation support for stuffing/unstuffing containers at air, rail, truck, or water terminals.

A-7. FREIGHT CONSOLIDATION AND DISTRIBUTION TEAM, TOE: 55560LB. Stuffs/unstuffs up to 25 twenty-foot containers per day. Can be attached to PODs, hubs, and SSAs.

A-8. AUTOMATED CARGO DOCUMENTATION TEAM, TOE: 55560LD. Provides container documentation support at SPOD/Es and LOTS operations.

A-9. TRANSPORTATION TRUCK COMPANIES. Planning factors for truck companies are affected by the distance the trucks must travel, the terrain the trucks must traverse, and the availability of back-haul missions, which if available, increases the hauling capability. These planning factors provide planners the ability to accomplish a preliminary laydown of force requirements. A thorough transportation infrastructure study, based on METT-T, would be required to determine actual transport capabilities and unit requirements. The factors below are approximations based on an 85 percent availability rate, local, or line haul mission. Local haul missions assume the ability to make four deliveries and line haul missions are based on two deliveries per 24-hour period. Back haul missions are not assumed.

A-10. TRANSPORTATION COMPANY (MEDIUM TRUCK), TOE: 55727L100. The transportation company (medium truck) supports the movement of containerized, non-containerized, palletized, dry and/or refrigerated containerized cargo, and bulk water products. This company is equipped with 40-foot trailers and is assigned at EAC. It typically has a line haul mission and delivers containers to hubs, TSAs, CSAs, and SSAs with throughput capabilities down to a DSA based on METT-T. In a 24-hour period, performing a line haul mission, it could transport approximately 200 twenty-foot or 100 forty-foot containers to forward staging areas.

A-11. TRANSPORTATION TRUCK COMPANY, TOEs: 55728L100 AND 55728L300 (PLS). These truck companies are assigned at corps level and provide transportation for the movement of both dry and refrigerated containerized cargo, general non-containerized cargo, bulk water, and bulk petroleum products. A CHU is being developed. Once fielded, PLS vehicles are modified to use the CHU and will be able to lift containers without using a flatrack.

The 55728L100 series truck company is equipped with 30-foot trailers and can carry 20-foot containers. In a 24-hour period, performing a local haul mission, it delivers approximately 200 twenty-foot containers to unit locations.

The 55728300 (PLS) series truck company is equipped with the PLS flatrack system and transports 20-foot containers. In a 24-hour period, performing a local haul mission, it could deliver approximately 325 twenty-foot containers to units throughout the corps and division areas.

A-12. TRANSPORTATION TRUCK COMPANY (LIGHT/MEDIUM), TOE: 55719L1. The transportation company (LT/MDM) primarily supports the movement of non-containerized cargo and personnel. In addition to its 5-ton cargo trucks, this unit is equipped with 10 prime mover tractors and 25 thirty-foot trailers. In a 24-hour period, performing a local haul mission, it delivers approximately 35 twenty-foot containers to units throughout the corps and division areas.

A-13. QUARTERMASTER UNITS. Table A-1 lists the QM units with CHE. QM units have robust MHE, but limited CHE. They use their CHE for internal support missions and to receive containers at SSAs.

Table A-1. Quartermaster Units With CHE

TOE	TYPE UNIT	# RTCHS
10417L000	QM PETRL P/L & TML OP CO	1
42418L000	QM SUPPLY CO (GS)	3
42419L000	QM REP PARTS SUPPLY CO	2
42427L100	QM HVY MAT CO (GS) CORPS	1
424272000	QM HVY MAT CO (GS) THEATER	2
42447L000	QM SUPPLY CO (DS) THEATER & CORPS	2

APPENDIX B

CONTAINER-HANDLING EQUIPMENT

A wide variety of military and commercial CHE exists. Figures B-1 through B-7 show some of the available military material- and container-handling equipment. Because of the variety, an all-inclusive list of commercial CHE is beyond the scope of this manual. Commercial CHE, such as top picks, side picks, and straddle carriers are generally available for lease through a port facility. Military CHE is capable of handling 20- or 40-foot containers. Some longer containers (45-feet and 48-feet) have ANSI/ISO corner fittings at 40-foot spacing and can usually be handled by the 40-foot CHE. However, containers of this size do not conform to the DOD standard and their use would be an exception. Smaller containers (for example, QUADCONs and TRICONs) can also be handled by military CHE if configured into a 20-foot ANSI/ISO unit.

B-1. COMPLEMENTING CONTAINER EQUIPMENT. The unique quality of an ocean-freight container is its ability to travel over road, rail, and ocean without transferring its cargo at any point. Thus, it is commonly referred to as “intermodal”. Accomplishing “intermodalism” requires complementary CHE.

The container trailer chassis is the most adaptable over-the-road unit capable of hauling empty or loaded containers. The chassis is suitable for carrying the different types of containers, and depending on its size, will accommodate 20-, 35-, 40-, or 45-foot containers. The chassis are designed and manufactured IAW the statutory requirements for over-the-road use. The container is secured to the chassis by twist locks, which are individually operated, and which lock into the lower container corner castings.

In the absence of a trailer chassis, a flat bed trailer may be used to carry a container over the road. When securing a container to a flat bed trailer, the container corner castings must be employed, as they are built into the container for this specific purpose. Other means of holding down a container may cause structural damage to the unit, in turn jeopardizing safe cargo delivery.

When a container travels by rail, it may be situated on a chassis (referred to as trailer on a flatcar or TOFC service). Or, it may be secured on the railroad flatcar without wheels (referred to as container on a flatcar or COFC service). In either case, the container must be secured correctly at all times to avoid any possible damage.

For loading or unloading 20-foot containers from chassis, flatcars, and flatbed trailers, large forklift trucks may be used if the container has built-in FLP. Loaded containers longer than 20 feet should not be lifted with forklift trucks. Other complementing container equipment such as cranes with specialized lifting devices or slings, straddle carriers, and heavy-duty lift trucks are also employed. Shipboard gear, as well as onshore cranes, are used for loading and unloading containers from the ocean carrier.

B-2. 50,000 POUND ROUGH TERRAIN CONTAINER HANDLER AND TOP HANDLER. The RTCH provides the capability of handling the 8-foot wide 20- and 40-foot long containers with gross weights of up to 50,000 pounds as shown in Figure B-1. It is a rough terrain vehicle designed for operating on soft soil conditions such as unprepared beaches. The RTCH has four-wheel drive and is capable of operating in up to 5 feet of sea water. Top-handlers, 20 or 40 feet long, are used in conjunction with the RTCH to handle ANSI/ISO containers. These top handlers are placed on the forks of the RTCH to allow for handling different lengths of ANSI/ISO containers. If needed, it could also handle longer containers fitted with ANSI/ISO fittings at 40-foot locations along the top of the container.

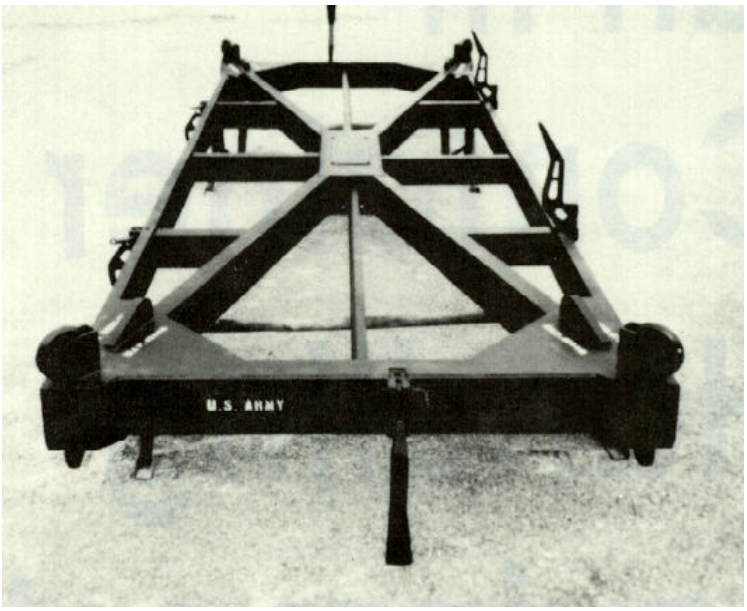
ROUGH TERRAIN CONTAINER HANDLER
(RTCH)

CAPACITY	50,000 lbs at 48" load center - moving over rough terrain
CAN STACK ISO CONTAINERS TWO HIGH	
LENGTH W/ FORKS	420"
WIDTH	138"
HEIGHT	167"
WEIGHT W/OUT TOP HANDLER	103,000 lbs
TOP HANDLER WEIGHTS: 20' 3,888 lbs 40' 9,927 lbs	
FORDING	60" Sea Water

Figure B-1

B-3. INTERMODAL CONTAINER-HANDLING SPREADER BARS. Spreader bars (see Figure B-2) are connected by slings to the hook of a crane such as a RTCC or the 140-ton truck-mounted container-handling crane and are used to handle ANSI/ISO and other intermodal containers. The Army has two types of spreader bars; one for handling 20-foot long containers and the other for handling 40-foot long containers. The 40-foot spreader bars can also handle many longer containers since they usually have ANSI/ISO corner fittings at 40-foot spacing. Both spreader bar types conform to Military Specification MIL-S-52713 and are fixed frame designs with manually locking twist locks.

INTERMODAL CONTAINER-HANDLING SPREADER BARS



	20-FOOT	40-FOOT
CAPACITY	44,888 lbs	67,200 lbs
LENGTH	19'10"	40'
WIDTH	7'11"	7'11"
HEIGHT	1'6"	1'6"
WEIGHT	3,000 lbs	5,000 lbs

Figure B-2

B-4. ROUGH TERRAIN CONTAINER CRANE. The RTCC (see Figure B-3, page B-4) is a wheel-mounted crane available through commercial sources. The RTCC is capable of lifting a 20-foot container weighing 44,800 pounds at a radius of 27 feet and a 35/40-foot container weighing 67,200 pounds at a radius of 22 feet. It can be operated on hard surfaces or on soft surfaces when using wooden platform sections to carry the weight. GS ammunition units, located in theater and corps ammunition storage areas, use the RTCC to load or transship 20-foot ANSI/ISO containers from one mode of transportation to another. Transportation units use the RTCC to augment the 50,000-pound rough terrain container handler in the transfer and handling of 20-, 35-, or 40-foot containers and other cargo between transportation modes and in storage areas.

B-5. 140-TON, TRUCK-MOUNTED CONTAINER-HANDLING CRANE. The 140-ton crane (see Figure B-4, page B-4) is a commercially designed crane used by the Army. It is truck-mounted, and has 140-ton maximum capacity at a reach of 12 feet. It has an 8- by 4-foot truck chassis and a 50-foot basic boom which can be extended in length up to 130 feet with the use of various lengths of lattice boom. The crane is used for loading and unloading containers from ships in a fixed port operation or watercraft/lighterage in a LOTS operation and for handling containers in

marshaling areas and terminal sites. In a LOTS operation, the 140-ton crane may be used to lift cargoes of all types from the ocean-going ship to the lighterage/watercraft or on the beach to transfer these cargoes from lighterage to the beachhead. The 140-ton crane may be placed on an elevated causeway of a floating causeway to discharge cargoes from the watercraft. On the beach, wooden platform sections are used to prevent the crane from sinking into the sand. The crane must be partially disassembled for transport.

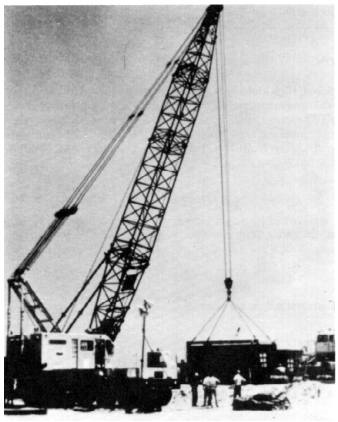
40-TON ROUGH TERRAIN CONTAINER CRANE (RTCC)

The 40-ton RTCC is designed to support 20- and 40-foot container intermodal operations. It is authorized in Ordnance and Transportation units.

CAPACITY	44,800 lbs at 27 foot radius 67,200 lbs at 22 foot radius 80,000 lbs at 10 foot radius
TRANSPORTABLE BY	RAIL, HIGHWAY, MARINE (NOT AIR)
ROAD SPEED	18 MPH
CROSS COUNTRY MOBILITY	
LENGTH	548”
WIDTH	145”
HEIGHT	153”
WEIGHT	95,260 lbs

Figure B-3

140-TON TRUCK-MOUNTED CONTAINER-HANDLING CRANE



CAPACITY	140 tons
APPROXIMATELY 12’	
LENGTH W/ 50’ BOOM	873”
WIDTH	132.5”
HEIGHT	157.8”
WEIGHT W/ 120’ BOOM	195,000 lbs

Figure B-4

B-6. 4,000-POUND ROUGH TERRAIN FORKLIFT. The 4K RTF is designed to stuff or unstuff cargo transported in 20- or 40-foot ANSI/ISO containers. It is found in Quartermaster, Transportation, Ordnance, Missile & Munitions, Medical, Aviation, and Engineer units. It is easily deployable in a 20-foot container.

B-7. 6,000-POUND VARIABLE REACH FORKLIFT. This forklift (see Figure B-5) is typically found in the COMMZ, corps, division, and brigade rear area ammunition storage areas. It has advantages over the 4K RTF in that it can load and unload cargo from trucks without the assistance of a ramp. When outfitted with special tool attachments it can extract MLRS pods from containers.

6K VARIABLE REACH FORKLIFT

The 6K variable reach, rough terrain forklift is designed to load and unload palletized ammunition and MLRS pods from 20-foot containers.

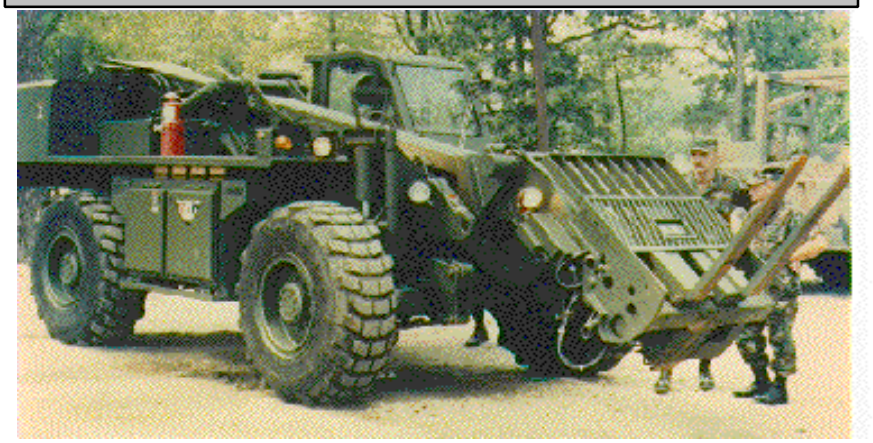
CAPACITY	6K lift w/ boom extended 15 ft 4K lift w/ boom extended 21 ft
FORDING	24 inches
ROAD SPEED	23 MPH
CROSS COUNTRY MOBILITY	
C-130 TRANSPORTABLE	

Figure B-5

B-8. ALL-TERRAIN LIFTER, ARMY SYSTEM. This is the newest MHE/CHE entering the Army system (see Figure B-6, page B-6). Fielding should begin in late FY 97. This is a 10,000-pound variable reach, air transportable, rough terrain forklift. The ATLAS will be found in Aviation, Engineer, Medical, Ordnance, Transportation, and Quartermaster units. It can stuff and unstuff 20-foot containers.

B-9. LOAD HANDLING SYSTEM CONTAINER HANDLING UNIT. The CHU attaches to the load handling system on the PLS. It allows the PLS to self load 20-foot containers without requiring the container to be loaded on a flatrack. The PLS truck can carry the CHU aboard the vehicle in addition to the standard flatrack hook. The PLS with a CHU is capable of lifting 20-foot ANSI/ISO containers weighing up to 36,250 pounds. Figure B-7 shows a PLS lifting a 20-foot container with a CHU attached to the lifting arm.

ALL TERRAIN LIFTER ARTICULATED SYSTEM (ATLAS)



The ATLAS is a variable reach, C-130 air transportable, rough terrain forklift.

CAPACITY	10,000 lbs at 48" center of balance
VARIABLE REACH	21 feet
ROAD SPEED	23 MPH
FORDING	36 inches
CROSS COUNTRY MOBILITY	

Figure B-6

CONTAINER HANDLING UNIT (CHU)

A PLS vehicle configured to use the CHU has swivel rollers installed on the bed of the truck to allow the container to roll-on during the lifting process. The CHU lifts a 20-foot container without a flatrack.

Figure B-7

B-10. 20/40-FOOT CONTAINER SIDELOADER. The diesel-powered container sideloader is a commercial item capable of transferring or self-loading and transporting 20- through 40-foot ANSI/ISO containers. Typically, the maximum lifting capability is 66,150 pounds. Units are available with a telescoping spreader bar for 20-, 35-, and 40-foot length containers and can also lift containers with slings. The sideloader can transport containers within maximum road height limitations. It also has an air ride suspension enabling it to transport ANSI/ISO containers containing delicate equipment. These are primarily found at commercial facilities and at Depots. The advantage sideloaders offer over RTCHs are the reduced amount of maneuver space required. Rough terrain container sideloaders are offered through commercial sources.

APPENDIX C

SAMPLE THEATER SOP

This is an example of a SOP used in Korea. It will give you an idea of the necessary instructions needed at the various MCA offices engaged in container coordination. This is only a guide as every theater will have unique requirements.

APPROPRIATE UNIT ID
ATTN: OFFICE SYMBOL
ADDRESS
DATE

ABC UNIT (TMD/CONTAINER CONTROL ACTIVITY) SOP NO X-X

TITLE: Container Operations in Korea

1. PURPOSE: To establish standard policy and procedures for the offering, scheduling, and monitoring of the inland surface movement of all SEAVANs destined for US/UN Forces in Korea, including NAF Activities 4.

2. SCOPE: This SOP is applicable to the Container Control Activity Pusan under the Traffic Management Division of ABC Medium Port Command, Pusan.

3. DEFINITIONS:

a. CBL - Commercial Bill of Lading.

b B.B.P. - Breakbulk Point.

c. DSSK- Direct Support System - Korea.

d. DTL - Discharge Tally List.

e. GBL - Government Bill of Lading.

f. AAFES - Army Air Force Exchange Service.

g. NAF - Non-appropriated Fund Activity.

h. NLT - Not Later Than.

i. POD - Port of Debarkation.

j. POE - Port of Embarkation.

k. RG - Rate Guide (long title: MSC Container Agreement and Rate Guide).

l. SEAVAN - Containers owned and/or controlled by a commercial shipping company. (The terms SEAVAN and CONTAINER have the same meaning.)

m. TCMD - Transportation Control and Movement Document.

n. MCT - Movement Control Team.

o. CY - Container Yard.

4. REFERENCES: The MSC Container Agreement and Rate Guide, Bailment Agreements, and applicable instructions directives relating thereto.

5. OBJECTIVE: To outline and provide guidance for monitoring and ensuring the proper control of SEAVANs moving through the ports in Korea.

6. RESPONSIBILITIES:

a. Chief, Traffic Management Division is responsible for the supervision of the 1317th Medium Port Command. The senior HN in CCA is responsible for ensuring the smooth functioning of CCA on a daily basis.

b. Container Control Authority (CCA).

(1) Maintain close supervisory control over the container control function in the ports of Korea. Responsible for the scheduling, monitoring, and overall control of all import SEAVANs offered to the TMCA for inland/drayage/line haul in Korea.

(2) Monitor all container shipments which exceed the allowed free time, as defined in the current RGs and Bailment Agreements. Identify and assist the TMCA in resolving container backlog problems, off-loading and scheduling of containers by consignees, and ensuring empty containers are returned to the ocean carriers CYs.

(3) Assist consignees and the TMCA MCTs, RMCTs in tracking containers that are en route to consignees and have failed to arrive, or which are delayed by the consignee.

(4) Upon receipt of Cargo Traffic Messages and Army manifest for SEAVAN container, CCA Pusan, will screen changes of POD, terms or consignee(s). Changes will be coordinated by message to the POE for corrected documentation.

(5) Monitors all container shipments which exceed the authorized free time as defined in the current RG and Bailment Agreement. Identify and assist TMOs of the TMCA and consignees in resolving container backlog problems, offloading and scheduling of containers by consignees, and returning empty containers to ocean carrier’s CYs.

7. PROCEDURES:

a. General.

(1) The CCA Pusan will be responsible for maintaining records of control for all containers consigned to Eighth US Army, US Forces Korea, and UN Forces within Korea, including those consigned to AAFES and NAF activities. Initial record control will commence upon receipt of the Cargo Traffic Messages and advanced Army cargo manifests for import SEAVAN cargo. Actual control will commence when the ocean carrier's agent has made containers available to the CCA.

(2) Determine appropriate inland destination service to be provided from ocean carrier's CY to consignee based upon the following delivery terms:

(a) K term: A container dread or line hauled by government-owned or contractor's tractor from carrier's CY or port terminal to the consignee.

(b) L term: A container dread by ocean carrier or his agent from the carrier's CY or port terminal to a consignee located within a 10-mile radius of that port city limits (local area delivery).

(c) M term: A container line hauled by ocean carrier or his agent from carrier's CY or port terminal to a consignee located outside the 10-mile radius of that port city limits.

(3) Upon receipt of Cargo Traffic Messages and Army cargo manifests for the SEAVAN, the container control function will establish and ocean manifest file for each vessel as documentation is received. This file will remain active until all containers have been unstuffed and returned to the ocean carrier or his agent.

(4) DSSK (by TK9 cards) container shipments for POD processing data.

b. Operations.

(1) The CCA will receive Cargo Traffic Messages and Army cargo manifests from POE and ship's arrival notices from the ocean carriers. Will study, screen and review, and make changes of POD, terms of destination delivery service, and/or consignee, as required. Changes will be coordinated, by message, to inform the POE and all concerned activities.

(2) The CCA will study and review the ship's arrival notice received from the ocean carrier's agent for all containers, and compare it with the ship's manifest. The CCA will offer all containers through the responsible TMCA for coordination of movement with consignees except for the containers consigned to B.B.P., pier #8 ABC Medium Port Command, Pusan. This information is passed back to the CCA prior to commencement of free time to allow adequate time to schedule containers for onward movement.

(3) Upon receipt of the delivery schedule from the responsible MCT, consign the CCA through computer to computer by APL will prepare the final container delivery schedule, indicating the RDD and listing all authorized stops. It is then translated to the responsible agent or contractor by EPI. A copy must be placed in the ship's file after transaction to the ocean carriers/contractor.

(4) Ocean carrier will prepare pre-printed or manually prepared TCMDs will be assembled for all SEAVANs listed on the delivery schedule sheets and signed by the agent.

(5) For K-term movements, a joint inspection will be made by representatives of the carrier's agent, local contractor, and personnel of the CCA to ensure the suitability of container and chassis for movement and determine the Bailment Agreement; and that the seal is intact and correct; and that all is in compliance.

(6) A GBL prepared by the CCA will be issued for each container moving under K-terms. No GBL or joint inspection at carrier's CY is required when a container is moving under L or M terms.

(7) The CCA will make daily checks of CYs to ensure that all containers scheduled for movement have arrived or departed as scheduled.

(8) Upon notification from the local MCT representative that a container is unstuffed and ready for pickup, the CCA will contact the local contractor or carrier's agent to pickup and return the container to the ocean carrier's CY. (NOTE: It is important that the carrier's agent/contractor be notified immediately upon unstuffing so detention charges can be controlled.)

(9) The CCA will use pre-printed SEAVAN TCMDs to monitor the delivery and receipt of each container. The #4 copy of each TCMD will be annotated in blocks 25c and 25d to reflect the date the container was shipped to the consignee. The annotated copies of the TCMD will be sent to the ABCth Trans via the Cargo Checking Branch.

(10) The DTL will be forwarded by the ABCth Trans through the Cargo Accountability Branch to the consignment container control function who will enter the date of discharge (using a 4-digit year/Julian date) in the Tally Date column: asterisk in the "drag" column if any damage was noted; and piece count (normally "1") in the "Tally Checker Piece Count" column for each container number included on the tally list. The completed tally list will be forwarded to the Cargo Accountability Branch NLT 10 days after completion of vessel discharge.

(11) Discrepancies in container shipment. In instances when containers are received without complete documentation or are received with missing or replacement seals, the below procedures will be followed:

(a) When containers are received without complete documentation, every effort will be made by the container control personnel to obtain documents from the ocean carrier and/or the local overland carrier. In cases where it is determined that containers should not be further delayed, the CCA function should be consulted and the containers will be opened to determine the proper consignee If breaking the seal is deemed necessary, the container control personnel will

coordinate this with the carrier's agent to ensure cargo security and accountability. If the cargo is consigned to AAFES, a AAFES representative may be present before opening the container. In instances where the missing documentation is the fault of the Government, detention charges will be computed IAW the RG or Bailment Agreement, as appropriate.

(b) When containers are discharged and found to have missing, broken, or replacement seals, the CCA will immediately notify the agent of the container seal numbers and any other pertinent information. Before moving these containers, CCA will notify the carrier's agent by 1500 hours the day before delivery of the container number, date, time, and place of the complete container inventory. CCA will inform destination MCTs of movement of a container in this category and that a seal change has taken place and that an accurate joint inventory must be conducted by the carrier's agent and the consignee's representative.

(12) Container division. CCA will request diversion by the Ocean Carrier or his agent before the container has commenced line haul or drayage from POD or CYs.

(a) When MCT or consignee request a division, get all pertinent information (such as Container Number, Voyage Number, Vessel Name, new consignee, contact point person name, and the telephone number).

(b) Division request must be submitted NLT 1500 hours two working days before container delivery to new consignee.

(c) If dry containers have more then three contents, consignor will divert the container to the B.B.P.

(13) Confirmation. The Movement Region of the TMCA notifies the CCA immediately upon arrival of the container and again upon completion of unstuffing. The movement region will get DTG information from consignee and MTC and send by TELEX to CCA.

(a) DTG of container arrival at the consignee and DTG that unstuffing was completed will be provided by the consignee for logging on the reverse side of SEAVAN Container Schedule Ledger.

(b) This information is needed immediately after each consignee has unstuffed his portion of the container since this information determines the detention charges that must be paid. Each report will be forwarded as it occurs and will not be delayed.

c. Container Detention.

(1) This ocean carrier will meet with a ABCth Medium Port Command Container Control Activity employee prior to submitting a invoice for payment of detention charges. The CCA employee will verify the detention charges to be submitted.

(2) After verification of an agreed billing, the carrier will than submit the billing for request of approval for payment. The CCA employee will again verify the billing. The Deputy TMD will verify the calculations for billing.

(3) After the Deputy TMD has verified the billing, the CCA employee that verified the billing will give the vouchers to the Chief, TMD for signature. At the time of signature the CCA employee will be with the Chief, TMD in case of any questions.

(4) All the detention data will be logged on the CCA Container Schedule Ledger with the following information for cross checking purposes:

(a) The date and time the container was scheduled by CCA for movement by the carrier.

(b) The date and time the container was reported to the carrier as being empty. (Detention and free times stop when the carrier has been notified that the container is empty and is ready to be returned to the carrier's custody.)

(c) Vessel name, voyage document number, consignee, and POE of the container. (This information is also located on the ocean manifest for the ship and container.)

(d) Detention and free times for each container will be forwarded by the carrier to CCA at least two working days prior to the vessel's arrival and is presented in the form of an "arrival notice". This arrival notice will indicate the time that each container on a ship will be "ready for spotting" or "ready for line haul/drayage".

(e) Detention charges will be paid for each 24-hour period of time or part there of, beyond the total allowed free time that is spent in delaying the commencement of line haul, drayage, or in unstuffing a container IAW the time frames, type and size container, and at the rates as specified in the RG, paragraph 203m.

(f) Rates in the RG change every six months (on 1 October and 1 April). A complete new RG is issued each October 1st.

(g) After completion of the certification processing from CCA files, the invoices are passed to the Chief, TMD, for his signature, as the certifying officer.

(h) Before processing begins at CCA, ensure that the loading port (POE) for each container is indicated on the invoices. The POE is found on the manifest for the SEAVAN's first carrying vessel. The MSC Area Command who has authority over the port of SEAVAN loading is the paying activity.

(i) In order to properly process the invoices, the MSC paying activity must be provided with the Shipping Order Number (SO.#) assigned to each vessel by the originating/hooking activity. This S.O.#. is obtained from the CCA vessel files or through the MSCO Pusan vessel files. The S.O# is indicated on MSC Form 2612/1 in the upper right-hand corner of the document. After obtaining the S.O.#, write it on the ocean carrier's invoice immediately above the vessel's name as indicated on the invoice.

(j) After accomplishing the foregoing, prepare the substantiation form for each vessel and each consignee, filling in the appropriate blanks.

(k) Ensure that there are eight (8) copies of each invoice and substantiation form upon completion of processing. These copies are to be distributed as follows:

- 5 copies to the MSC paying activity. (original + 4 copies).
- Commander Military Sealift Command-Pacific, ATTN: P-522 NSC, Bldg. 310-5, Oakland, CA 94625
- Commander Military Sealift Command-Atlantic, ATTN: L-522, Military Ocean Terminal, Bldg. 42, Bayonne, NJ 07002
- 1 copy to be returned to the ocean carrier.
- 1 copy to CCA file for the appropriate ocean carrier.

(l) Ensure that there are eight (8) copies of each invoice and substantiation upon completion of processing for the "K" term. These copies are to be distributed as follows:

- 5 copies to appropriate paying activity. (original + 4 copies).
- For Army Consignee: HQ, 25th Trans Center (MC), Seoul, ATTN:, MR. YI, S.K. TEL #: xxx-xxxx, APO AP xxxxx
- For Osan Consignee: Finance & Accounting Office, 51st TFWIAFC Osan Air Base, ATTN: MR. KIM TEL #: xxx-xxxx, APO AP xxxxx
- For Kunsan Consignee: Finance & Accounting Office, 8th TFW/ACFS, ATTN: MR. CHONG, TEL #: xxx-xxxx, APO AP xxxxx
- 1 copy to be returned to the ocean carrier.
- 2 copies to CCA files.

(m) Container detention. Government ordered delay in commencement of drayage/line haul (container staging) or Government delay in unstuffing of containers at destination when total delay exceeds total free time allowed.

(n) Free time. The time allowed for the Government to unstuff a container and return to the ocean carrier, before detention starts - usually 72 hours. Free time starts at 0001 on the day the Government is notified the container is available; and does not run from the time release for drayage or line haul or during such movement.

(o) Drayage. The movement of a container between the carrier's terminal at the port where the container is loaded to or discharged from a vessel, and another place within the commercial zone of a US port city or within a 10-mile radius of the city limits of a foreign port city.

(p) Line haul. The movement of a container between the carrier's terminal at the port where the container is loaded to or discharged from a vessel, and another place outside the commercial zone of a US port city or beyond a 10-mile radius of the city limits of a foreign port city.

(q) Ocean carrier. Any common carrier by water which has been awarded a contract incorporating the MSC Container Agreement and Rate Guide and including its agents and subcontractors.

AUTHORIZING OFFICIAL
RANK, BRANCH

Commanding (TMCA)

APPENDIX D

CONTAINER STUFFING OPERATIONS

This appendix provides guidance on container stuffing operations. Use this appendix along with TM 38-230, Volumes I and II and MTMCTEA Reference 96-55-23 which contain additional packing assistance. Units can use the guidance presented in this appendix when stuffing UE in containers for deployment. The same techniques apply whether stuffing sustainment cargo or UE.

D-1. UNIT STUFFING OPERATIONS. Because every unit will load their equipment differently according to their mission requirements, units must have a load plan to follow when stuffing containers. Items that will be needed first must be available at the opening end of the container. Weight must be distributed evenly. Heavy items go on the bottom and light items on top. Heavy items may need to be blocked with floor bracing around the base to prevent shifting. Filler materials may also be used to prevent items from shifting. Simply throwing items into the container on a first come, first in basis, as they are bought out from unit storage locations, results in poorly loaded containers and invites damage during transit. Load plans must be developed, tested, and practiced. This is especially true when your equipment will be transported via PLS vehicle. The angle induced, almost 30 degrees, when the PLS vehicle lifts the container will cause damage to equipment in poorly stuffed containers.

D-2. STUFFING PRIORITIES AT CONTAINER CONSOLIDATION POINTS. Since the CCP is not required to identify in advance the container consignee for each container requested, loading is accomplished as cargo is received and consolidated. To meet delivery requirements at lowest overall costs, the CCP usually loads ("stuffs") cargo into containers in the following descending order of preference:

- A full container load for a single consignee.
- A container load for delivery by stop off service to multiple consignees in the same geographic area. The ocean carrier assesses an additional charge for each stop off en route to the final destination. Various Service/Agency publications and MTMC Pamphlet 55-13 provide guidance on stop off consignee selection, stowing, blocking, and other appropriate areas.
- A container load for delivery to multiple consignees through a breakbulk point (including a SPOD). The additional transshipment handling necessary at a breakbulk point usually results in additional transportation cost and time as well as providing increased potential for loss or damage.

When loading the container, the CCP maintains consignor shipment unit integrity and uses a split shipment indicator as necessary.

D-3. GENERAL PLANNING CONSIDERATIONS. Equipment may have to be processed for containerization. Due to size limitations, some equipment may have to be disassembled or reduced prior to stuffing into a container. If the equipment is to be in usable condition upon arrival

in the AOR, it should not be dismantled beyond functional repair or assembly by forces at receiving location.

Movement planners must plan each container load for ease of unloading or unstuffing at destination. Materiel that is required first must be loaded last. If cargo for more than one unit is loaded into a container, the cargo for each unit should be identified using a UIC and, wherever practical, separated by partitions, dividers, paper, or plastic sheet. Proper cargo documentation, IAW DOD Regulation 4500.32-R, is mandatory and critical for ITV during movement.

D-4. PACKING, BLOCKING, AND BRACING. Cargo placed in containers must be secured to withstand the most stringent transportation modes to which it will be subjected during multimodal shipment. For example, containerized cargo/equipment can be moved through any one or any combination of highway, rail, and ocean modes. Therefore, it must be secured to withstand the most severe load conditions to which it will be exposed. The UMO must plan to have adequate blocking and bracing material on hand before loading the containers. In addition to information contained in this appendix, refer to the US Department of Transportation publication, *"A Shippers' Guide to Stowage of Cargo in Marine Containers."* More guidance for securing dry cargo and vehicles in containers can be found in MTMCTEA Reference 96-55-23.

Container contents may be subjected to sudden jolts during transport. Containers loaded on rail cars must withstand the impact, up to 8 MPH, resulting from coupling the rail cars together in the rail yard. Twenty-foot containers picked-up with PLS trucks will be tilted to approximately a 35 degree angle during the loading process. All containers are subject to varying G forces during transit.

It is a shippers responsibility to ensure that cargo is secured to withstand any combination of these situations. Shippers are either commercial vendors, DOD Depots Activities, or in the case of unit equipment, the unit. Therefore, the UMO must validate load plans and ensure that the unit is trained to properly stuff the container. The shipper's main responsibility is ensuring that the cargo stuffed inside a container arrives undamaged. Lumber, pallets, and banding material are used to keep the load from shifting (for more information, see TM 38-230, Volume 2). When stuffing containers, shippers should do the following:

- Distribute the weight of the cargo evenly over the floor of the container.
- Place heavy cargo on the bottom of the container and lighter cargo on top.
- Block and brace the cargo to prevent movement in any direction.
- Fill in the voids between the cargo and the container sides.
- Ensure all supplies containing liquid are packaged in appropriate containers.
- Use block stowage to protect bagged cargo from shifting.
- Keep the center balance of the cargo as near as possible to the center of the container. If this is not possible, mark the center balance on the container and notify the carrier.
- Never exceed the weight limitations of the container.
- Close and seal container doors carefully. Put serial numbered seals on the container to detect pilferage and tampering.
- Place one copy of the packing list inside and one outside the door.
- Weigh containers before shipment at the origin and record the weight.
- Observe procedures for hazardous cargo discussed in Chapter 6.

The proper use of dunnage is an integral and essential part of the process of stowing cargo. Many cargo claims arise from improper securing or lack of sufficient or suitable dunnage and blocking and bracing. Therefore, the general principles of proper securing of loads and materials should be understood by all persons responsible for containerizing cargo.

Dunnage in a container denotes materials not consisting as part of the container. These materials are frequently by-products or scrap used in filling voids, blocking and bracing, or otherwise to protect and secure the contents.

It is not possible to lay down hard and fast rules which will apply to the containerizing of all cargo. However, use of the principles outlined in this FM can help those who are responsible for this function.

Sufficient dunnage to protect the cargo being carried is of first importance. It is of equal importance to have suitable and proper dunnage employed to protect the cargo and container.

D-5. LUMBER. Lumber should be properly seasoned. It should be selected specifically for the blocking and bracing of cargo in containers. It must be clean, dry, and free from dry rot, knotholes, infestation, and splits which will affect its strength or interfere with proper nailing. The use of green or wet lumber should always be avoided. Such lumber quickly loses most of its strength and becomes decidedly inferior. Green or wet lumber may contain 30 to 50 percent moisture depending upon the species, location of growth, and storage area. Shrinkage of green lumber in drying loosens the nails. The movement of the container during transportation often causes nails to work out. This results in a reduction of cargo security in the container and eventual breakdown of the holding system. The load is then free to move in the container causing cargo and equipment damage, not to mention the loss of time and expense in securing the load. Green and wet lumber will emit a heavy concentration of moisture which may cause water or sweat damage, molding, or cargo staining. Dry lumber (at an approximate moisture content 15 to 25 percent) is an excellent securing material. It is much lighter than wet or green lumber. This is very important when weight limitations are to be considered. Dry lumber also has a much longer service life. Copper chromate arsenate preserved wood is not to be used on lumber requiring preservatives or for general blocking and bracing lumber, per the Armed Forces Pest Management Board. Many countries ban the use or import of copper chromate arsenate treated lumber due to its release of toxic vapors when burned. If preserved lumber is required in shipment or BBT, use wood preservatives meeting the requirements of MIL-W-71125, Wood Preservatives: Waterborne or Water Reducible. The most common sizes of lumber used as dunnage in containers are (nominal dimensions) 1” x 4”, 1” x 6”, 2” x 4”, 2” x 6”, and 4” x 4”. Lumber may be used as a filler for decking, blocking, bracing, and constructing partitions. Figure D-1, page D-4, shows features to watch for when selecting lumber for blocking and bracing.

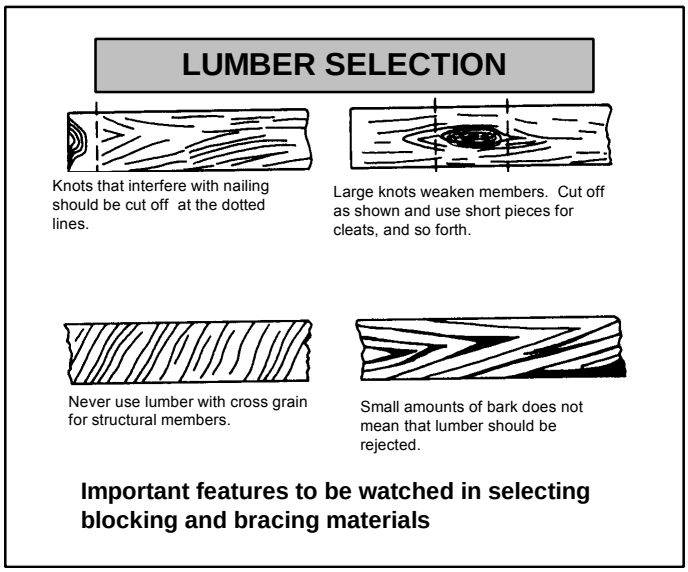


Figure D-1. Selecting Lumber for Blocking and Bracing

D-6. PLYWOOD. Plywood is extremely functional for container partitions, dividers, and auxiliary decking. It should be clean and dry. Plywood is not easily affected by changes in moisture content. This is an important consideration especially when high moisture levels may be present.

Plywood is available in a number of grades and thickness. For use as dunnage, the less expensive grades or combination of grades is recommended. Plywood is generally available in panel widths of 36, 48, and 60 inches and in panel lengths ranging from 60 inches to 144 inches in 12-inch increments. Other sizes are also available on special order. Panels 48 inches wide by 96 inches long (4 feet by 8 feet) and 48 inches wide by 120 inches long (4 feet by 10 feet) are most commonly available.

D-7. STRAPPING. Heavy-duty steel strapping (banding), tempered for maximum tensile strength and ductility and outstanding ability to absorb impact shocks without breaking, is one of the most versatile tools for securing cargo in dry-cargo containers. It has been used successfully for years to secure heavy and light cargo for rail and truck movement. The application of steel strapping goes beyond securing cargo for transport. It is used for unitizing all shapes and sizes of cargo as well as palletizing heavy awkward items. When properly used, steel banding will create a block or solid unit of cargo. Figure D-2 provides specifications for steel strapping. Figure D-3 shows how to use and tread anchor plates with strapping material.

SPECIFICATIONS OF REGULAR DUTY STEEL STRAPPING

WIDTH & THICKNESS (inches)	MINIMUM BREAKING STRENGTH (pounds)
3/8 x .010	300
3/8 x .012	450
3/8 x .015	540
3/8 x .018	600
3/8 x .020	690
1/2 x .010	400
1/2 x .012	480
1/2 x .015	600
1/2 x .018	720
1/2 x .020	800
1/2 x .023	920
5/8 x .010	500
5/8 x .012	600
5/8 x .015	750
5/8 x .018	900
5/8 x .020	1,000
5/8 x .023	1,150
3/4 x .015	900
3/4 x .020	1,200
3/4 x .023	1,380
3/4 x .028	1,680

SPECIFICATIONS OF HEAVY DUTY STEEL STRAPPING

WIDTH & THICKNESS (inches)	MINIMUM BREAKING STRENGTH (pounds)
1/2 x .020	1,280
1/2 x .023	1,470
5/8 x .020	1,600
5/8 x .023	1,840
3/4 x .020	2,000
3/4 x .025	2,280
3/4 x .028	2,280
3/4 x .031	2,850
1 1/4 x .020	3,200
1 1/4 x .031	4,750
1 1/4 x .035	4,750
1 1/4 x .044	6,750
2 x .031	10,600

Note: See ASTM D3953, Standard Specifications for Strapping, Flat Steel and Seals, for additional information on steel strapping materials and equipment.

Figure D-2. Specifications of Steel Strapping

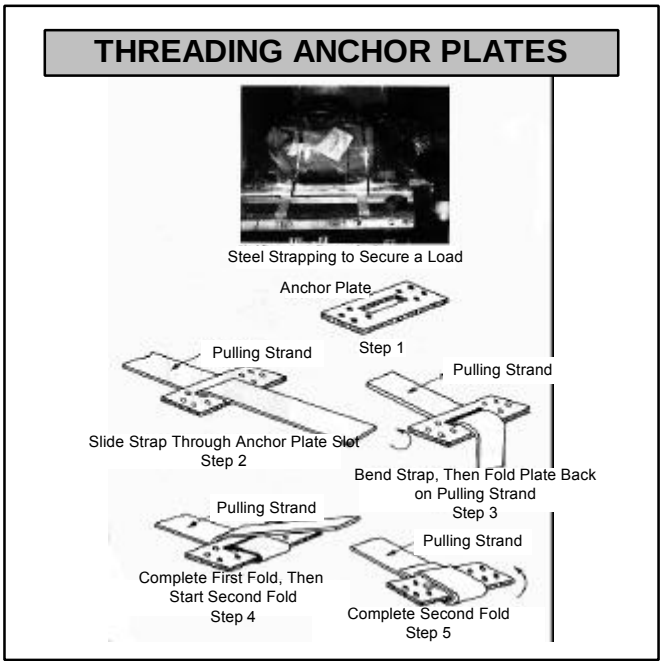


Figure D-3. Progressive Steps of Threading Flat Strapping in Anchor Plates

As previously mentioned, if a container supplier cannot position a container with a needed built-in tiedown system, heavy-duty steel banding can be used in conjunction with anchor plates. These anchor plates can be placed and secured at strategic locations in the container at the discretion of those responsible for loading, blocking, and bracing the cargo in the containers. In addition to steel banding, nylon strapping is available and satisfactory in many instances. Figure D-4 provides specifications for nonmetallic strapping material.

WOVEN POLYESTER CORD

WIDTH & Regular/Heavy Duty or (inches)	MINIMUM BREAKING STRENGTH (pounds)
1/2 x Reg	600
1/2 x Hvy Duty	1,050
5/8 x Reg	725
5/8 x Hvy Duty	1,310
3/4 x Reg	1,585
3/4 x Hvy Duty	1,830
1 1/4 x Reg	1,830
1 1/4 x Hvy Duty	2,105

RAYON CORD

WIDTH & Regular/Heavy Duty or (inches)	MINIMUM BREAKING STRENGTH (pounds)
1/2 x Reg	465
5/8 x Reg	585
5/8 x Hvy Duty	765
3/4 x Reg	700
3/4 x Hvy Duty	900
1 1/4 x Hvy Duty	1,575

NYLON PLASTIC

WIDTH & THICKNESS (inches)	MINIMUM BREAKING STRENGTH (pounds)
1/2 x .015	420
1/2 x .020	560
1/2 x .025	700
1/2 x .030	900

POLYESTER PLASTIC

WIDTH & THICKNESS (inches)	MINIMUM BREAKING STRENGTH (pounds)
1/2 x .015	420
1/2 x .020	560
1/2 x .025	700
1/2 x .030	850
5/8 x .020	700
5/8 x .025	870
5/8 x .030	1,060

Note: See ASTM D3950, Standard Specifications for Strapping, Nonmetallic (and Joining Methods), for additional information on nonmetallic materials and equipment.

Figure D-4. Specifications for Nonmetallic Strapping Materials

D-8. INFLATABLE AIR BAGS. Inflatable air bags are available in paper or rubber and may be reusable or disposable. Inflatables are used for light- and medium-duty bracing. Inflatables are not used to prevent cargo from moving when subjected to impacts such as those resulting from rail car couplings. Inflatables are mostly intended to be a void filler which offers added protection to containerized cargo. If the cargo facing the inflatable dunnage is of such a nature that it may cause perforations, use cushioned puncture resistant material between the cargo and the dunnage. Figure D-5 shows an inflatable air bag used in a container.

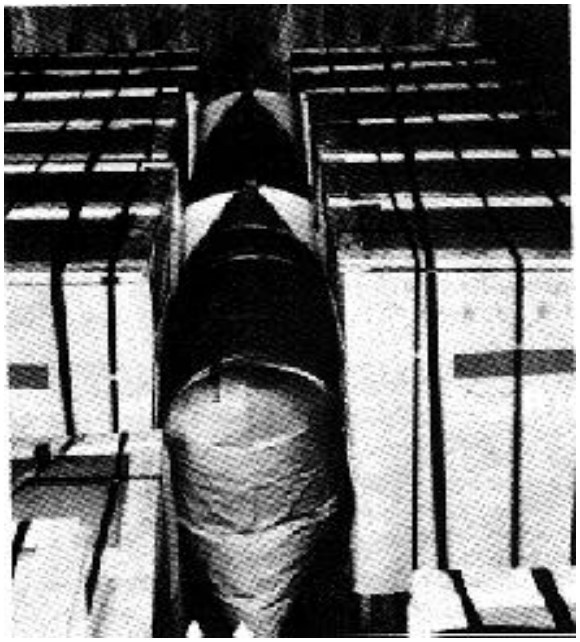


Figure D-5. Inflatable Air Bags Used to Brace Cargo

D-9. FIBERBOARD. Fiberboard is available in sheets, rolls, and pre-scored structural shapes for light-duty bracing applications. It functions as a divider, deck, or partition. When using fiberboard or similar materials, the strength and resistance to moisture must be satisfied. When loaded containers are transported over long distances, temperature changes occur, particularly during the winter. This results in the condensation of water vapor. The fiberboard delaminates, losing its structural stability. Corrugated fiberboard also has poor resiliency. Once it is compressed, the material does not expand to its prior shape and thus creates a void. As a result, cargo blocking, bracing, and protection no longer exist.

D-10. MISCELLANEOUS DUNNAGE MATERIAL. The above list of dunnage materials is not all inclusive. There are many additional devices and dunnage systems available to hold and secure cargo from movement while in transit. Some of these systems are designed for specific kinds of cargoes while others apply to cargo in general. Dunnage bags filled with polystyrene pieces can be used to absorb shock and secure products against impact and shifting. Laminated strapped bulkheads have been successfully used in securing drum cargo and other freight in rail cars, trailers, and dry-cargo containers. Used motor vehicle tires, metal frames, pallets, various plastic products, and nets have been successfully used as dunnage.

When obtaining blocking and bracing dunnage for the loading operations, it is recommended that you first see what is available at your plant or loading facility. Often, the material necessary to properly secure the cargo in the container is readily available as waste material or by products. Figure D-6 and Figure D-7, page D-8, show some options for blocking and bracing the end of the container.

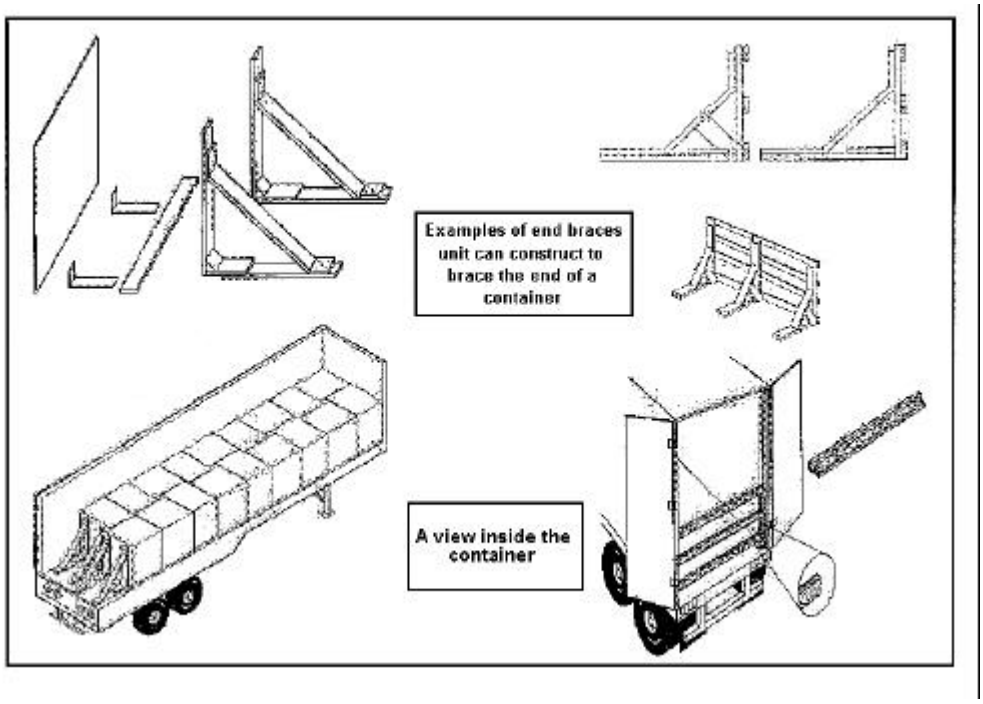


Figure D-6. Examples of End Bracing

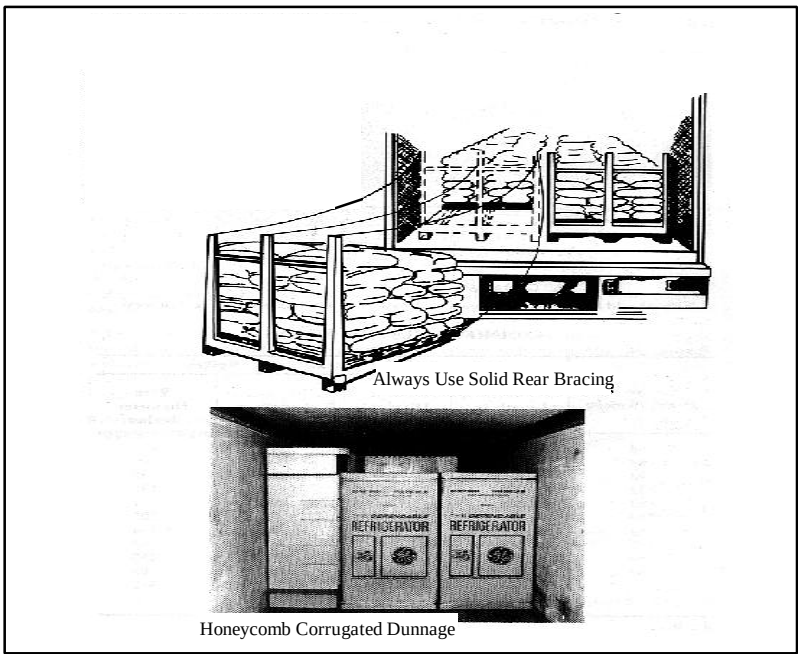


Figure D-7. Solid Rear Bracing

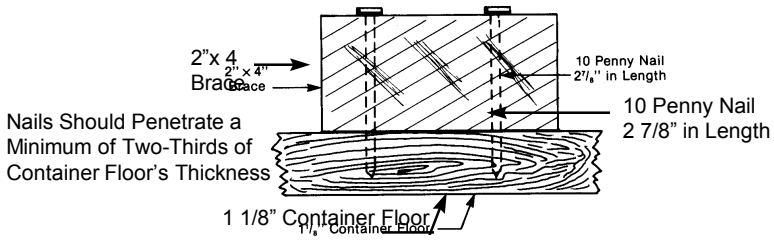
D-11. NAILS/NAILING. Nails must be adequate in size and number when wood blocking, bracing, and anchor plates are used to secure the cargo in the containers. When the floor of the container is used, the nails should penetrate a minimum of two thirds of the floor's thickness. Nails must not be too large and should be used in a staggered pattern. This will avoid splitting the lumber.

The floor boards in a general-purpose dry-freight container on the average are 1 1/8 inches thick. The size of lumber used for bracing and securing the load will determine the length of the nails to be used. Figure D-8 shows proper nailing techniques and the sizes of various common nails.

D-12. STOWING AND SECURING FOR SPECIFIC CARGO. Paragraphs D-13 through D-18 address typical commodities shipped in containers which have unique shipping requirements with respect to their loading configurations.

D-13. BAGGED CARGO. A large number of commodities are packed for shipment in bags. Typical commodities are sugar, coffee, grain, flour, cement, plastics, and chemicals. Methods for stowing bags vary. Several factors are involved: the size and quantity of the bags, the nature and condition of the contents, and the requirements of the commodity as to ventilation.

Bagged commodities are likely to be damaged if stowed close to moist cargo or cargo giving off large concentrations of moisture. Do not containerize moisture-sensitive cargo in the same container with moisture-emitting cargo. Use a ventilated container when stowing bagged cargo which is sensitive to moisture or sweat damage. If cargo is susceptible to moisture damage, coordinate loading to reduce the time bagged cargo has to be in the containers. If possible, stow bagged cargo just before sailing. Never use hooks on bagged commodities.



Nails Should Penetrate a Minimum of Two Thirds of Container Floor's Thickness

COMMON NAILS AND SPIKES

Size Penny Weight	Common Nails: Length in Inches	Common Nails: Wire Diameter Inches	Spikes: Length in Inches	Spikes: Wire Diameter Inches	Wire Diameter Inches
6d	2	0.113	...	...	...
8d	2 1/2	.131	3	...	0.192
10d	3	.148	3 1/4	0.192	.192
12d	3 1/4	.148	3 1/2	.192	.207
16d	3 1/2	.162	4	.207	.225
20d	4	.192	4 1/2	.244	.244
30d	4 1/2	.207	5	.263	.263
40d	5	.225	5 1/2	.283	.283
50d	5	.244	6	.283	.283
60d	6	.263	7	.312	.312
5/16	...	...	8 1/2	.375	.375
3/8	...	...	8 1/2		.375

Figure D-8. Nailing Technique and Common Nail Sizes

Protect bags from direct contact with other cargo and with the container floor, wall, and roof structures. Dunnage material such as waterproofed paper or fiberboard should be laid on the floor of the container before loading. Place it between the walls of the container and the cargo as well as at the top of the load. Dunnage of this kind will decrease chances of damage from either salt or fresh water. It will protect cargo from rough or sharp edges and will lessen chances of penetration of dirt or other contaminants.

When you stow more than one kind of cargo on top of one another (for example, flour on top of grain), separate each commodity from the other with waterproofed paper or a similar product. This will prevent spillage of materials from torn bags from mixing with cargo below. Use partitions when bagged cargo is stowed either on top or below other general dry cargo. This is shown in Figure D-9, page D-10.

Bagged cargo can be stowed in a variety of positions. The method of tiering depends largely upon the commodity being carried. If the commodity is one for which all possible ventilation is required, stow bags one on top of the other lengthwise with the ends well butted.

Bagged goods may also be stowed in a container in a lateral position. Place the long axis across the container. Goods stowed in this fashion have a tendency to shift fore and aft. If not braced properly, container damage could result, especially at the doors. Employ proper rear bracing to prevent bags from falling out when the container is opened.

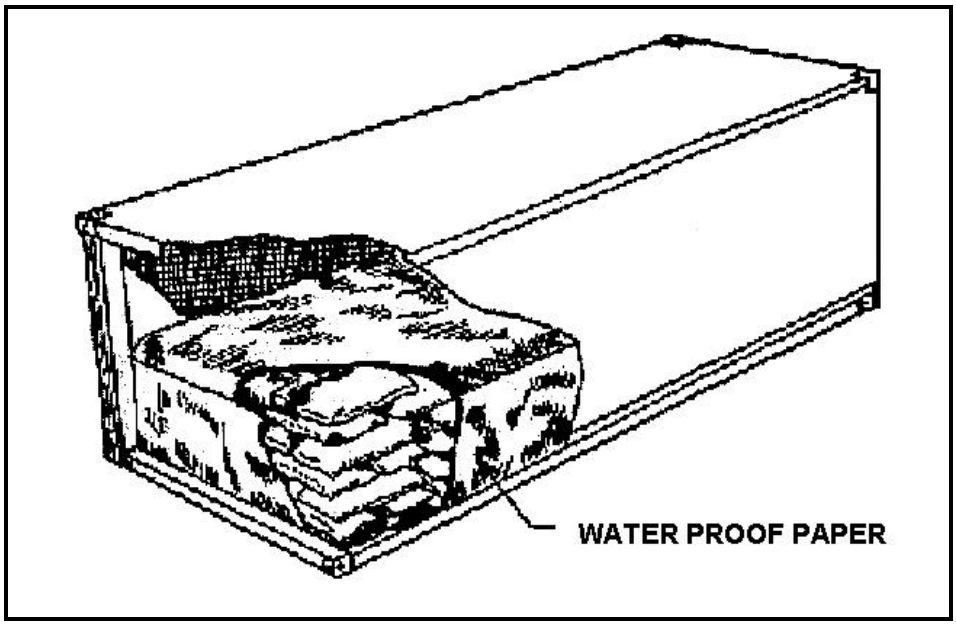


Figure D-9. Waterproofed Paper Used to Separate Commodities

In most cases, when loading bagged cargo (other than palletized), use the "cross-tier" or "lateral" method as show in Figure D-10. These methods are recommended in order to reduce pressure on the sides and ends of the container and also to unitize surface friction against the bottom. The "cross-tier" method is accomplished by alternating the direction in which the successive tiers are laid. In this manner each tier binds the tier below it and the whole block is formed into a unit. When stuffing bagged cargo do the following:

- Container floor should be clean and free of protruding nails and screws.
- Bags should be loaded in a combination length and crosswise manner.
- Rear tier should be interlocked in a tight stow so that when rear doors are opened, bags will not fall out.

D-14. BALED CARGO. Many manufactured materials are packed in burlap or other bales for ocean shipment. These materials include cotton piece goods, fine textile goods, and raw materials such as cotton, wool, and leather. Almost any compressible commodity can be baled and shipped. Of course, many articles are not suitable for baling. Consequently, only commodities which will stand compression should be baled.

Baled cargo is especially liable to damage from chafing and moisture. To prevent chafing, bales should be carefully dunnaged and blocked to prevent movement. When stowing baled cargo, give special attention to preventing metal bands from rubbing against each other or against the metal portions of the container. This could be a potential fire hazard, especially when the bales consist of rags, waste paper, fiber, or similar flammable products. To avoid concentrations of moisture, use a ventilated dry-cargo container. For some commodities, loaders should take precautions to avoid cargo staining and water damage. Place sufficient dunnage to raise the goods off the floor. This will protect the cargo by allowing water and moisture to settle between the dunnage and not come in

direct contact with the bales. To further protect the goods, a layer of waterproof paper or similar material should be laid over the floor and dunnage before loading. This is especially recommended if the commodity is of a finished nature such as fine textile goods. Plastic or water-repellent shrouds should always be placed over the top and sides of the load regardless of the commodity. This is done to protect against damage from condensation. Under no condition should cargo hooks be used on baled commodities of any kind.

The size of the bales varies considerably even among similar commodities. The most economical bale is twice as long as it is wide. The third dimension should be equal to or greater than the width. However, this is not always the case. The size of the bale will determine the best container loading pattern. Baled cargo, like bagged goods, should be stowed using the "cross-tier" method when the dimensional characteristics allow (see paragraph D-13).

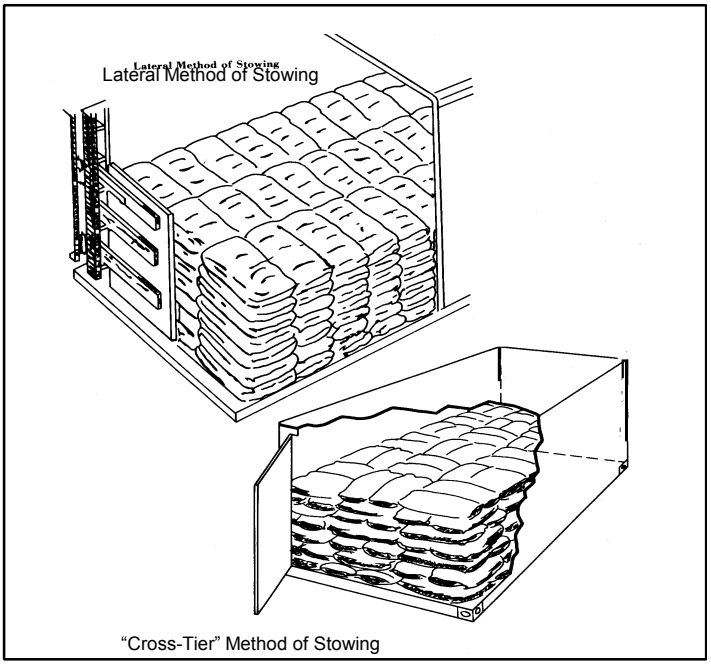


Figure D-10. Lateral and Cross-Tier Stowing Methods

Baled goods must lie flush against the sides of the container. If they do not, voids will exist between the bales. Wedge dunnage materials (rolled-up corrugated fiberboard, polyurethane slabs, and so forth) between the bales when loading to prevent movement and chafing.
Figure D-11, page D-12, shows the proper way to load baled goods in a container.

To stack and brace baled cargo, a platform can be constructed using wood dunnage material or pallets. It should be constructed so the lower bales will butt against at least one-third the height of the upper bales.

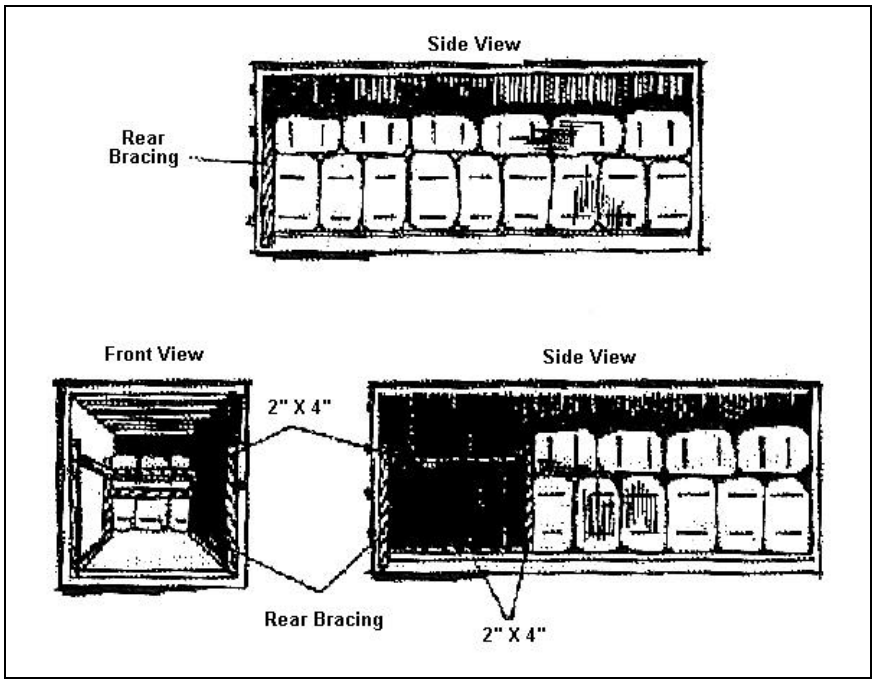


Figure D-11. Stacking and Bracing Baled Cargo

D-15. BARRELS AND DRUMS. Barrels and drums made of metal (such as sheet steel, aluminum, stainless steel, and so forth) are used for the shipping of many commodities. The sheet or body of the drum is usually made of a single sheet of metal with the seam welded or brazed. The components of a drum are shown in Figure D-12, page D-14.

Metal drums are used extensively for shipping such products as acids, greases, lubricants, paints, pastes, pigments, powders, printing inks, red lead, varnishes, certain food products, and similar solids, semisolids, and liquids.

There are three general classes of metal drums, divided according to the weight or gauge of metal from which the drums are made. These classes are:

- Drums made of very heavy metal (16- up to 12-gauge).
- Drums made of light-gauge metal (generally 20- up to 18-gauge).
- Drums made of very light metal (from 28- to 22-gauge).

The latter two classes are generally considered suitable for only one shipment and are designated “one-time shippers” or “single-trip units”. All such drums manufactured under DOT specifications are embossed with the letters STC, single-trip containers, and they may be used only once for the transportation of the dangerous articles for which they are authorized. However, such drums may be reused for the transportation of commodities which are not classified as dangerous, provided the drum itself complies with the requirements. Because of the light gauge and

construction, it is not always economical to do so, and their use should be restricted generally to the one-time shipment.

When dealing with drummed cargo, one of the primary considerations is proper selection of the size, gauge, and style of drum to transport the product as specific commodities are governed by strict regulations as well as the type of drum to be used. This is very important not only for dangerous goods but for all classes of merchandise shipped in drums. One of the major causes of damage to drummed cargo is incorrect selection of the type drum best suited to transport the goods. Keep the following points in mind when stowing drummed cargo in containers:

- Always stow upright.
- Stow drums with bungs uppermost if the bung or closure is at one end.
- Always stow drums with bungs on top.
- Do not re-use single- or one-trip drums. Second-hand drums, unless thoroughly reconditioned and tested, may give trouble either because of dents at the chine or because of previous wear and tear at the closures.
- Use adequate seals on locking levers and sealing rings of open-end drums. Failure of seals may result in accidental opening of covers.
- Be sure the drums are approved for hazardous cargo.
- Do not overload. Drummed cargo tends to be very dense. Be sure the weight of the cargo and dunnage does not exceed the container weight capacity and over-the-road limitations.
- Inspect drums thoroughly before loading. Any drums showing signs of leakage should not be shipped.
- Attach special instructions concerning handling of drums and contents to the container.

Pre-plan the type of stowage pattern, especially if risers are requested. Risers are used to elevate alternate rows of drums to reduce chafing and damage to the drum and drum lid through vibration. Risers are most frequently used with drums having rolling hoops. The elevation of rows will not only reduce the contact of rolling hoops, but will also provide for a tighter stow.

The average internal width of a dry-cargo container is 92 inches. This is important to remember when preplanning the stow. This is especially important if the party stowing the containers is also the one who is responsible for purchasing the drums. For example, to obtain a maximum floor load, the diameter of the drums must be divisible by the internal width of the container with little or no leftover space.

Most drums have rolling hoops. These hoops provide good surface contact when rolling the drums in a horizontal position. The hoops also add strength to the construction of the drum. Hoops are very susceptible to rupture due to friction between drums and dunnage. A material such as fiberboard must be positioned between drums to prevent damage. Rolling hoops also add considerable thickness to the outside dimension of drums.

These additional inches may inhibit maximum container loading. To reduce these added inches and lessen the chances of friction damage, raise alternate rows of drums a few inches by placing longitudinal of horizontal lumber on the floor. This will allow the rolling hoops to ride clear of each other.

To get a maximum stowage pattern, divide the internal width of the container by the diameter of the drums. If the remaining is 0.732 of the drum diameter or greater, the stowage pattern to obtain maximum stowage can be increased by using dunnage to raise every other drum high enough to effectively reduce the overall diameter space needed to place more drums side-by-side. Apply the following process to make this determination:

> Assume the drum's diameter is 24 inches. Dividing 92 (which is the internal width of the container) by 24 = 3.833. At least three drums can be placed side by side, since the remainder is more than 0.732, the space can be worked with to achieve better use of space. If these drums have rolling hoops, it may be possible to load four drums across by raising alternate rows to reduce the effective diameter.

When loading a general-purpose container, position each drum to reduce voids. Drums should be placed upright with the bungs on top and packed tightly. When drums are palletized, they may be secured to the pallet.

When loading drums in a general-purpose container, load them one high and bind them together to create a solid unitized load. Any general cargo which may be available should be stowed on top; otherwise, drums can be loaded two high.

Double tiered loading must always start at the front or nose of the container opposite the doors. In all cases, the bottom tier should be stowed as close to the rear of the container as possible and regardless of the amount of void space, suitable rear bracing must be installed.

There are a number of methods employed when double tiering drums. Before you load, place a vertical timber at each front corner of the container. The timber should be long enough to fit from floor to overhead.

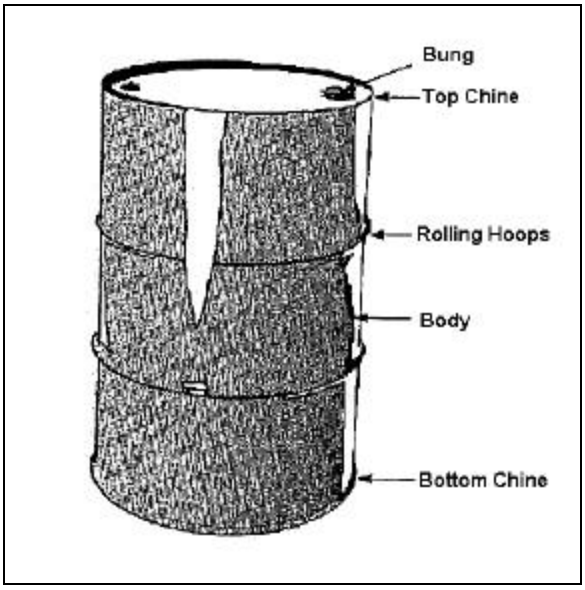


Figure D-12. Components of a Drum

Figure D-13 shows alternative ways to stack drums in a container.

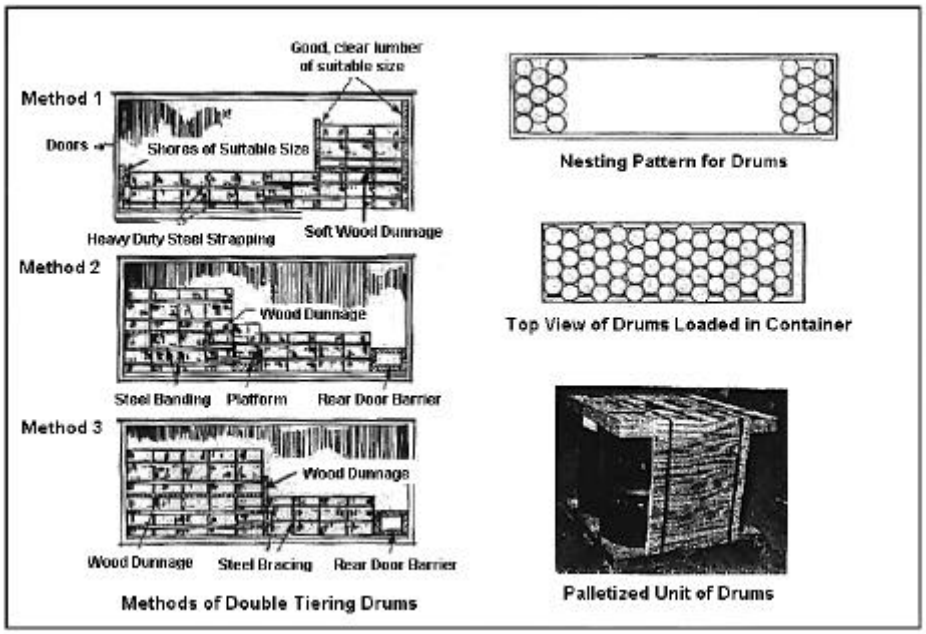


Figure D-13. Methods of Nesting and Double Stacking Drums

Wood dunnage or plywood (minimum 3/8-inch) must be laid on top of the drums of the bottom tier. Pass cargo securing bands around the forward uprights and the drums in the second tier and firmly secure. Place vertical timbers under the bands across the end of the drums to hold them in position in the event of slack. Use staples on the timbers to keep them from slipping down. Nail cross piece, heeled against the bottom of the drums, lengthwise to dunnage if timber is employed between tiers.

Handle pails and fiber drums much the same as regular drums. However, most pails have ridged interlocking chines. When double stacking, dunnage should not be used if the bottom and top rims can interlock. When loading and securing fiber drums, care must be taken not to cut into the drums.

D-16. CARTONS, CASES, AND BOXES. In a general cargo of miscellaneous goods, there is usually a varied assortment of lightweight wooden boxes, cases, and fiberboard cartons of many sizes, weights, and types of construction. Proper stowage of the packages obviously requires careful planning, skillful placing, and good blocking and bracing.

Lightweight cartons of uniform fiberboard pack are probably the easiest of all the different types of cargo to stow. If the cartons are not securely braced, the loads may shift in transit. There is a good chance that some of the cartons in the first two or three tiers will fall out when the doors of the containers are opened. This could cause cargo damage and possible injury to personnel.

The “bonded block” method of stowing shown in Figure D-14 is recommended for boxes containing tightly packed, dense items which support the sides and ends of the pack as each tier binds the tier below it and a whole block is formed into a unit.

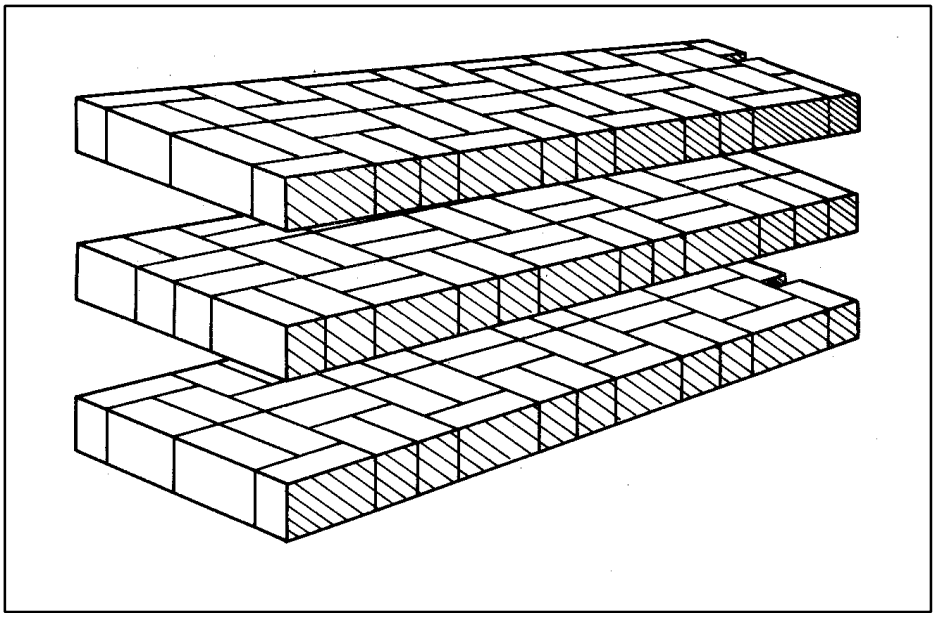


Figure D-14. Bonded Block

Fiberboard boxes containing lightweight or fragile items which provide little or no support to the box surfaces should be stowed by stacking directly one atop the other, keeping gummed flaps uppermost for greatest strength advantage. Always obey label markings (such as, “This Side Up,” or “Fragile”).

Different size cartons, cases, and boxes may often be stowed in the same container. When loading and securing under these conditions, keep similar style packages together and use dividers to segregate the different types. The dividers may be plywood or fiberboard sheets.

When packages do not completely fill the internal container dimensions, load the cargo applying an offset pattern and fill all voids to prevent the goods from moving. Under normal conditions, rolled-corrugated fiberboard or similar material makes an excellent filler.

In most instances the uppermost tier will be incomplete and a plywood barrier or dividers may be used to secure these pieces. If the load does not fully use the entire length of the container, the cargo must be secured and a bulkhead constructed at the rear of the load to prevent fore and aft movement.

Always provide plastic or water-repellent shrouds over the top and sides of the cargo to protect it against water damage. Suitable dunnage or pallets may also be placed on the container floor to provide a sump area protecting the lower tiers from moisture build up or water which may enter the container.

In all instances, a rear barrier should be constructed when the cargo does not fill out the entire length of the container depending on the nature of cargo stow. Rear barriers prevent top-tier cargo from falling out once the doors are open. Never stow heavy goods on top of light goods. Place the heavier items on the bottom and the lighter ones on top.

D-17. WOOD BOXES AND CRATES. Stack boxes or crates of uniform large size and weight directly on top of each other. All void areas must be filled at the top, sides, or ends by the use of partitions or fillers. If large voids are present, block, brace, and tie down the cargo to prevent movement in any direction. When loading groups of crates or boxes of different weights or dimensions, separate each group by partitions, dividers, or auxiliary decking. If this is not possible, place the heavy, dense items on the bottom and the lighter pieces on top. Take care that any concentrated weights in the upper tier are evenly distributed. This is especially applicable when it becomes necessary to stow units of smaller base dimensions over larger ones. When applying bracing material, it is very important that only the strength members of the boxes and crates are used and not the weak points, panels, or sheathing.

D-18. PALLETIZED/UNITIZED CARGO. When you consider alternatives in order to reduce the overall physical distribution costs, palletization and unitization must be considered. These systems can accommodate many products. They can mean faster handling, ease of storage, and greater cargo protection.

Pallets are horizontal platform devices used as a base for assembling, storing, and handling goods in a unit load. They can be made from wood, metal, fiberboard, plastics, or a combination of these materials. Unitization may be defined as the assembling to one or more items assembled into a compact load, secured together, and provided with skids and cleats for ease of handling.

Palletization and unitization offer many advantages to the shipper, carrier, and consignee. They require material-handling equipment which will reduce the normal handling damage hazard. They also have the following advantages:

- Eliminate the multiple handling of individual items.
- Save on labor costs.
- Reduce pilferage and theft.
- Permit greater use of space.
- Reduce lost or strayed items.
- Speed loading and unloading of trailers, boxcars, intermodal containers, barges, ships, and aircraft.
- Eliminate wasteful packaging.
- Offer freight allowances granted by many steamship lines when the pallet load, shipped as a separate item, conforms to specifications.

Under normal conditions the weight of the pallet load should be limited to 3,000 pounds for non-NATO shipments and 2,500 pounds for shipments to NATO forces. Another important point which must be considered when palletizing or unitizing cargo for offshore markets is the availability of proper handling equipment at the unloading point.

Follow these steps to palletize cargo:

- *Step 1*. Assemble the individual units on a pallet base or place wood, wire bound, or fiberboard consolidation containers on the pallet and fill them with cargo.
- *Step 2*. Load items flush with the pallet sides.
- *Step 3*. Ensure cargo does not overhang the pallet.
- *Step 4*. Use the size of pallet most suitable for best use of space in the container.
- *Step 5*. Secure all items tightly and firmly on the pallet using both horizontal and vertical strapping.
- *Step 6*. Use adhesives or rough dunnage paper between fiberboard sections to unify the pallet load.

Plastic shrink wrap can also be used to secure the load to the pallet. The shrink wrap packing method can provide great savings and convenience to the shipper.

When the pallet loads are to be stacked, provide protection on the top of the pallet load by using a lumber, plywood, or fiberboard "cap". Water protection can be applied to the pallet load by:

- Using plastic stretch wrap over the entire load.
- Using plastic shrink wrap over the entire load.
- Using a consolidation pack.
- Applying a waterproof paper over wrap.

When containerizing palletized cargo, be sure the cargo is well secured to the pallet. Under no circumstances should the cargo overhang the pallet. If possible, pallets should be manufactured to fit one-half the internal width of the container. This will ensure a rigid stow and reduce the amount of blocking and bracing material required when the pallets are loaded side-by-side in the container. Pallet loads may also be stowed alongside the sides of the container and any void spaces filled or chocked. When loading unitized cargo, as well as any other type merchandise, the weight of the cargo should not be depended on to keep the stow from moving about.

After all the pallets are loaded, vertical or horizontal cross braces must be firmly fitted against the end pallets to prevent any movement of the pallets while in transit as well as to keep them from tumbling out of the container when the doors are opened. Set the rear braces against the corner posts, upper door frame, bottom and topside rails, or secured by floor cleats nailed into the container floor.

D-19. MACHINERY AND HEAVY END ITEMS. These loads must be carefully pre-planned. Not only might they be irregular in shape, but high-density components may reach the weight capacity of the container or the highway limitations imposed by the individual states or countries that the container may have to transit. Ensure that heavy cargo is securely braced and blocked on all sides to prevent any lateral or lengthwise motion, since its concentrated weight will cause major damage if the load shifts.

All blocking, shoring, and bracing must bear on a structural member of the container and not on the panel sides of the container alone. Some heavy cargo requires dunnage to distribute the weight over a larger area of the container floor. Use of flatracks may eliminate this requirement. In some instances, extremely dense items may need to be lashed or bolted to the container floor. This should not be done without approval of the carrier.

D-20. VEHICLES. The method of securing vehicles in containers depends on the type and size of the vehicle being shipped. MTMCTEA Pamphlet 96-55-23 provides guidance on securing vehicle in containers. Many vehicles will have to be reduced in their width and height dimensions IAW applicable publications or be loaded on military flatracks that have been loaded in containership cells to form a deck. Vehicles should be backed into containers to expedite unstuffing operations at destination. Smaller vehicles can be pushed into the container once batteries are disconnected and cables are taped.

Unless otherwise specified in the port call instructions, fuel tanks must be drained prior to loading so that the tank is no more than 1/4 full. In an emergency deployment, this requirement may be waived, but prior coordination must be made with MTMC through the installation transportation officer before any vehicles are stuffed into containers. Once in place inside the container, vehicles should be placed in gear or park and the hand brake set. Chock block assemblies (of three or more pieces) should be constructed to prevent forward, lateral, and rearward movement. Position and nail chock block assemblies in front of the front tires, in the back of the back tires, and on the sides of tires as required (see also MTMCTEA Pamphlet 96-55-23). The chock block assemblies prevent forward, rearward, and lateral movement.

Trailers should be backed into the container with landing legs raised and lunettes placed on shoring nailed to the container floor. Position and nail chock block assemblies in the front and rear of one tire on each axle. The chock block assembly constructed of three or more pieces prevents forward, backward, and lateral movement. Tie-down straps should be affixed to the front of the trailer, stretched across the lunette, and secured to tie-down rings in the container.

D-21. PREPARATION, SECURING, MARKING OF MATERIEL STUFFED IN CONTAINERS AND SEALING OF CONTAINERS. All stenciling, color coding, and banding of the outside boxes should be done in waterproof paint or ink. Felt tip marking pens should never be used in place of stencils. The size of stencil characters should be commensurate with the size of the container. Legends and descriptions should be applied to two sides of the package and be complete with all information stipulated under "Marks" in the purchase order, as well as package numbers, which preferably are to be larger than the stencil markings. The numbers must also be consecutive and not duplicative.

Weights and dimensions should be shown on adjacent sides of the package. In all instances, dimensions must be shown in order of length, width, and height. Weights and dimensions shown on the package must conform to the details appearing on the packing lists. Markings should never be covered by strapping material. After each container has been stuffed, responsible personnel will:

- Review packing list of materiel (for example nomenclature and quantity) stuffed in container and then legibly write the name of the person who supervised the stuffing of the container.

- Place a copy of packing list in a weatherproof envelop and securely adhere the envelop to materiel facing the doors that will be closed and sealed.
- Ensure the doors are securely closed and check to see if doors are sufficiently watertight.
- A seal has been placed on the container.
- The seal number has been recorded.
- The shipping documents and the proper markings have been placed on the container IAW MILSTAMP and MIL-STD 129.

APPENDIX E

CONTAINER CHARACTERISTICS AND TYPES

This appendix provides an overview of the various types of containers available for Army use. Units should realize that in addition to the EDSS family of containers the 20-foot ANSI/ISO container is the standard for unit equipment deployment. Units also interested in procuring ANSI/ISO containers may only purchase 20-foot versions. Procurements must be coordinated through the JTMO.

E-1. STANDARDS AND SPECIFICATIONS. The key to intermodalism and use of intermodal containers is the establishment and compliance with commercially approved common standards. These serve to ensure interoperability in the movement of containers between modes and countries. They increase efficiency and effectiveness and foster a seamless flow of cargo.

E-2. INTERNATIONAL STANDARDS. The International Organization for Standardization develops and maintains a series of standards for international freight containers and equipment. The standards ensure that size, structural capabilities, and interoperability are maintained internationally. Table E-1, page E-2, provides a listing of ANSI/ISO documents relating to intermodal containers.

ANSI/ISO Technical Committee 104 handles all matters related to freight containers. It has three subcommittees which address specific aspects of general purpose containers. These areas are: dimensions and structural requirements, special purpose containers, and identification and communication (marking and coding, automatic equipment identification, (EDI)).

The US participates in ANSI/ISO under the sponsorship of the American National Standards Institute. ANSI has established Technical Advisory Groups to form consensus positions. DOD participates in ANSI/ISO Technical Committee 104 (TC 104) through the ANSI Technical Advisory Group to ANSI/ISO TC 104. Both the Tank Automotive Research Development and Engineering Center and the MTMC, Transportation Engineering Agency, are members of this group. ANSI delegates attend ANSI/ISO meetings and participate in developing international containerization standards and advancing US interests.

Since there are no established international standards for transportation systems as a whole and because transportation networks vary from country to country, departures from ANSI/ISO standardization occur. Examples of variance in networks include clearances, axle loading, track curvature, and speed limits. Therefore, commercial international intermodal practices adapt to the regional infrastructure. This is also true for military operations involving strategic deployment and sustainment that use intermodal containers. Theater infrastructure and the commercial and military force structure required to support intermodal operations are primary considerations in deciding where and when intermodal containers may be employed.

The Carriage of Dangerous Goods subcommittee of the IMO publishes and maintains the IMDG Code. The code specifies requirements for containers used for carrying hazardous materials, including ammunition and other military explosives. The IMDG requirements are more restrictive

than the International Convention for Safe Containers' requirements. A decision by the Research and Special Programs Administration, adopted many parts of the IMDG Code into Federal regulation. Of particular interest to the Army is Subpart 176.172 of the regulation which specifies the structural serviceability requirements for freight containers used for shipping Class I (explosives) aboard a ship.

Table E-1. ANSI/ISO Document for Freight Containers

ANSI/ISO DOCUMENTS FOR FREIGHT CONTAINERS	
1496-1	Series 1 Freight Containers - Specifications and Testing - Part 1: General Cargo Containers for General Purposes
1496-2	Series 1 Freight Containers - Specifications and Testing - Part 2: Thermal Containers
1496-3	Series 1 Freight Containers - Specifications and Testing - Part 3: Tank Containers for Liquids, Gases, and Pressurized Dry Bulk
1496-4	Series 1 Freight Containers - Specifications and Testing - Part 4: Non-Pressurized Container for Dry Bulk
1496-5	Series 1 Freight Containers - Specifications and Testing - Part 5: Platform and Platform Based Containers
1496-6	Series 1 Freight Containers - Specifications and Testing - Part 6: International Cargo - Security Devices
668	Series 1 Freight Containers - Classification and Dimensions, and Ratings
830	Freight Containers - Terminology
2308	Hooks for Lifting Containers up to 30 Tons Capacity - Basic Requirements
1161	Series 1 Freight Containers - Corner Fittings, Specifications
3874	Series 1 Freight Containers
6346	Series 1 Freight Containers - Coding, Identification, and Marking
9897	Freight Containers - Container Equipment Data Exchange

E-3. STANDARDIZATION AGREEMENTS. Certain provisions of this FM are the subject of NATO standardization agreements. They are: STANAGs 2828 (Military Pallets, Packing and Containers); 2829 (Material Handling Equipment); 2926 (Procedures for the Use and Handling of Freight Containers for Military Supplies); 2998 (Materials Handling Glossary of Terms and Definitions); and 4062 (Slinging and Tie-Down Facilities for Lifting and Tying Down Military Equipment for Movement by Land and Sea). The aim of NATO standardization is to increase interoperability and interchangability of materiel and to improve the combined operational effectiveness of the military forces of the Alliance.

E-4. UNITED STATES STANDARDS. Domestic regional intermodal systems develop in response to commercial competition. For example, large US domestic trade volumes have resulted in container transport systems geared to that traffic. Non-ANSI/ISO standard domestic containers were developed to take advantage of increases in allowable highway transport size. US domestic commercial standard containers are generally 48 and 53 feet in length, 8 feet wide, and 8 feet or higher.

Federal standards for intermodal containers are enforced by US laws, rules, and regulations. These often adopt or enact international agreements, conventions, laws, or regulations for the US. The Army must maintain DOD-owned intermodal containers to ANSI/ISO standards IAW US laws and regulations to ensure compatibility and interoperability with the commercial intermodal transportation system. In 1980, the US enacted the International Safe Container Act. The act implements the International Convention for Safe Containers that the US ratified in 1978. The USCG promulgates regulations implementing the act in Title 49, CFR, Parts 450-453.

The USCG can delegate approval authority that containers meet the standards to persons and organizations (who are independent of the influence of container owners), manufacturers, operators, and/or container lessors. A container must be affixed with a CSC safety approval plate confirming its structural serviceability to be used in international transport.

Federal regulations describe general requirements for container inspections, but do not include detailed inspection criteria. Voluntary industry groups, such as the Institute of International Container Lessors, have translated the general CSC requirements into specific inspection criteria to ensure safety in commerce.

Other international standards and Federal regulations also address container condition and set forth additional requirements particularly for Class I explosive materials. The IMO, a specialized agency of the UN, promotes safety in shipping and the prevention of maritime pollution from ships. The US, with technical expertise provided by the USCG, participates in IMO on the Department of State's Shipping Coordinating Committee. The USCG and the RSPA represent the DOT at IMO subcommittee sessions. The DOT Office of Hazardous Materials Safety is part of RSPA.

E-5. MILITARY SPECIFICATIONS FOR CONTAINERS. The following are descriptions of MILSPECs for dry cargo and refrigerated containers:

- MIL-C-52661. Containers, Cargo. This specification covers nominal 20 foot containers for transportation, distribution, and storage of military supplies.
- MIL-C-52788. Container, Refrigerated (8- x 8- x 20-foot) Insulated. This specification covers a nominal 20-foot (length) container equipped with a 9,000 BTU per hour electric motor-driven refrigeration unit powered by a self-contained 10-kW diesel engine generator or external power source.

E-6. CONTAINER SIZES AND TRENDS. Container dimensions and capabilities vary dramatically, depending upon the manufacturer and the target customer. The majority of containers conform to ANSI/ISO specifications. Table E-2, page E-4, shows the characteristics of the ANSI/ISO 20-and 40-foot containers. These standards allow for some variance. External dimensions are required dimensions; however, internal dimensions and the door opening size are minimum dimensions.

The inventory of US-owned commercial containers continues to grow dramatically. The Maritime Administration's Office of Port and Intermodal Development, which monitors US ownership, estimated this inventory to be approximately 1.8 million containers and 2.6 million TEUs in 1989. Table E-3, page E-4, provides an example of this growth for the period 1990 to 1991.

Table E-2. ISO Standard Characteristics

Dimensions (inches)		20-foot ISO	40-foot ISO
Internal	Length	230.9	472.3
	Width	91.7	91.7
	Height	*	*
External	Length	238.5	480
	Width	96	96
	Height	96 and 102	96 and 114
Door	Width	90	90
	Height	83.5-89.5	83.5-101.5
Max Gross Weight		52900 pounds	67200 pounds
* Maxium internal height is external height minus 9.5 inches			

Table E-3. Trends in US-Owned Commercial Container Fleet

Container Type	1990 QTY	1991 QTY	Percent Change
20' ISO Box	833,042	849,765	2
40' ISO Box	618,966	751,721	21.5
20' Side-Opener	446	1,340	200.5
20' Flatrack	18,728	19,607	4.7
40' Flactrack	14,002	21,073	50.5
20' Reefer	18,739	22,510	20.1
40' Reefer	42,225	54,073	28.1
20' Open Top	30,643	35,584	16.1
40' Open Top	17,948	21,363	19
20' Half Height	1,193	971	-18.6
20' Tank	5,914	2,948	-50.2
40' Tank	53	53	0
TOTAL Containers	**1,603,889**	**1,782,999**	**11.2**
TOTAL TEUs	**2,289,073**	**2,626,237**	**14.7**

Having to containerize increasing volumes of goods, customers have sought containers of increased height, length, and width. Containers with the original ANSI/ISO external height of 8 feet are generally being replaced by containers measuring 8 1/2 feet high. Also increasing numbers of containers of 45-, 48-, 53-feet lengths have been brought into domestic service within the United States, Canada, and Mexico.

Because of incompatibility with most ship cells, these longer units (particularly the 45 and 53 footers) have generally been considered a domestic asset. Forty-eight footers, 8 feet wide, are becoming popular on some international routes, with the servicing carriers moving these assets either in specially modified holds or above deck.

Despite this trend of volumetric growth, the majority of the US-owned standard dry cargo container fleet remains 20-and 40-foot units with each type continuing to grow as shown in Table E-3. Currently, the US-owned container fleet is essentially equally divided in number between 20-and 40-foot units. This means that approximately two-thirds of the total standard dry cargo carrying capacity is in 40-foot units. Only the 20-foot ANSI/ISO container will be used for the movement of ammunition (Class V). DOD will no longer procure 40-foot containers. The 20-foot container is the container of choice whenever it meets mission requirements. Commercial industry may use 40-foot containers to move all classes of supply (less Class V) and unit equipment subject to theater reception and onward movement capabilities. The Army force structure must be prepared to handle both 20-and 40-foot ANSI/ISO containers.

While it is necessary for DOD to monitor trends in the quantity of commercial containers, the truly important factor to the defense planning community is the availability of these assets. Worldwide economic conditions dictate the number and location of containers which are available for DOD use. A key factor in determining availability is the quantity of lessor-owned containers not already under lease to a DOD shipper or ocean carrier (and hence available for lease by DOD). This quantity, expressed as a percentage of all lessor-owned containers, is referred to as the “off-hire rate.” Its value depends largely on the balance of trade, favorable balance of trade will increase the demand for containers for overseas shipment, decreasing the number of off-hire (available) containers within the US.

Off-hire rates can vary considerably by container type. Specialty containers, such as refrigerated units, flatracks, and open containers, often have a higher use rate (lower off-hire rate) than standard dry ANSI/ISO units. In recent years, a specific market niche has been established for the standard 20-foot dry box (serving geographic regions and customers with less intense shipping requirements and lesser developed infrastructures). The off-hire rate for these commercial assets has also generally decreased in recent years.

E-7. CONTAINER TYPES. A sample of container types are depicted in Figures E-1 through E-7. They include both military and commercial intermodal marine containers, most of which are identical in nature.

E-8. ANSI/ISO END OPENING COMMERCIAL. The commercial 20-foot end-opening container can be used to transport munitions or general cargo. The door end corner posts are modified with angle iron to enhance blocking and bracing. As there is no permanent restraint system, wooden blocking and bracing is used to restrain munitions.

End-opening dry cargo units are the most common intermodal containers in the inventory (see Figure E-1). They are DOD-owned and available for lease or purchase from commercial sources. End-opening containers come in various lengths. DOD uses only 20- and 40-foot lengths. DOD owns several container types which fit into this category. All MILVANs and ANSI/ISO end-opening containers can be readily transported by most military and commercial CHE.

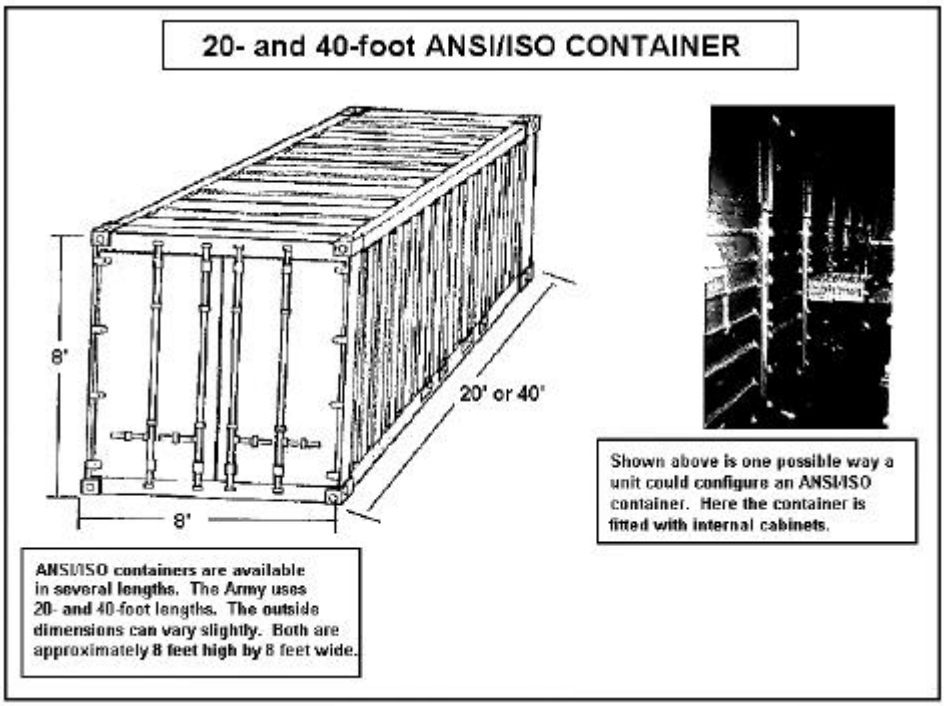


Figure E-1

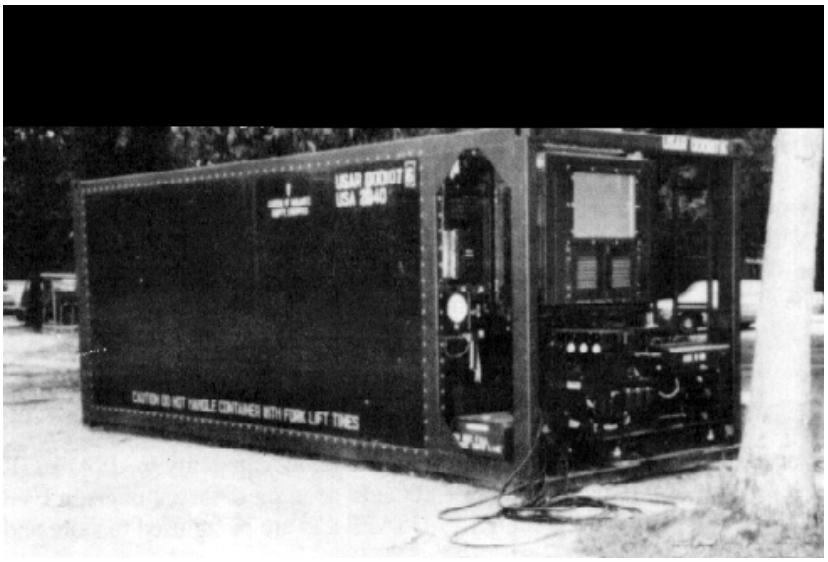
E-9. MILVAN. The Ammunition Restraint MILVAN is made of steel, with wood flooring and walls and is capable of transporting 39,015 pounds of ammunition. The tare weight of this MILVAN is 5,785 pounds. The total gross weight per MILVAN is 44,800 pounds. It has an internal restraint system of eight slotted steel rails permanently installed on each side wall with 25 adjustable crossbars that can be inserted into the slots.

The General Cargo MILVAN container is made of steel, with hardwood flooring and plywood lined walls and is capable of transporting 40,100 pounds of general cargo. The tare weight of this MILVAN is 4,700 pounds. The total gross weight per MILVAN is 44,800 pounds.

MILVANs are still in use today. In 1989 there was a procurement for 1,160 of the ammunition restraint MILVANs. The older ones are gradually being phased out of the system and replaced by commercial containers. The CADS now uses Army-owned and leased standard 20-foot ANSI/ISO containers.

E-10. REFRIGERATED CONTAINER. REEFERs are owned by DOD and are available through commercial sources (see Figure E-2). They provide the capability to transport, temporarily store, and distribute temperature-sensitive cargo such as food or blood. Military-owned REEFERs include a refrigeration unit with a 10-kW generator. They can be plugged into an external power source or run off of their own generators. Most ships are equipped with a power source into which the containers can be plugged. Commercial REEFERs are available with their own generator installed in the front wall of the container with the refrigeration unit. Some commercial REEFERs are plugged into a separate generator which fits into an adjoining container cell. REEFERs have the outer dimensions of ANSI/ISO containers and meet all ANSI/ISO requirements for intermodal shipments.

REFRIGERATED CONTAINER (REEFER)

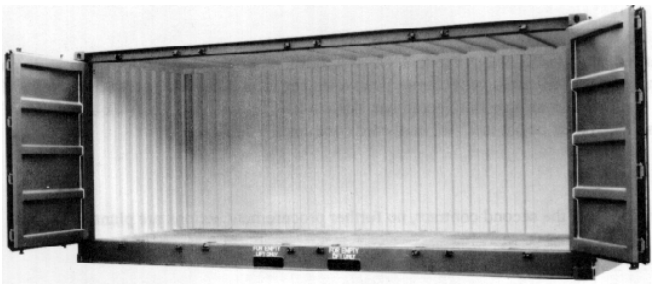


REEFERs come in a variety of different lengths. The Army only uses 20- and 40- foot lengths. A 20-foot REEFER would be 8' wide by 8 feet high. The one pictured here has its' own generator system installed in the nose of the container with the refrigeration unit.

Figure E-2

E-11. SIDE-OPENING CONTAINER. Twenty-foot side-opening containers are DOD-owned and are available through commercial sources (see Figure E-3, page E-8). They are ANSI/ISO containers with two double doors located on one side. These doors open to allow easy access to the container's contents. The side-opening container can be lifted and transported by commercial and military conveyances. Military versions have internal tie-down rings which can be used to secure cargo during shipment. The military often uses side-opening containers for transporting munitions.

20-FOOT SIDE-OPENING CONTAINER



Side-opening containers have the same dimensions as the 20-foot end opening ANSI/ISO container. The Air Force is procuring side-opening containers to use as their standard munitions container.

Figure E-3

E-12. OPEN TOP CONTAINER. The open top container is used primarily by commercial industry to transport cargo items that are too large and bulky for standard containers. An open top container can be stuffed from the top, or one end can be opened and it can be stuffed from there. It has ANSI/ISO standard corner fittings at the top and bottom and commercial and military handlers and conveyances can readily lift and transport it. Open top containers require tarpaulins for cover during shipping and storage. Open top containers cannot be used for sensitive items requiring high security and may also have agricultural restrictions.

E-13. HALF-HEIGHT CONTAINER. Half-height containers are DOD-owned and are available through commercial sources (see Figure E-4). They have the footprint of an ANSI/ISO container with ANSI/ISO standard structural members and corner fittings. They are approximately half the height of a standard end-opening container. They have fixed sides, an open top, and one drop-end opening. Material is accessible by either materials-handling equipment or crane. Tarpaulins accompany the containers for cover during shipping and storage. These containers are useful to ship drummed oils and lubricants.

E-14. TANK CONTAINER. Commercial tank containers are 8 and 1/2 feet in length and are used to haul liquids, gases, and dry bulk cargo. They can be pressurized or non-pressurized. Prototypes of military PLS compatible ANSI/ISO bulk tank containers are being developed. They can be used for intermodal transport of liquids such as Class III and other liquids and gases. They are a half height design. These containers will be available through DOD and commercial sources.

HALF-HEIGHT CONTAINER

The 20-foot half-height container used by the Army is 20" x 8' x 4' 3". The Army uses the half-height container primarily to ship ammunition having a high weight to volume ratio such as 155mm projectiles.

Figure E-4

E-15. EQUIPMENT DEPLOYMENT AND STORAGE SYSTEM. EDSS containers are designed to support unit deployments. This category includes QUADCON, TRICON, and ISU containers. QUADCONs and TRICONs are primarily for ground and sea transport and Internal Airlift/Helicopter Slingable Container Units are intended for air transport (see Figure E-5, page E-11). All are available in multiple configurations including different doors, internal shelves, and dividers. ISUs are not covered by ANSI/ISO specifications and are not to be used for marine transport in ANSI/ISO 20- and 40-foot configurations. If transported via ship, they would be carried as secondary loads.

a. **QUADCON**. QUADCONs are not a common-use asset. They are unit-owned military containers. They were first used as part of the Marine Corps Family of Intermediate Size Containers. Other Services plan to procure QUADCONs in the near future. These are available to Army units as CTA 50-900 items. The QUADCON is fast becoming the primary EDSS container for surface movements. The QUADCON has ANSI/ISO corner fittings to allow for coupling of the QUADCONs into arrays of up to four units. An array of four QUADCONs has the same external length and width as a 20-foot ANSI/ISO container and is designed to be lifted as a 20-foot unit and/or moved as a 20-foot unit in ocean shipping. The QUADCON is certified to meet all ANSI/ISO standards and CSC approvals. Each has four-way forklift pockets and lockable double doors on each end that provide full access to the contents. To accommodate smaller items, a small item storage cabinet can be installed or removable inserts may be placed as shelves inside the QUADCON.

b. **TRICON.** TRICONs are not a common-use asset. They are military containers owned by the Army and the Navy. Like QUADCONs, they are lockable, watertight, and made of steel construction. TRICONs have standard ANSI/ISO corner fittings and 3-way forklift pockets on the side and back. The TRICON has ANSI/ISO corner fittings to allow for coupling into arrays of up

to three units. An array of three TRICONs has the same external length and width dimensions as a 20-foot ANSI/ISO container and is designed to be lifted as a 20-foot unit in ocean shipping. Two styles of containers have been procured: bulk and configured. Bulk containers do not have drawers, shelves, or rifle racks. Configured containers consist of cabinets with drawers, shelves, rifle racks, or a combination thereof.

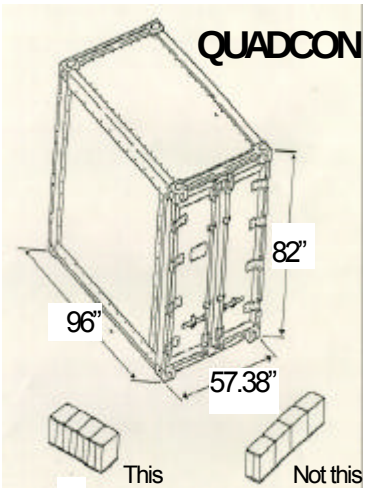
c. **ISU-60, -90, and -96.** The ISU containers provide weather resistant storage and transport but do not meet ANSI/ISO structural standards. CSC restrictions do not apply to containers specially designed for air transport; however, they are certified for internal or external helicopter transport and for all AMC transport aircraft. If transported aboard a ship, they would be carried as secondary loads. A number of these units have been procured by US Army Airborne and Air Assault units. The ISU-96 is a refrigeration model used primarily to transport medical supplies.

E-16. FLATRACKS. Flatracks are owned by DOD or are available through commercial sources. Figure E-6, page E-12, shows both commercial and PLS flatracks . Flatracks enable containerships to transport bulky items such as lumber, steel products, and piping (regular flatrack) and heavy or outsized cargo such as tanks and armored vehicles (heavy-duty flatrack). The flatrack is a structural steel frame, decked over and fitted with tie-down points. One can be used as an individual intermodal container unit or several can be placed side-by-side in a container cell to create a false deck. Some flatracks have corner posts while others have end walls. The corner posts/end walls on most flatracks fold down to facilitate stacking and storage.

The military flatracks come in three sizes: 20-, 35- and 40-foot. Twenty-foot flatracks are PLS compatible. They are used to carry light items that do not fit into a 20-foot container. The 35-footer is used exclusively on FSS. There are three types of heavy duty flatracks (the Titan, the Denardi, and the Phillips). The Titan is equipped with telescoping corner posts adjustable from 102 to 162 inches for various cargo heights. The Denardi and the Phillips have fixed corner posts 156 inches high. Corner posts of all three types fold to facilitate stacking and storage. These flatracks were designed for over-ocean movement and have height restrictions when used in highway/rail transport roles.

E-17. CONTAINER ROLL OFF PLATFORM. The CROP is a PLS flatrack that fits inside an ANSI/ISO standard 20-foot container. Figure E-7, page E-13, shows a PLS truck pulling a CROP out of a 20-foot container. The CROP is similar in function to the standard M1077 PLS flatrack except its dimensions: the CROP is 91.5” wide and 230” long so it fits securely inside the ANSI/ISO container. A benefit of using the CROP is that of external protection of ammunition verses tarps. The CROP does not require additional blocking and bracing or materials and only the PLS truck is required to unload in the CSA. Once the CROP is unloaded in the CSA from its ANSI/ISO container, only the CROP flatrack must move forward to ammunition supply/transfer points.

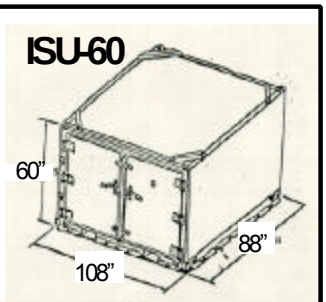
EQUIPMENT DEPLOYMENT STORAGE SYSTEMS (EDSS) INCLUDES QUADCONs, TRICONs, ISUs

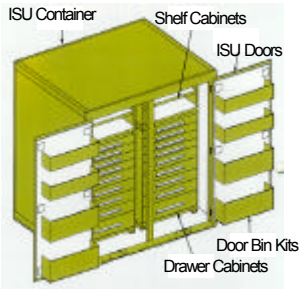


Four joined together become a 20-foot ISO container

Three joined together become a 20-foot ISO container

ISUs are 463L compatible, transportable in C-130 & CH 47 aircraft, external air transport certified, and can be picked up with a forklift. They offer access to cargo from opposite side doors and are weatherproof. They can be fitted with removable bins and drawers as shown below. A reefrigerated version, not pictured is also available in an ISU-96 size (108”x88”x96”). They are not ANSI/ISO compatible.





Example of an ISU fitted with interior shelves to better utilize and organize the space.

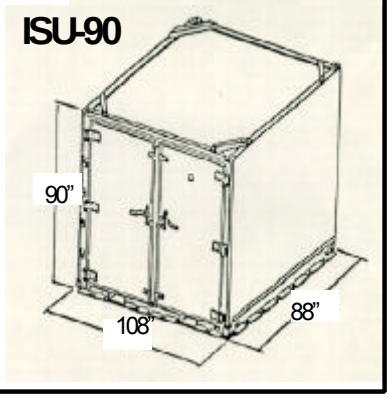


Figure E-5

20-FOOT PLS MILITARY FLATRACKS

General Purpose ISO compatible
M1 Flatrack

M1 Flatrack w/ sideboards

M1 Flatrack w/ wall down
(Both walls fold down)

These flatracks are transported by PLS vehicles. They differ from the CROP. A CROP fits inside of the container. These flatracks do not.

PLS can transport up to 16.5 Tons

M1077 & M1 Flatracks on PLS

FLATRACK	
LENGTH	238.5”
WIDTH	96”
HEIGHT	82”

Figure E-6

CONTAINER ROLL-IN/ROLL-OUT PLATFORM (CROP)

The CROP is a flatrack that fits inside a 20-foot ANSI/ISO Container. Its' primarily intended to be used to carry Class V. It can be used to carry all classes of supply. The CROP is unstuffed from the container at corps or higher and only the CROP is transported to forward locations.

Figure E-7

APPENDIX F

DEPARTMENT OF DEFENSE FORMS

This appendix contains sample copies (reduced to fit on page) of Department of Defense forms that are authorized for local reproduction. You may request these forms through appropriate distribution channels. The forms are as follows:

DD Form 836	Shipping Paper and Emergency Response Information for Hazardous Materials Transported by Government Vehicles
DD Form 1384	Transportation Control and Movement Document
DD Form 1385	Cargo Manifest
DD Form 1386	Ocean Cargo Manifest Recapitulation or Summary
DD Form 1387	Military Shipment Label
DD Form 1387-2	Special Handling Data/Certification
DD Form 1750	Packing List

SHIPPING PAPER AND EMERGENCY RESPONSE INFORMATION FOR HAZARDOUS MATERIALS TRANSPORTED BY GOVERNMENT VEHICLES

THIS VEHICLE IS TRANSPORTING HAZARDOUS MATERIALS

1. DATE PREPARED	2. DATE OF TRAVEL	PAGE 1 OF 1 PAGES
Fort Lee, 1 June 1997	2 June 1997	

TO BE COMPLETED BY THE UNIT OR SHIPPER T.O. OFFICE. IF A CONTINUATION SHEET IS ATTACHED, X THIS BOX ⟶

3. CARGO

PACKAGES NUMBER a.	PACKAGES KIND b.	PROPER SHIPPING DESCRIPTION c.	TOTAL WEIGHT d.	NET EXPLOSIVE QUANTITY e.
1	BOX	Rocket Motors, 1.1C, UN 0280, PG II	100 lbs	1.90
2	PKG	Stannic Phosphide, 4.1, UN 1433, PG I	20 lbs	1.00

SAMPLE

4. EMERGENCY NOTIFICATION. IN ALL CASES OF ACCIDENT, INCIDENT, BREAKDOWN OR FIRE, PROMPT NOTIFICATION MUST BE GIVEN TO *(List 24-hour telephone numbers)*:

a. SHIPPER	b. CONSIGNEE	c. ADDITIONAL NOTIFICATION
240th QM BN 734-XXXX	Fort Eustis, VA	None

FOR SAFE HAVEN/REFUGE, IMMEDIATELY CALL APPROPRIATE MTMC AREA HOTLINE LISTED BELOW:

EASTERN UNITED STATES: 1-800-524-0331 WESTERN UNITED STATES: 1-800-435-4566

NEW JERSEY ONLY: 1-800-642-1381

24-HOUR EMERGENCY ASSISTANCE TELEPHONE NUMBERS:

DOD NON-EXPLOSIVE HAZARDOUS MATERIALS ONLY: 1-800-851-8061 TO CALL FROM A SHIP AT SEA USE: 804-279-3166	DOD HAZARD CLASS 1 (EXPLOSIVES) ONLY CALL ARMY OPERATIONS CENTER - COLLECT 703-697-0218/0219 ASK FOR THE WATCH OFFICER	NATIONAL RESPONSE CENTER (NRC) 1-800-424-8802 TO CALL FROM A SHIP AT SEA USE: 202-267-2675 DOD RADIOACTIVE MATERIAL ONLY - COLLECT: 309-782-3510 ASK FOR STAFF DUTY OFFICER

FOR EMERGENCY RESPONSE INFORMATION, SEE BACK OF THIS FORM.

5. REMARKS

6. CERTIFICATION

THIS IS TO CERTIFY THAT THE ABOVE NAMED MATERIALS ARE PROPERLY CLASSIFIED, DESCRIBED, PACKAGED, MARKED, AND LABELED, AND ARE IN PROPER CONDITION FOR TRANSPORTATION ACCORDING TO THE APPLICABLE REGULATIONS OF THE DEPARTMENT OF TRANSPORTATION.

a. SIGNATURE OF SHIPPER REPRESENTATIVE	b. SIGNATURE(S) OF VEHICLE OPERATOR(S)
[illegible]	Scott M. Kettelman

DD FORM 836, JUL 96 PREVIOUS EDITION IS OBSOLETE.

EMERGENCY RESPONSE INFORMATION

Guide Numbers 46 and 50 from the U.S. Department of Transportation Emergency Response Guide Book P 5800.6 are reproduced hereon. These guides are applicable to Hazard Class 1 Materials (Explosives).
Mark an X in the appropriate box:

[ ] USE GUIDE 46 FOR EXPLOSIVES: (1.1), (1.2), (1.3), (1.5) AND (1.6)

[X] USE GUIDE 50 FOR EXPLOSIVES: (1.4)

For all other hazardous materials or substances, annotate appropriate Emergency Response Guide Book Guide Number in the block below, and attach a copy of the guide number page or pages.

GUIDE NUMBER(S):

GUIDE 46 (ERG 93)

POTENTIAL HAZARDS

FIRE OR EXPLOSION:
MAY EXPLODE AND THROW FRAGMENTS 1 MILE OR MORE IF FIRE REACHES CARGO.

HEALTH HAZARDS:
Fire may produce irritating or poisonous gases.

EMERGENCY ACTION

IF FIRE REACHES CARGO, DO NOT FIGHT FIRE.

IF YOU KNOW OR SUSPECT THAT HEAVILY-ENCASED EXPLOSIVES, SUCH AS BOMBS OR ARTILLERY PROJECTILES ARE INVOLVED, STOP ALL TRAFFIC AND BEGIN TO EVACUATE ALL PERSONS, INCLUDING EMERGENCY RESPONDERS, FROM THE AREA IN ALL DIRECTIONS FOR 5000 FEET (1 MILE) FOR RAIL CAR OR 4000 FEET (3/4 MILE) FOR TRACTOR/TRAILER.

WHEN HEAVILY-ENCASED EXPLOSIVES ARE NOT INVOLVED, EVACUATE THE AREA FOR 2500 FEET (1/2 MILE) IN ALL DIRECTIONS.

Positive pressure self-contained breathing apparatus (SCBA) and structural firefighters' protective clothing will provide limited protection.

CALL Emergency Response Telephone Number on Shipping paper FIRST. If Shipping Paper NOT AVAILABLE or NO ANSWER, CALL CHEMTREC AT 1-800-424-9300.

FIRE
Cargo Fires: DO NOT FIGHT FIRE WHEN IT REACHES CARGO. Withdraw from area and let fire burn.

Truck and Equipment Fires: Try to prevent fire from reaching the explosive cargo compartment. Flood with water; if no water is available use Halon, dry chemical or earth.

Promptly isolate the scene by removing **ALL PERSONS** from the vicinity of the incident if there is a fire. First, move people out of line-of-sight of the scene and away from windows. Then, obtain more information and specific guidance from competent authorities listed on the shipping papers.

SPILL OR LEAK
Shut off ignition sources; no flares, smoking or flames in hazard area.
Do not touch or walk through spilled material.

FIRST AID
Call emergency medical care.
Use first aid treatment according to the nature of the injury.

SAMPLE

GUIDE 50 (ERG 93)

POTENTIAL HAZARDS

FIRE OR EXPLOSION:
MAY EXPLODE AND THROW FRAGMENTS 1/3 MILE OR MORE IF FIRE REACHES CARGO.

HEALTH HAZARDS:
Fire may produce irritating or poisonous gases.

EMERGENCY ACTION

IF FIRE REACHES CARGO, DO NOT FIGHT FIRE.

STOP ALL TRAFFIC AND BEGIN TO EVACUATE ALL PERSONS, INCLUDING EMERGENCY RESPONDERS, FROM THE AREA FOR 1500 FEET (1/3 MILE) IN ALL DIRECTIONS.

Positive pressure self-contained breathing apparatus (SCBA) and structural firefighters' protective clothing will provide limited protection.

CALL Emergency Response Telephone Number on Shipping paper FIRST. If Shipping Paper NOT AVAILABLE or NO ANSWER, CALL CHEMTREC AT 1-800-424-9300.

FIRE
Cargo Fires: DO NOT FIGHT FIRE WHEN IT REACHES CARGO. Withdraw from area and let fire burn.

Truck and Equipment Fires: Try to prevent fire from reaching the explosive cargo compartment. Flood with water; if no water is available use Halon, dry chemical or earth.

Promptly isolate the scene by removing **ALL PERSONS** from the vicinity of the incident if there is a fire. First, move people out of line-of-sight of the scene and away from windows. Then, obtain more information and specific guidance from competent authorities listed on the shipping papers.

SPILL OR LEAK
Shut off ignition sources; no flares, smoking or flames in hazard area.
Do not touch or walk through spilled material.

FIRST AID
Call emergency medical care.
Use first aid treatment according to the nature of the injury.

SUPPLEMENTAL INFORMATION

Packages bearing the 1.4S label contain explosive substances or articles that are designed or packaged in such a manner that when involved in a fire, may burn vigorously with localized detonations and projection of fragments; effects are usually confined to immediate vicinity of packages.

If fire threatens cargo area containing packages bearing the 1.4S label, consider initial isolation of at least 50 feet in all directions. Fight fire with normal precaution from a reasonable distance.

DD FORM 836 (BACK), JUL 96

INSTRUCTIONS FOR COMPLETING DD FORM 836, "SHIPPING PAPER AND EMERGENCY RESPONSE INFORMATION FOR HAZARDOUS MATERIALS TRANSPORTED BY GOVERNMENT VEHICLES"

GENERAL

DD Form 836 shall be completed by a *qualified individual from a transportation office, unit or other organization offering hazardous material for transportation in commerce or areas accessible to the general public.

*An individual is considered qualified to complete and sign (certify) DD Form 836, having satisfactorily completed the DoD Standard Transportation of Hazardous Material Course from one of the DoD-approved schools listed in the Defense Traffic Regulation. This person shall be appointed in writing by the activity or unit commander, to include scope of authority.

STEP 1

Item 1. Enter the place and date the material was certified (e.g., Fort Campbell, 1 Jan 95).

Item 2. Enter the date this material will move in commerce.

Enter the page number and total number of pages of the DD Form 836. Mark an "X" on the box if there are continuation sheets. Enter "Page 1 of 5 Pages" or leave blank if there are no extension pages.

STEP 2

Item 3.

a. Indicate the total numbers of packages.

b. Indicate the type of package (box, pallet, etc.).

c. Describe hazardous materials on DD Form 836 (Shipping Paper) in accordance with the requirements of Title 49 CFR, subpart C, Shipping Papers (49 CFR 172.200 - 172.205). NOTE: If additional space is required, use continuation sheet (DD Form 836C).
Example: Rocket Motors, 1.1C, UN 0280, PG II
Stannic Phosphide, 4.1, UN 1433, PG I

d. The total weight (e.g., gm, kg, etc.), or volume (e.g., liter, cc, etc.) of hazardous material.

e. Net Explosive Quantity (NEQ). For explosive (Hazard Class I) shipments, enter the Net Explosive Quantity (weight) for each proper shipping description listed. Net Explosive Quantity (weight) for explosives shall be obtained from the Joint Hazard Classification System (JHCS). NOTE: For transportation, the NEQ (weight) shall consist of the Net Explosive Weight and the Net Propellant Weight combined, as listed in the JHCS.
Example: 1 round - NSN 1315-00-761-2073
DODIC C706

Net explosive weight (kgs): 1.57642
Net propellant weight (kgs): .310793
Net Explosive Quantity (kgs): 1.887213

STEP 3

Item 4.

a. Enter the shipper address and telephone number where the hazardous material originated. Telephone number shall be monitored at all times (24 hour) until shipment is received by consignee. Telephone number is for NOTIFICATION PURPOSES ONLY. Emergency assistance shall be obtained from the appropriate 24 HOUR EMERGENCY ASSISTANCE TELEPHONE NUMBER.

b. Enter the six-digit Department of Defense Activity Address Codes (DODAAC) and/or the in-the-clear geographical location of the ultimate consignee (if known) or receiver of HAZMAT shipment.

c. Additional information or notification if needed.

STEP 4

Item 5. Additional handling instructions/information.

STEP 5

Item 6. The official or person who signs Item 6.a. must be qualified to certify that the shipment complies with the requirements of this instruction. Signature of certifying official or person must be in writing (longhand).

NOTES:

1. Units returning from exercise or firing range should have a qualified person ensure that all hazardous materials are properly repackaged and secured (i.e. blocked, braced, tied down) prior to transportation.

2. Completion of a new DD Form 836 is not required. Original DD Form 836 may be used provided that:

a. Change Item 1. (Date Prepared) and Item 2. (Date of Travel) as appropriate.

b. Change Item 3. (Cargo):
(i) Hazardous materials used shall be deleted from form by crossing out or lining through.
(ii) Hazardous materials which remain, but are in different quantities shall have the correct amounts entered in the appropriate section(s).

c. Change Item 6.a.:
(i) Cross out original signature if different certifier will be used.
(ii) A qualified individual (if available) shall sign in writing (longhand). If a qualified individual is not available, then the Officer-In-Charge (OIC) or Non-Commissioned Officer-In-Charge (NCOIC) shall sign in writing (longhand) to verify that the above procedures have been performed for the return trip to base.

STEP 6

Item 6.b. Signature(s) of operator(s) of vehicle who certifies that material is properly blocked, braced, and safe for transport in commerce.

SAMPLE

DD FORM 836 INST, JUL 96

SHIPPING PAPER AND EMERGENCY RESPONSE INFORMATION FOR HAZARDOUS MATERIALS TRANSPORTED BY GOVERNMENT VEHICLES *(Continuation Sheet)*

TO BE COMPLETED BY THE UNIT OR SHIPPER T.O. OFFICE	PAGE OF PAGES

3. CARGO *(Continued)*

PACKAGES		PROPER SHIPPING DESCRIPTION	TOTAL WEIGHT	NET EXPLOSIVE QUANTITY
NUMBER a.	KIND b.	c.	d.	e.

SAMPLE

DD FORM 836C, JUL 96

3. CARGO *(Continued)*			PAGE OF PAGES	
PACKAGES		PROPER SHIPPING DESCRIPTION	TOTAL WEIGHT	NET EXPLOSIVE QUANTITY
NUMBER a.	KIND b.	c.	d.	e.

SAMPLE

DD FORM 836C (BACK), JUL 96

TRANSPORTATION CONTROL AND MOVEMENT DOCUMENT

PAGE NO.

1. Doc Id	2. Trir Cont	3. Consignor	4. Comm-Spec Hdlg	5. Air Dim	6. POE	7. POD
TXØ		A22XAS	509Z9	Ø	1GC	JF1

8. Mode	9. Pack	10. Trans Control No.	11. Consignee	12. Pri	13. RDD	14. Proj	15. Date Shpd	16. ETA	17. Tr Acct
K	PT	AK4123 0370010XXX	AK4123	3	089	ØØØ	Ø5Ø	2	A205

18. Carrier	19. Flight-Truck-Voy Doc No.	20. Ref	21. Remarks	22. Pieces	23. Weight	24. Cube
				ØØ4Ø	96ØØØ	32ØØ

25 a. Tranship Point (1)	b. Date Rec	c. Bay Whse	d. Date Shpd	e. Mode Carrier	f. Flight-Truck-Voy Doc No.	g. Ref.	h. Stow Loc	i. Split	j. Cond	k. Signature-Remarks
SS IDAHO STATE	Ø53		Ø54	61	A1076		2LHP		OK	R.K. Slash
26 a. Tranship Point (2)	b. Date Rec	c. Bay Whse	d. Date Shpd	e. Mode Carrier	f. Flight-Truck-Voy Doc No.	g. Ref.	h. Stow Loc	i. Split	j. Cond	k. Signature-Remarks
27 a. Tranship Point (3)	b. Date Rec	c. Bay Whse	d. Date Shpd	e. Mode Carrier	f. Flight-Truck-Voy Doc No.	g. Ref.	h. Stow Loc	i. Split	j. Cond	k. Signature-Remarks

28. Consignee	29. Date Received-Offered (Sign)	30. Condition	31. Remarks

32. Doc Id	33. Trailer-Container	34. Consignor Comm Abbr Other	35. Commodity Spec Hdlg	36. VOY NO. Air Dim a	36. VOY NO. POE b	37. POD	38. MODE	39. Type Pack	40. Transportation Control Number	41. Consignee	42. PRI	43. REMARKS AND/OR RDD a	Proj b	Stow Shpd c	Loc ETA d	Tac e	44. ADDITIONAL REMARKS OR Pieces a	Weight b	Cube c
TX9									AK412330370010XXX			Stringbeans, CN, 48 cans per pallet							

SAMPLE

DD FORM 1384, APR 66

REPLACES EDITION OF 1 APR 63, WHICH MAY BE USED.

USAPPC V1.10

CARGO MANIFEST

AIR	AIRCRAFT DATA: CARRIER	AIRCRAFT NO	AIRCRAFT MODEL	DEST CODE	REF	DESTINATION	MISSION DATA: NO	NO	DATE	ALWOT	ALWCG	MANIFEST ID: STA	FY	TY	NO	PAGE NO

SURFACE	POE	DEST CARLOT	VOYAGE/DOCUMENT NO	POD	REF	VESSELNAME	STATION	SUBT	TRUCKING	REMARKS	PAGE NO
	1GC	3168	A1266	JF1	P	AMERICAN STAR	61	2			

DOC ID	VEHICLE TRAILER OR CONTAINER NUMBER	CONTAINER NUMBER / COMMODITY DESCRIP	CONE CODE	CAR NO ETC	VOYAGE DOC NO / TRANS FY	PORT OF DISCH	TYPE PACK	TRANSPORTATION CONTROL NUMBER	CONSIGNEE: DODAAC	ACTVTY ADDRESS	PRIORITY	NAME / ARMY LOT NO / NUMBER / DIMENSIONS: ROD	PROJ	STOW LOC	TRANS ACCT	IDENTIFICATIONS OR REMARKS	PIECES	WEIGHT	CUBE
TXJ		MATTRS	714	Z9	1266	JF1	BX	FB56044152XXX	FB560		3	5LHA		F9A0			25	500	240

SAMPLE

ITEMS HAVE BEEN LOADED:		ITEMS HAVE BEEN RECEIVED EXCEPT AS CIRCLED NOTED ON REVERSE SIDE			TOTALS		
DATE 17 Jun 97	SIGNATURE LOADING AGENT Diane Curry	DATE	SIGNATURE UNLOADING AGENT	DATE	SIGNATURE RECEIVING AGENT		

DD FORM 1385, NOV 70 (EG) REPLACES EDITIONS OF 1 APR 68 WHICH MAY BE USED

[X] RECAPITULATION (Line a applicable) [ ] SUMMARY (Line b applicable)

OCEAN CARGO MANIFEST
RECAPITULATION OR SUMMARY

[X] ORIGINAL [ ] REVISED

1 VESSEL NAME	2 STATUS	3 VOY DOC NO	4 DATE	5 LOADING PORT	6 HEAVY LIFTS	7 OUTSIZE DIMENSION	PAGE NO	NO OF PAGES
MARINE	11	P1572	3204	30KMOTBA OAKLAND	1	8	1	1

DESCRIPTION AND LOCATION OF HEAVY LIFTS AND OTHER SPECIAL DATA

a DESTINATION PORT	DESCRIPTION	LENGTH WIDTH HEIGHT	SELF SUS	NON S S	VEG	COG	STOW LOCATION	L/T
b DESTINATION PORT	COMMODITY CATEGORY	FOR MATS USE					TRANSPORTATION ACCT CODE	ON DECK
RGI Saigon	Crane	420L 120W 120H		X		X	30DP	16

TOTAL CARGO LOADED

DESTINATION PORT	SVC	L/T	M/T
NO OF UNITS POV'S/VAN OR OTHER			
RG1 SAIGON	N	810	1650
VD6 PUSAN	A	165	612
UB1 NAHA	M	110	310
TOTAL		1085	2572

SAMPLE

I HEREBY CERTIFY THAT THE ARTICLES LISTED HEREON HAVE BEEN PLACED ABOARD IN APPARENT GOOD ORDER AND CONDITION.

I HEREBY ACKNOWLEDGE having received the cargo manifested hereon in apparent good order and condition for delivery as indicated, except as otherwise specifically noted.

SIGNATURE	GRADE OR RANK	TITLE	MASTER OF VESSEL (Signature)
Claude Williams	GS-12	DOC SUPV	Michael Myatt

NAME AND MAILING ADDRESS OF PREPARING ACTIVITY

Military Ocean Terminal, Bay Area Oakland, Oakland, CA 79212

DD FORM 1386, APR 86 (EG) REPLACES EDITION OF 1 APR 83, AND DD FORMS 1386-1-1, 1386-1-2, AND 1386-2, WHICH ARE OBSOLETE

Designed using Perform Pro, WHSEDOR, Jul 94

MILITARY SHIPMENT LABEL

Form Approved. OMB No. 0704 0188

1. TRANSPORTATION CONTROL NUMBER
AT 4015 9250 2026XXX

2. POSTAGE DATA

3. FROM A25TBB TOBYHANNA BAY DEPOT
TOBYHANNA, PA 18466

4. TYPE SERVICE

5. SHIP TO/POE
30K MILITARY OCEAN TERMINAL
OAKLAND, CA

SAMPLE

6. TRANS PRIORITY
3

7. POD
UC2 INCHON, KOREA

8. PROJECT
QRP

9. ULTIMATE CONSIGNEE OR MARK FOR
AT 4015 US ASCOM DEPOT
BUPYONG, KOREA

10. WT. *(This piece)* 437

11. RDD 096

12. CUBE *(This piece)* 73

13. CHARGES

14. DATE SHIPPED 9070

15. FMS CASE NUMBER

16. PIECE NUMBER
3

17. TOTAL PIECES 9

DD FORM 1387, NOV 86 (EG) *Previous editions are obsolete.* Designed using Perform Pro, WHS/DIOR, Jul 94

ITEM NOMENCLATURE	NET QUANTITY PER PACKAGE	TRANSPORTATION CONTROL NO.
MOTOR VEHICLE FLAMMABLE LIQUID LABEL NONE CARGO AIRCRAFT ONLY	12 gal CONSIGNMENT GROSS WEIGHT 3,600 lb	WK888740730001XXX DESTINATION Ft. Carson, CO

SUPPLEMENTAL INFORMATION	LOAD STORAGE GROUP
Fuel in tank--gasoline w/truck Battery, wet, filled with acid, corrosive material, 2 qt	18/20 a, f FLASH POINT 50 F (TAG CC)

This is to certify that the above named materials are properly classified, described, packaged, marked and labeled, and are in proper condition for transportation according to the applicable regulations of the Dept of Transportation. THIS IS A MILITARY SHIPMENT! *(Complete applicable blocks below)*

X	This shipment is within the limitations prescribed for PASSENGER AIRCRAFT/CARGO AIRCRAFT ONLY (Delete nonapplicable aircraft)	AMATA/AMCO REGULATIONS		
X	AFR 71 4, TM 38 250, NAVSUPPUB 505, MCO P4030.19, DLAM 4145.3, Paragraph 6-27 a (1)		PARAGRAPH	EXEMPTION
	DOD 4500.32R (MILSTAMP)	49 cfr	173.7(a)	DOT-E 7573

SAMPLE

ADDRESS OF SHIPPER	TYPED NAME, SIGNATURE AND DATE
Charleston AFB, South Carolina	Willis L. White SFC Willis L. White, 23 June 1997

DD FORM 1387-2, JUN 86 (EG) *Previous editions are obsolete.* *Form Approved OMB No. 0704 0188*

SPECIAL HANDLING DATA/CERTIFICATION

Designed using PerForm Pro, WHSDIOR, Jul 94

PACKING LIST	PACKED BY	1. NO. BOXES	2a. REQUISITION NO.
	Individual packing the box/container	One (1) unless consolidated	Vehicle Bumper Number
			2b. ORDER NO. Shipment Unit Number from AUEL/DEL

3. END ITEM
DO NOT USE MISC. TOE EQUIPMENT. Be specific
e.g., NBC Defense Equipment

4. DATE

5. PAGE ____ OF ____ PAGES

BOX NO. (a)	CONTENTS - STOCK NUMBER AND NOMENCLATURE (b)	UNIT OF ISSUE (c)	QUANTITIES REQUIRED: INITIAL OPERATION (d)	RUNNING SPARES (e)	TOTAL (f)
1	Line Number (from Property Book)	EA	PACKS	WEIGHT	TOTAL
	Stock Number		# in	of each	WEIGHT
	Nomenclature		Box	items	(lbs)
				(lbs)	
	BBPCT e.g., Special crating and/or internal packing materials etc., BE SPECIFIC	N/A	N/A		
	Total Weight----------				
	Description of Container Dimensions				
	STATEMENT: "This box/container does not contain Hazardous Cargo."				

SAMPLE

6. THIS CERTIFIES THAT ITEMS LISTED HEREON ARE WITHIN THE SPECIFIED BOXES

TYPED NAME AND TITLE	SIGNATURE
Primary or Alternate UMO	Primary or Alternate UMO

DD Form 1750, SEP 70 USAPPC V1.00

NOTES TO CONSIGNEE

The listing shown on the reverse side, together with pertinent notations relative to each item included, is furnished for your information and guidance only. In the case of lists covering equipment sets, one copy may be retained for reference and used as a supporting document to property books and the other copy retained with the equipment as a component parts listing. For the purpose of clarification, explanations of the various entries on this Packing List are furnished.

ITEM 1. The number of boxes in a set.

ITEMS 2*a. & b.* The requisition number appearing on the DD Form 1348-1 or order number will be indicated in this entry. The number so referenced should be cited in any correspondence regarding this shipment.

ITEM 3. The stock number, nomenclature, type number *(when available)*, and the directive under which the end item was assembled. Not applicable to shipments consisting only of miscellaneous repair parts and accessories for the assembly, set or unit in which case this entry will contain such a notation in lieu of the information cited above *(See 5.3.1.1)*.

SAMPLE

ITEM 4. Date of preparation.

ITEM 5. Self-explanatory.

Column a. This column will be used when two or more boxes are required for the equipment. It will indicate the number of the container in which the items are packed.

Column b. This space contains a listing or items contained within the box, which are identified by stock number and nomenclature. When an FSN is not applicable, the manufacturer's code *(See 5.2.2.10)* and part number shall be used.

NOTE: As required, due to out of stock position within the DOD supply system, a component parts storage which will not hinder operational functions may be waived by higher authority and will be so indicated to the right of the nomenclature. Waivers noted thereon should be requisitioned through normal supply channels.

Column c. Self-explanatory.

Column d. "Initial Operation" - Items which are required for operation of the equipment.

Column e. "Running Spares" - Those items shipped concurrently with the equipment as spare parts and accessories.

NOTE: Columns d and e will be used on an optional basis.

"Total" - Self-explanatory.

ITEM 6. Self-explanatory.

DD Form 1750 Reverse, SEP 70 USAPPC V1.00

GLOSSARY

AA assembly area
AAFES Army Air Force Exchange Service
ACEP Approved Continuous Examination Program
A/DACG arrival/departure airfield control group
ADUSD-TP Assistant Deputy Under Secretary of Defense, Transportation Policy
AFPDA Army Force Planning Data and Assumptions
AIS automated information systems
AIT automatic identification technology
allowable stacking weight The amount of weight that can be stacked on corner posts of a container when subjected to 1.8 times the force of gravity.
ALO authorized level of organization
ALOC air line of communication
ALM Air Load Module
AMC Air Mobility Command; Army Materiel Command
American National Standards Institute The United States standards organization that establishes procedures for the development and coordination of voluntary American National Standards.
AMMO ammunition
AMS Automated Manifest System
ANSI American National Standards Institute
AOR area of responsibility
APO Army Post Office
APOD aerial port of debarkation
APOE aerial port of embarkation
approval authority A representative (person or organization) of the Commandant, US Coast Guard, authorized to approve containers within terms of the International Conference for Safe Containers.
AR Army regulation
ASCC Army service component command
ASG area support group
ASP ammunition supply point
ATCOM Aviation and Troop Command
ATLAS all terrain lifter articulated system
ATP ammunition transfer point
ATTN attention
AUEL automated unit equipment list
automatic identification technology AIT is a family of data capturing devices designed to provide rapid and accurate acquisition, retention and retrieval of source data. The technology includes a spectrum of capabilities (for example, bar codes, microcircuit devices, optical reading, and so forth).
Automatic Manifest System LASER CARDS (also called Optical Laser Cards) These credit card-sized mediums can store approximately 1,200 pages of information in a "write once, read many" (WORM) format similar to a compact disk. A laser card reader/writer is required to use the card. These were considered for transportation applications, but subsequently eliminated because handling the cards impedes the movement process.
AWR Army war reserves
AWR-3 Army War Reserve 3
battlefield distribution BD is a holistic methodology (strategic through tactical) of information exchanges, management procedures, functional designs, and reengineered operational process which

enable US Forces to properly request, receive, redirect, track, distribute, control, and retrograde materiel, facilities and services within a single distribution system.
B.B.P. breakbulk point
BBT blocking, bracing and tie-down
BD Battlefield Distribution
BDE brigade
Bldg building
BN battalion
breakbulk cargo Any commodity that, because of its weight, dimensions, or noncompatibility with other cargo, must be shipped by mode other than MILVAN or SEAVAN.
breakbulk ship A ship with conventional holds for stowage of breakbulk cargo, below or above deck, and equipped with cargo-handling gear. Ships also may be capable of carrying a limited number of containers, above or below deck.
BSA brigade support area
BTU British thermal unit
C2 command and control
CA California; civil affairs
CADS containerized ammunition distribution system
CALL Center for Army Lessons Learned
CASCOM Combined Arms Support Command
CBL commercial bill of lading
CCA container control activity
CCE container control element
CCP container consolidation point
CCS container control site
CCSS Commodity Command Standard System
centralized receiving and shipping point Actual location where containers with cargo must be sorted before transshipment to the appropriate SSA or owning unit. Single consignee cargo and ammunition will not pass through the CRSP. Cargo will be shipped directly to the owner with the movement organization maintaining visibility and ammunition will go directly to the appropriate ammunition storage facility.
CFD Container Fleet Division
CFR Code of Federal Regulations
CGO cargo
CHE container-handling equipment
CHU container-handling unit
CINC commander of a combatant command; commander in chief
CJCS chairman of the joint chiefs of Staff
CL class
CMCC corps movement control center
CMD command
CO company
COCOM combatant command
CODES Computerized Deployment System
COFC container on flatcar

common use Services, materials, or facilities provided by a Department of Defense agency or a Military Department on a common basis for two or more Department of Defense agencies.

common-use container Any Department of Defense-owned, leased or controlled 20- or 40-foot International Organization for Standardization container managed by USTRANSCOM as an element of the DOD common-use container system.
common-use military land transportation Point-to-point land transportation service operated by a single Service for common use by two or more Services.
COMMZ communications zone
COMP composite
COMPASS Computerized Movement Planning - Status System
component-owned container 20- or 40- foot International Organization for Standardization container procured and owned by a single Department of Defense Component. May be either on an individual unit property book or contained within a component pool (such as USMC Maritime Prepositioning Force containers). May be temporarily assigned to the Department of Defense common-use container system. Also called a Service-unique container.
CONEX container express
container An article of transport equipment that meets ANSI/ISO standards designed to be transported by various modes of transportation; designed to facilitate and optimize carriage of goods by one or more modes of transportation without intermediate handling of contents and equipped with features permitting its ready handling and transfer from one mode to another. Containers may be fully enclosed with one or more doors, open top, refrigerated, tank, open rack, gondola, flatrack, and other designs.
Container Control Officer A designated official (E6 or above or civilian equivalent) within a command, installation, or activity who is responsible for control, reporting, use, and maintenance of all Department of Defense-owned and controlled intermodal containers and equipment. This officer has custodial responsibility for containers from time received until dispatched.
Container Fleet Division Subordinate element of Military Traffic Management Command responsible for administration of all Army containerized ammunition distribution system and United States Transportation Command common-use containers.
container handling equipment Items of materiels handling equipment required to specifically receive, maneuver, and dispatch ANSI/ISO containers.
container-handling unit The CHU attaches to the lifting arm of the PLS vehicle and is used to pick up 20-foot ANSI/ISO containers without the need for the container to be on a M1077 flatrack. The CHU attaches to the ISO corner fittings of the container. The bed of the PLS vehicle has swivel rollers installed to assist in the lifting/loading of the container on the PLS truck.
containerization The use of containers to unitize cargo for transportation, supply and storage. Containerization incorporates supply, transportation, packaging, storage and security together with visibility of container and its contents into a distribution system from source to user.
container roll-in/roll-out platform The CROP is a flatrack which fits inside a ANSI/ISO 20-foot container. The primary use for the CROP is to haul ammunition forward of the TSAs and CSAs. Uses for the CROP will expand has more systems become available. The CROP does not substitute for a flatrack. The CROP can not carry a container.
containership A ship specially constructed and equipped to carry only containers without associated equipment, in all available cargo spaces, either below or above deck. Containerships are usually nonself-sustaining and do not have built-in capability to load or offload containers, and require port crane service. A containership with shipboard-installed cranes capable of loading and offloading containers without assistance of port crane service is considered self-sustaining.
CONUS Continental United States
COSCOM corps support command
CROP container roll-in/out platform
CRSP central receiving and shipping point

CS combat support
CSA corps storage area
CSB corps support battalion
CSC International Convention for Safe Containers (FWD and Rear)
CSG corps support group
CSS combat service support
CTA common table of allowance
CTC cargo transfer company
CTR center
CUCV commercial utility cargo vehicle
CY container yard
DA Department of the Army
DAMMS DA Movement Management System
DBOF-T defense business operations fund-transportation
DC District of Columbia
DD Department of Defense
DDN Defense Data Network
DDSD Deployment and Deployment Systems Department (formerly **JSDTC** [Joint Strategic Deployment Training Center]}
Defense Business Operations Fund A revolving industrial fund concept for a large number of Defense support functions, including transportation. Utilizes business-like cost accounting to determine total cost of a business activity. Defense Business Operations Fund-Transportation is comprised of those DBOF accounts assigned by OSD for USCINCTRANS control.
Defense Transportation System That portion of the Nation's transportation infrastructure which supports Department of Defense common-use transportation needs across the range of military operations. It consists of those common-use military and commercial assets, services, and systems organic to, contracted for, or controlled by the Department of Defense.
DEL deployment equipment list
Department of Defense container system All Department of Defense-owned, leased, controlled 20- or 40-foot intermodal International Organization for Standardization containers and flatracks, supporting equipment such as generator sets and chassis, container handling equipment, information systems, and other infrastructure that supports DOD transportation and logistics operations, including commercially provided transportation services. This also includes 463L pallets, nets, and tie down equipment as integral components of the DOD Intermodal Container System. Size and configuration of the common-use portion of the DOD container system controlled by USTRANSCOM, will be determined by USTRANSCOM based on established requirements and availability of commercially owned containers and equipment. USTRANSCOM will lease or procure additional containers as required to augment the DOD container system.
Department of Defense intermodal container system See Department of Defense Container System.
destination The place where a container movement ceases. The destination may be the ultimate user or consumer of container contents, a retail supply point, or a consolidation and distribution point.
DISCOM division support command

distribution terminal Actual locations where multipacked/consolidated cargo is received, sorted and shipped to the appropriate unit. Single consignee cargo may not pass through the distribution

terminal, it will be throughput whenever possible. The distribution terminal is organized with Transportation Cargo Transfer Companies and QM packing and crating platoons. It is assisted in its mission by an MMT from the MMC forward and an MCD from the MCB.
DIV division
DLA Defense Logistics Agency
DLAM Defense Logistics Agency Manual
DMC distribution management center
DOD Department of Defense
DODAAC Department of Defense activity address code
DOT Department of Transportation
DS direct support
DSA division support area
DSN Defense Switched Network
DSSA direct support supply activity
DSSK Direct Support System - Korea
DTG date-time group
DTL discharge tally list
DTO division transportation officer
DTR Defense Transportation Regulation
DTS Defense Transportation System
dunnage The temporary blocking, flooring, lining, racks, standards, strips, stakes, or similar bracing, or supports not constituting a part of the carrying vehicle. Dunnage is used to protect and make freight secure in or on a carrying vehicle.
EAC echelon above corps
EAD echelon above division
EDI electronic data interchange
EDRE emergency deployment readiness exercise
EDSS equipment deployment and storage system
ETA estimated time of arrival
ETC et cetera
ETM electronic transmission
ETR export traffic release
flatrack Portable, open-topped, open-sided units that fit into existing below-deck container cell guides and provide a capability for container ships to carry oversized cargo; and wheeled and tracked vehicles.
FLP forklift pockets
FM field manual
FORSCOM US Army Forces Command
463L system Aircraft pallets, nets, tiedown, and coupling devices, facilities, handling equipment, procedures, and other components designed to interface with military and civilian aircraft cargo restraint systems. Though designed for airlift, system components may have to move intermodally via surface to support geographic combatant commander objectives.
FSB forward support battalion
FSS fast sealift ship
ft feet/foot
FWD forward
FY fiscal year
G4 Assistant Chief of Staff, G4 (Logistics)
GBL government bill of lading

GCCS Global Command and Control System
GPS Global Positioning System
GS general support
GSA General Services Administration
GSSA general supply support activity
GTN global transportation network
HAZMAT hazardous material
HMMWV high-mobility, multipurpose wheeled vehicle
HN host nation
HNS host nation support
HQ headquarters
hub An organization that sorts and distributes inbound cargo from wholesale supply sources (both airlifted, sealifted, and ground transportable) and/or from within the operational theater.
hub-and-spoke distribution A physical distribution system developed and modeled on industry standards to provide cargo management for an operational theater. It is based on a "hub" moving cargo to and between several "spokes." It is designed to increase transportation efficiencies, in-transit visibility and reducing order ship time.
HVY heavy
IATA International Air Transport Association
IAW in accordance with
ICODES Integrated Computerized Deployment System
ICS3 Integrated Combat Service Support System
ID identification
IL Illinois
IMDG International Maritime Dangerous Goods
IMO International Maritime Organization
infrastructure A term generally applicable to all fixed and permanent installations, fabrications, or facilities for the support and control of military forces.
Institute of International Container Lessors A technical committee consisting of container owners, operators, and manufacturers located in Bedford, NY, who prepare the Repair Manual for Steel Freight Containers. The repair manual implements the physical standards for general cargo containers established by the International Convention for Safe Containers (CSC-International Safe Container Act of 1980, 46 USC 1503).
intermodal Type of international freight system that permits transshipping among sea, highway, rail and air modes of transportation through use of American National Standards Institute/International Organization for Standardization standard containers, line-haul assets and handling equipment.
intermodal support equipment Fixed and deployable assets required to assist container operations throughout the intermodal container system. Included are straddle cranes, chassis, rough terrain container handlers, container cranes and spreader bars.
intermodal systems Specialized transportation facilities, assets, and handling procedures designed to create a seamless transportation system by combining multimodal operations and facilities during shipment of cargo which allows cargo to remain in original shipping configuration throughout transit.
International Convention for Safe Containers A convention held in Geneva, Switzerland, on 2 Dec 1972, which resulted in setting standard safety requirements for containers moving in international transport. These requirements were ratified by United States on 3 January 1978.
International Organization for Standardization A specified international agency for standardization. This agency is comprised of members from more than 80 countries. The agency's aim is to promote worldwide agreement of international standards.

in-transit visibility The capability provided to a theater combatant commander to have visibility of units, personnel, and cargo while in transit through the Defense Transportation System.
ISB intermediate staging base
ISO International Organization for Standardization
ISU internal airlift/helicopter slingable container unit
ITO installation transportation officer
ITV in-transit visibility
JCS Joint Chiefs of Staff
JMCC Joint Movement Control Center
JMTCA Joint Munitions Transportation Coordinating Activity
Joint Logistics Over The Shore Logistics over the shore operations conducted by two or more Military Services.
Joint Traffic Management Office Newly formed subordinate element of Military Traffic Management Command responsible for leasing and procurement of containers.
JOPES Joint Operation Planning and Execution System
JTMO Joint Traffic Management Office
JULLS Joint Universal Lessons Learned
K ton
kW kilowatt
lbs pounds
LIF Logistics Intelligence File
LMSR large medium speed RO/RO
LOC line of communication
Local Information Management System A computer system in a designated area that acts as a data base to store ITV data that is obtained from the RF interrogators. These systems will have the capability to communicate with higher level data bases to update or draw required ITV data.
logistics over the shore operations The loading and unloading of ships without the benefit of fixed port facilities, in friendly or nondefended territory, and, in time of war, during phases of theater development in which there is no opposition by the enemy.
logistics pipeline A direct channel for information and the process through which supplies pass from source to user.
LOGMARS logistics applications of automated marking and reading symbols
LOGSA Logistics Support Activity
long ton (2,240 pounds). Also called L/T or LTON.
LOTS logistics over the shore
LT light
MA marshaling area
MACOM major Army command
MAGTF Marine air-ground task force
MASS MODCOM Automated Support System
MAT material
materials-handling equipment Mechanical devices for handling of supplies with greater ease and economy.
MCA movement control agency
MCB movement control battalion
MCC movement control center
MCD movement control detachment
MCL mission configured load

MCO movement control office
MCT movement control team
MDM medium
measurement ton Volume measurement equal to 40 cubic feet. Also called M/T or MTON.
MEL maintenance expenditure limit
METT-T mission, enemy, troops, terrain & weather, and time available
MHE material-handling equipment
MIL-HDBK military handbook
military-owned demountable container Conforms to United States and international standards, operated in a centrally controlled fleet for movement of military cargo.
military performance specification containers Written standards containers must meet. Aviation and Troop Command, US Army, procures military performance specification containers for Army and will perform like services for other Department of Defense Components on request. Also called MILSPEC container.
Military Sealift Command The US Transportation Command's component command responsible for designated sealift service.
Military Traffic Management Command The US Transportation Command's component command responsible for military traffic, continental United States air and land transportation, and common-use water terminals.
MILSPEC military specification
MILSTAMP military standard transportation and movement procedures
MIL-STD military standard
MILSTRIP Military Standard Requisitioning and Issue Procedures
MILVAN military-owned demountable container
MIPR Military Interdepartmental Purchase Request
MLRS Multiple Launch Rocket System
mm millimeter(s)
MMC materiel management center
MMMC medical materiel management center
MMT materiel management team
MOADS Maneuver-Oriented Ammunition Distribution System
movement control team MCTs are Army units that decentralize the execution of movement responsibilities on an area basis or at key transportation nodes. The mission of MCTs is movement control of personnel and materiel and the coordination of bulk fuel and water transportation at pipeline and production take-off points. To this end, the MCTs contribute to the development of procedures, documents, and practices to facilitate local movement. Their role is to expedite, coordinate, and monitor traffic moving through the transportation system. MCTs are tailored to meet the anticipated workload. Other service movement requirements that exceed their organic capability will be requested through the Army MCTs. The MCC is the higher headquarters for the MCTs and is located at Corps level.

movement tracking The movement tracking strategy focuses on placing a GPS receiver on distribution platforms to obtain position location of those platforms. This position location data

would then be provided to transportation C2 activities via a global satellite communications system. By placing a satellite communications transceiver on the vehicle, data may be imported from the GPS receiver. The location of the vehicle can then be graphically portrayed on a map using a computer monitor located at the distant management center. Adding a laptop computer to the tracking system adds the ability to send messages from the vehicle to any location having a similar system.

MPH miles per hour
MROC materiel release order control
MSC Military Sealift Command
MSCO Military Sealift Command Office
MSL military shipment label
MSR main supply route
MST maintenance support team
MTMC Military Traffic Management Command
MTMC-EA Military Traffic Management Command-Eastern Area
MTMCTEA Military Traffic Management Command Transportation Engineering Agency
MTMS Munitions Transportation Management System
MTOE modified table of organization and equipment
MTS Movement Tracking System
MVMT movement
MVMNT movement
NAF nonappropriated fund
NATO North Atlantic Treaty Organization
NDI nondevelopmental item
NICP national inventory control point
NJ New Jersey
NLT not later than
No. number
nonself-sustaining containership A containership that does not have a built-in capability to load or off-load containers, and requires a port crane or craneship service.
OCBO ocean cargo booking office
OCCA ocean cargo clearance authority
OCONUS outside the continental United States
ODS Operation Desert Storm
OMC optical memory card
OPLAN operation plan
OPORD operation order
OP operation(s)
origin Beginning point of a deployment where unit or nonunit-related cargo or personnel are located.
OSD Office of the Secretary of Defense
palletized load system A truck with hydraulic load handling mechanism, trailer and flatrack system capable of self-loading and unloading. Truck and companion trailer have a 16.5 ton payload capacity.
palletized load system flatrack Topless, sideless container component of palletized load system, some of which conform to ANSI/ISO specifications.
PBCR portable bar code reader
PC personal computer
PETRL petroleum
Pkg package

P/L pipeline
PLL prescribed load list
PLS palletized load system
PLT platoon
POD port of debarkation
POE port of embarkation
PSA port support activity
PWIS-3 Prisoner of War Information System 3
QM quartermaster
QTY quantity
QUADCON quadruple container
Radio Frequency Data Communication Use of radio frequency signals to pass data between computers or between computers and peripherals, such as a bar code scanner/terminal or printer. Radio frequency identification allows reading and writing of data to tags by means of transmission over radio frequencies, thereby offering non-contact data storage, retrieval, and display of container/truck/pallet content and other transportation information. The pieces of equipment involved in the process are the RF/ID tags, the hand-held interrogator, the fixed interrogator, the monitor station, the RF transmitter/receiver, and the microcomputer system.
radio frequency tags A reusable omni-directional electronic device approximately 6"x 8"x 2" that contains a receiver/transmitter and storage medium. When queried by an interrogator, the tag transmits the data stored to the interrogator using radio frequency signals in a similar manner to RFDC.
RDD required delivery date
RDSC regional distribution service center
REEFER refrigerated container
REP repair
REPSHIP shipment report
RF radio frequency
RFDC radio frequency data communications
RFP request for proposal
RG Rate Guide
RMCT regimental movement control team
RO/RO roll-on/roll-off
RSA retrograde storage area
RSPA Research and Special Programs Administration
RTCC rough terrain container crane
RTCH rough terrain container handler
RTF rough terrain forklift
RU release unit
S3 operations and training officer (US Army)
SAAS Standard Army Ammunition System
SAMS Standard Army Maintenance System
SAMMS Standard Army Maintenance Management System
SARSS Standard Army Retail Supply System
Satellite The ultimate destination of materiel from the hub.
SCL strategic configured load
SDS Standard Depot System
SEABEE Navy construction engineer

Sealift Enhancement Program Special equipment and modifications which adapt merchant-type dry cargo ships and tankers to specific military missions. They are typically installed on Ready Reserve Force ships or ships under Military Sealift Command control. Sealift enhancements fall into three categories: productivity, survivability, and operational enhancements.
SEAVAN Commercial or Government owned (or leased) shipping containers which are moved via ocean transportation without bogey wheels attached (for example, lifted on and off the ship).
SEDRE sea emergency deployment readiness exercise
self-sustaining containership A containership with shipboard-installed cranes capable of loading and off-loading containers without assistance of port crane service.
Service-unique container Any 20- or 40-foot ANSI/ISO container procured or leased by a Service to meet Service-unique requirements.
shelter An International Organization for Standardization container outfitted with live- or work-in capability.
short ton 2,000 pounds. Also called S/T or STON.
single manager A Military Department or Agency designated by the Secretary of Defense to be responsible for management of specified commodities or common service activities on a Department of Defense-wide basis.
SLOC sea line of communication
SMCA single manager conventional ammunition
SOP standing/standard operating procedures
Source Data Automation Physical devices used to provide data about an item (or group of items) to an inventory manager. This information is used to sort, consolidate, move, redirect, or transfer stocks between supply and transportation activities.
Split-Based Logistics Dividing logistics management functions so that only those functions absolutely necessary are deployed, allowing some management functions to be accomplished from CONUS or another theater.
SPM single port manager
SPOD seaport of debarkation
SPOE seaport of embarkation
Spoke The portion of the hub-and-spoke distribution system which refers to transportation mode operators responsible for scheduled delivery to a customer of the "hub."
SRP Sealift Readiness Program
SSA supply support activity, supply support area
S/T short ton (2,000 pounds)
STAMIS standard Army management information systems
STANAG standardization agreement
Standard Army Management Information Systems The STAMIS are the heart of the logistics management capability on the battlefield. They include SARSS, SAAS, DAMMS, SAMS, ULLS, PWIS-3, MTS, and TAMMIS-MEDSUP. These interfaced systems must operate seamlessly with each other, joint systems, and the strategic systems supporting them, such as CCSS, SAMMS, DSS, SDS, and any other pertinent DLA/AMC/GSA systems.
STARS Shipment Tracking And Redistribution System
stuffing Packing of cargo into a container.
SUN shipment unit number
SUP supply

supply support activity Activities assigned a DOD activity address code and have a supply support mission (such as direct support supply units, missile support elements, maintenance support units, and so on

SW southwest

TAA tactical assembly area

TAACOM theater Army area command

TAMMIS-MEDSUP Theater Army Medical Management Information System-Medical Supply

tare weight. The weight of a container deducted from gross weight to obtain net weight or the weight of an empty container.

TAV total asset visibility

TB technical bulletin

TC-ACCIS Transportation Coordinator-Automated Command & Control Information System

TC AIMS II Transportation Coordinator's Automated Information for Movements System II

TCC transportation component command

TCMD transportation control and movement document

TCN transportation control number

TDAP Total Distribution Action Plan

TEL telephone

TELEX telephone exchange

TEU twenty-foot equivalent unit

theater-assigned transportation assets Transportation assets that are assigned under the combatant command (command authority) of a geographic commander.

throughput The average quantity of cargo and passengers that can pass through a port on a daily basis from arrival at the port to loading onto a ship or plane, or from the discharge from a ship or plane to the exit (clearance) from the port complex. Throughput is usually expressed in measurement tons, short tons, or passengers. Reception and storage limitation may affect final throughput

"Title 10 and other Wartime Executive Agency Requirements"

(1) Title 10, United States Code (USC). Title 10 USC requirements are US law. The functions of the military departments, under the respective Service Secretaries, are subject to the provisions of Title 10 USC and spelled out in DOD Directive 5100.1. The common Title 10 functions include the requirement for the respective military services to:

(a) Prepare forces and establish reserves of manpower, equipment, and supplies.

(b) Maintain readiness in mobile reserve forces.

(c) Provide adequate, timely, and reliable intelligence and counterintelligence.

(d) Recruit, organize, train, and equip interoperable forces for assignment to combatant commands.

(e) Prepare and submit programs and budgets for their respective departments.

(f) Conduct research, develop tactics, techniques, and organization, and develop and procure weapons, equipment, and supplies.

(g) Develop, garrison, supply, equip, and maintain bases and installations.

(h) Provide, as directed, forces for military missions in foreign countries as required.

(i) Assist in training and equipping the military forces of foreign nations.

(j) Provide, as directed, administrative and logistic support to combatant commands.

(k) Assist other services in the accomplishment of their respective missions.

(l) Prepare and submit mobilization information to JCS.

TM technical manual

TMCA theater movement control agency

TMD Traffic Management Division

TML terminal
TMMC theater materiel management center
TMO transportation management office, traffic management office
TMT transportation motor transport
TOE table of organization and equipment
TOFC trailer on flatcar
TPFDD time-phased force and deployment data
TRADOC United States Army Training and Doctrine Command
TRANS transportation
TRANSCOM transportation command
Transportation Cargo Transfer Company The Transportation Cargo Transfer Company as listed in the strategy refers to the "new" CTC which is currently (Jan 95) an approved strategy. The new company will replace the current Terminal Service Company (Breakbulk), Terminal Service Company (Container/Breakbulk) and the current Cargo Transfer Company. The new CTC will have the missions to: (1) discharge, load, transship cargo at air, rail, water (fixed port or LOTS), or truck terminals, (2) supplement cargo handling operations at CSS activities in Corps and Division to alleviate cargo backlogs. Normally allocations are to the water ports and one to two CTCs per Corps based on METT-T.
transportation component command The four component commands of USTRANSCOM: Air Force Air Mobility Command and Air Combat Command; Navy Military Sealift Command; and Army Military Traffic Management Command. Air Combat Command supports DOD airlift requirements using C-130 aircraft under the COCOM of USACOM. Each TCC remains a major command of its parent Service and continues to organize, train, and equip its forces as specified by law. Each transportation component command also continues to perform Service-unique missions.
traverse racking test load value Externally applied force in pounds or kilograms at the top-corner fitting that will strain or stretch end structures of the container sideways.
TRICON triple container
TRK trucks
TRKS trucks
trl trailer(s)
TRLS trailers
TSA theater storage area
TSC theater support command
UE unit equipment
UEL unit equipment list
UIC unit identification code
ULLS Unit Level Logistics System
UMD unit movement data
UMO unit movement officer
UN United Nations
United States Transportation Command The unified command with the mission to provide air, land, and sea transportation for the Department of Defense, across the range of military operations.
unstuffing Removal of cargo from container(s).
US United States (of America)
USA United States Army
USACASCOM United States Army Combined Arms Support Command
USACOM United States Atlantic Command
USADAC United States Army Defense Ammunition Center

USAREUR US Army Europe
USC United States Code
USCG United States Coast Guard
USCINCTRANS United States Commander in Chief, Transportation
USMC United States Marine Corps
USR unit status report
USTRANSCOM United States Transportation Command
VA Virginia
VISA Voluntary Intermodal Sealift Agreement
w with
Wartime Executive Agency Requirements WEAR normally refers to agreements, directives, and procedures, not necessarily prescribed for by law, that identify specific service requirements (that is, the Army's requirement to provide common user land transportation for the respective services during sustained operations). WEAR are directive in nature and task a specific service to perform a common function.
WCA water clearance authority
WEAR wartime executive agency requirements
WPS Worldwide Port System

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PROJECTED PUBLICATIONS

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FM 63-4. *Theater Support Command*
FM 100-10-1. *Theater Distribution*
FMFRP 4-17. *Intermodal Containerization in the MAGTF (Marine Corps)*

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FM 55-80
13 AUGUST 1997

By Order of the Secretary of the Army:

DENNIS J. REIMER
General, United States Army
Chief of Staff

Official:

JOEL B. HUDSON
Administrative Assistant to the
Secretary of the Army
03740

DISTRIBUTION:

Active Army, Army National Guard, and U. S. Army Reserve: To be distributed in accordance with initial distribution number 115488, requirements for FM 55-80.

PIN: 075565-000