

UNITED STATES MARINE CORPS
Logistics Operations School
Marine Corps Combat Service Support Schools
PSC BOX 20041
Camp Lejeune, North Carolina 28451-0041

CONTAINERIZATION

STUDENT OUTLINE

TERMINAL LEARNING OBJECTIVE: Given the applicable reference material, OPLAN, and embarkation plan, execute a unit move, per MCO 4680.5, Joint Pub 4-01.6 and OH 7-8 . (0431.04.01)

ENABLING LEARNING OBJECTIVES: Given the applicable reference material and student handout, per MCO 4680.5, Joint Pub 4-01.6 and OH 7-8, Select proper containers for use by identifying: (0431.04.01)

1. DOD container policy.
2. Marine Corps containerization goals, objectives, and policy.
3. Marine Corps containerization responsibilities.
4. Container and container handling/hauling equipment.
5. Marine Corps units capable of handling large containers.

STUDENT REFERENCES:

1. MCO 4680.5A, Containerization Policy
2. FMFMRP 4-17 Interdomal Containerization in the MAGTF

REQUIRED RESOURCE:

Student Outline A208-1

OUTLINE:

1. DEPARTMENT OF DEFENSE (DOD) CONTAINERIZATION POLICY. DOD components are to attain and maintain a container oriented distribution system of sufficient capability to meet DOD established mobilization and deployment goals while ensuring commonality and interchangeability of intermodal containers, hardware and equipment between the military and commercial industry. Containerized shipment shall be the preferred method.

2. MARINE CORPS GOALS, OBJECTIVES, POLICY, AND RESPONSIBILITIES

a. Marine Corps Containerization Goals

(1) The Marine Corps goal is to optimize use of containers to improve utilization of strategic lift, to improve force closure for unit equipment and sustainment supplies, to improve, field warehousing, and to improve material distribution.

(2) Specific containerization goals are contained in the MAGTF Master Plan and Supporting Establishment Master Plan (SEMP).

b. Marine Corps Containerization Objectives

(1) Optimize the use of intermodal containers from origin to destination to support peacetime operations, deliberate planning actions, and wartime requirements.

(2) Develop standard container systems that increase efficiency in container management, storage, and handling equipment.

(3) Develop container doctrine, techniques, and procedures that support the Marine Corps requirements.

c. Marine Corps Container Policy

(1) The 20-foot-long by 8-foot-wide ANSI/ISO* container is the primary size container for the Marine Corps. (Note: Container height varies; e.g., 8 feet, 8.5 feet, 4.5 feet, etc.) Although 40-foot containers may be received in port areas through common user resupply channels, these will normally not be pushed to units in forward areas. The Marine Corps currently does not have the capability to handle 40-foot containers.

* ANSI/ISO = American National Standards Institute (ANSI)
International Organization for Standardization (ISO)

(2) Marine Corps container requirements will be developed as a part of the MAGTF commanders, deliberate planning process and

satisfied by a combination of container types leased from commercial sources and procurement of limited numbers of containers.

(3) Marine Corps procurement of containers is limited to the number required to meet training and rapid deployment requirements that cannot be met by the timely lease of commercial containers. Authorizations to procure commercial ISO containers above the quantity required for training and rapid deployment requirements will be submitted to the Commandant of the Marine Corps (L) for approval.

(4) Requirements for Marine Corps-owned containers, including specially configured containers (such as containers with interior bins to stock spare parts and other supplies), will be determined using the same procedures as other tactical equipment.

(5) Marine Corps-owned containers will be assigned a separate table of authorized material control number (TAMCN) as other tactical equipment.

(6) Containerization will be considered when designing tactical equipment.

(a) Design equipment that can be easily stuffed in a container.

(b) Design equipment as appropriate (e.g., reefer boxes, water purification units, etc.) with ANSI/ISO fittings.

(7) Container handling equipment (CHE) and other container throughput systems will be designed to meet containerization requirements.

(8) To the greatest extent feasible, deploying MAGTF's should be relieved of the requirement to use organic deploying Material Handling Equipment (MHE)/CHE to load and transfer containers when preparing for embarkation. MHE/CHE from the supporting establishment, adjacent FMF units, and/or commercial sources should be used in lieu of deploying MHE/CHE.

(9) Containers will be stuffed at origin to the maximum extent possible or at the nearest container consolidation point.

(10) Containers will be unstuffed as far forward in the theater of operations as practical.

(11) Remain behind personnel, mobilized reservist, and/or contract personnel may be used to assist in container throughput operations; e.g., stuffing, marshalling, etc.

(12) Containers will be used in peacetime to train for war, to meet peacetime transportation requirements, and to reduce transportation costs.

(13) Per Public Law 95-208, the Code of Federal Regulations requires all ANSI/ISO containers (this includes Marine Corps table of equipment equipped with ANSI/ISO fittings) to be certified for serviceability after 5 years of service and every 30 months thereafter.

(a) The Marine Forces, Atlantic and Pacific, Marine Corps Logistics bases (MCLB's) Albany (Including Blount Island Command) and Barstow; and other supporting establishment commands that contract for or handle containers will have personnel trained and qualified to inspect and recertify ANSI/ISO containers and equipment. This function may be commercially contracted.

(b) Marine personnel who certify the ANSI/ISO containers and equipment must attend a 3-day Intermodal Dry Cargo Container/Convention for Safe Container (CSC) Reinspection Course at the U.S. Army Defense Ammunition Center and School, Savanna, IL.

(14) MAGTF II/Logistics Automated Information Systems, currently under development, will be designed to provide cargo monitoring and managing capability with which cargo can be tracked/controlled for origin to destination.

(15) Container transportation documentation will be per DOD 4500.32-R (MILSTAMP) and MCO P4600.14 (DTMR).

(16) Containers used for Maritime Prepositioned Ships (MPS) are unique to the Maritime Prepositioned Force program and are managed separately by the Commander, Marine Corps Logistics Bases (COMMARCORLOGBASES). TM 4790-14 pertains.

(17) Aviation ISO/ANSI containers, shelters, and equipment procured by the Navy will be managed per the appropriate naval aviation procedures.

b. Responsibilities. MCO 4680.5 lists responsibilities.

(1) Commandant of the Marine Corps (L)

(a) Serve as the focal point for Marine Corps containerization policy.

(b) Maintain MCO 4680.5.

(2) Commanding General, Marine Forces Command (Atlantic and Pacific) (Previously FMFPAC and FMFLANT)

(a) Identify the requirements for Marine Corps owned containers and container transport and handling equipment to Commanding General, Marine Corps Combat Development Command per MCO 3900.4.

(b) Identify requirements for leased containers to base and station commanders.

(c) Determine requirements and procure blocking, bracing, and, restraining materials.

(d) Incorporate container employment [e.g., stuffing and bracing, handling and transport, control and distribution, and unstuffing (to include damage assessment and prevention)] in training exercises and operations.

(e) Inspect and recertify containers under your control using the guidance provided by the Marine Corps Container Control Office (CCO), MCLB Albany.

(f) Train units to use containers (e.g., determine requirements; block, brace, and tiedown; etc.) and CHE.

(g) Appoint a container control officer to centrally maintain and disseminate container information.

(h) Provide "lessons learned" on container use per MCO 5000.17 to the Commanding General, Marine Corps Combat Development Command for further consideration, dissemination, and standardization, as appropriate.

(3) Commanding General, Marine Corps Combat Development Command

(a) Validate the FMF commanders requirements and forward them, as appropriate, to the Commanding General, Marine Corps Systems Command for procurement action per MCO 3900.4 and MCO P5000.10.

(b) Develop and promulgate doctrine, operational procedures/techniques, as required, in consonance with Marine Corps and DoD container policy. Initial publication of the Marine Corps container doctrine, procedures, and techniques is expected within 12 months of the date of this Order.

(c) Ensure that containerization training is incorporated for applicable military occupational specialties in existing and future training standards and course curriculums.

(4) Commanding General, Marine Corps Systems Command (Previously MCRDAC). Procure containers including military standard refrigeration units for containers, and container systems, container transport, and CHE as required.

(5) COMMARLOGBASES, Albany

(a) Establish the Marine Corps CCO.

(b) Perform item management duties pertaining to Marine Corps owned and leased containers, including procurement and technical management encompassing inventory management, logistics support, and container inspection, recertification, and promulgation of first and second echelon maintenance guidance procedures.

(c) Prepare a Marine Corps order for review and release by CMC (L) concerning container management procedures.

(d) Lease containers and associated equipment as required to fill authorized requirements.

(e) Provide guidance to the FMF and base and station commanders on proper container inspection and recertification standards and procedures.

(f) Identify that portion of prepositioned war reserve material stock in stores which can be moved as containerized cargo in each supported operation plan's (OPLAN) Time-Phased Force and Deployment Data (TPFDD).

(g) Develop and implement a system or subsystem for tracking Marine Corps-leased and -owned containers.

(6) Base and Station Commanders

(a) Lease containers to meet the FMF stated requirements. When necessary, route requirements for commercial-leased containers to Military Sealift Command (MSC).

(b) Ensure container outloading capability will support the tenant FMF commander's OPLAN(s) requirements.

(1) Determine and program facility requirements to support container outloading requirements.

(2) Evaluate the availability of commercial MHE/CHE, to include CHE and garrison mobile equipment, to meet the contingency, mobilization, and surge requirements of the deploying MAGTF's.

(3) Contract and/or lease commercial MHE/CHE to support the loading and transfer of containers.

(c) Prepare installation outload plans as appendixes to the FMF supporting plan for each major OPLAN.

(d) Update and report installation outload capabilities as outlined in MCO 4810.1.

(e) Provide technical assistance concerning procedures for stuffing containers including procedures for handling hazardous material.

(f) Inspect and recertify containers under your control using guidance provided by the Marine Corps CCO, MCLB Albany.

(6) MAGTF Commander in the Theater of Operations

(a) Move containerized cargo to support the concept of operations and applicable theater logistics instructions.

(b) Containers may be used for field warehousing. The use of containers for field warehousing may be advantageous at times; and therefore, decision to use containers in this mode are left to the discretion of the MAGTF commander. Such use should be carefully considered, as sufficient quantities of empty containers must be released to the container control officer for proper distribution to ensure future transportation requirements can be supported.

(c) Assess requirements for commercial containers needed to efficiently distribute supplies and equipment within the MAGTF area of responsibility. Leased commercial containers which are in excess of this requirement will be offered for re-use to the agency designated in the theater logistics instructions.

(d) Ensure accountability is maintained within the theater of operations.

3. REFERENCES. The following list of references was extracted from MCO 4680.5, enclosure (2).

<u>Reference</u>	<u>Title</u>
FMFM 4-17 (draft) (OH 4-17)	Employment and Container Control
OH 1-4	Deployment of the Assault Follow-On Echelon (AFOE)
FM 55-60	Army Terminal Operations

MCO 4035.6	Joint Procedures for Coding and Marking DOD-Owned Containers
MCO 4610.33	Joint Procedures for Container Control, Utilization, Maintenance, Inventory, Reporting, and Acceptability Criteria for MILVAN and Commercial ISO Containers
MCO 4635.6A	Joint Procedures for Implementing the International Safe Container Act (Draft)
MCO 4680.5	Containerization Policy
MCP	Marine Corps Capabilities Plan
MAGTF Master Plan	Marine Air-Ground Task Force Master Plan
SEMP	Support Establishment Master Plan
TM 55-2200-001-12	Transportability Guidance, Application of Blocking and Bracing, and Tiedown Material for Rail
TB 55-8115-200-23	Standard of Maintenance for MILVAN Container Overhauls or Repairs
DD-M(A)1592	Container System Hardware Status Report
ANSI MH 5.4-1972	American National Standard Specifications for Freighter Containers
MIL-C-52661C	Military Specifications Container, Cargo
International Standard ISO 6346 Ref No ISO6346-1984(E)	Freight Containers-Coding Identification and Marking
ABS 68	Guide for the Certification of Dry Cargo Containers
MILHDBK 138	Container Inspection Handbook for Commercial and Intermodal Container
MTMC Pamphlet 55-5	Management and Stuffing Containers (Dry Cargo Type)
MTMC Pamphlet 55-13	DoD Container Delivery System
MTMC Pamphlet 700-1	Logistics Handbook for Strategic Mobility Planning

4. CONTAINERS AND CONTAINER HANDLING EQUIPMENT (CHE). Today virtually all of the commercial products and equipment shipped overseas, as well as by rail, are shipped using some form of intermodal container. The merchant marine industry has made the transition from a breakbulk shipping fleet of the past to the current fleet of container shipping. Because of the merchant marine industry's impact on the transportation of supplies by sea, the Department of Defense (DOD) has placed an increasing emphasis on containers to deploy and support forces in overseas contingency situations, such as Desert Shield/Desert Storm.

a. Intermodal Container Defined. The intermodal container is an article of transportation equipment designed to be carried by various transportation modes and to optimize the carrying of goods without intermediate handling and transfer.

b. Marine Corps Small Container Family. As a part of the Marine Corps Field Logistics System, the Marine Corps has developed a family of small containers that can be easily moved in an expeditionary environment and consolidated ANSI/ISO Twenty-Foot Equivalent Unit (TEU) (except PALCON's cannot be consolidated into a TEU).

(1) Insert. The smallest container is the insert. It will fit into the PALCON and QUADCON. You can fit 6 inserts into a PALCON and 36 inserts into the QUADCON. The insert may be employed separately as a covered field box like the wooden publications box. It is portable and watertight. Dimensions are 10" x 17" x 45". It can carry up to 120 pounds.

(2) PALCON. The PALCON is a pallet size container which augments the current wooden pallet box. It is being used in support of the storage/movement of organizational property. The PALCON is accessible with a forklift from all four sides. The dimensions are 48" x 40" x 41" and has a cargo capacity of 1000 pounds. The reason for the height of 41 inches is that with this height we can fit them two high in an ISO container.

PALCON's have integral locking devices which allows them to be connected together quickly. Once connected up to 8 can be lifted in a single lift (4 interlock and 2 high for 8). Where as normally with the standard wooden 48/50 cube box we could only net lift four at a time.

(3) QUADCON. The QUADCON is the largest of the intermediate size containers the Marine Corps uses. It opens at both ends with double doors and at gross weight can be lifted by a 10K forklift, USMC cranes, and CH53 helicopters. It was designed to be connected in arrays of four and form a TEU. Each QUADCON has a cargo capacity of 7,435 pounds and a maximum gross weight of 10,000 pounds.

NOTE TO STUDENTS: The first generation of QUADCON (quantity of 560) were procured in August 1984. In September 1991, a multi-year contract was awarded for a second generation of QUADCON's. Deliveries were to begin in FY93.

(4) Shipping Frames. There are two sizes of open shipping frames. These shipping frames will be used to containerized service support equipment.

(a) HALFCON. The 10' shipping frame is an open top cargo carrier of steel construction which features a four way forklift handling capability and standard ISO corner fittings. An array of two frames forms ISO TEU. The frame is used to support the mounting and movement of the reverse osmosis water purification unit (ROWPU). The dimensions of one is 10'x 8'x 8'.

(b) SIXCON. The smaller of the shipping frames, can be arrayed up to six to form a ISO TEU. The SIXCON is currently used for bulk liquid storage/transport and dispensing equipment. The SIXCON fuel/water modules and pumps combined with the LVS (MK-48/MK14 or MK18) or ISO configured 5 Ton truck replace the 2-1/2 Ton refueler and water trucks (M49 and M50).

c. ANSI/ISO Container. All specialized containers are either ISO dimensionally standard or can be arrayed into ISO dimensionally standard configurations. This allows the MAGTF to take advantage of the commercial containerships for intermodal transportation and reduces the requirement for unique handling and motor transport equipment. Special containers provide the ability to move fuel modules and water purification units, along with large shelters that protect specialized equipment from the elements, these shelters can also provide house functions and working areas when needed.

(1) Dry Cargo Container. The Marine Corps only used the 20' container for MAGTF Assault-Follow-On-Echelon (AFOE) and MPF. These 20' containers requires special Container Handling Equipment (CHE). Such as the Rough Terrain Cargo Handler (RTCH) and Lightweight Amphibious Container Handler (LACH). The 20' dry cargo container comes in various configurations:

- (a) Open Top - Access from the top
- (b) Open Side - Access from sides (1, 2 or all sides)
- (c) Half-Highs - Used for heavy items (e.g., ammunition) that weight out before cubing out
- (d) Refrigerated Containers - MRE's on MPF, etc.

(e) Various Lengths/Heights - vary in length, 20, 35, 40, and 52 foot Containers (also vary in height 8' and 8 1/2'). The Marine Corps only uses 20' containers.

(2) Mobile Facility (MF). The MF program utilizes a family of rigid wall ISO containers as tactical shelters principally to contain aviation weapons systems maintenance, tactical operational, logistical and administrative functions. There are many different types of MF types. Many of the 6x6 truck communications vans (S-280) are being replaced with 10' and 20' ISO MF containers.

(3) Marine Corps Expeditionary Shelter System (MCESS). The dimensions are 20' and 10' x 8' x 8'. These containers are multiple-use. They can be used as support facilities for medical, communications, feeding, air control, operations centers. One MCESS container is a knockdown type. Four knock down containers can be reduced to the height of one ISO TEU.

(4) Flatrack 20 Foot. The flatrack is a 40' or 20'X 8'X 8' shipping platform with either fixed or collapsible end walls, open sides and top. The flatrack is easily assessable by MHE. The flatrack provides the capability to carry heavy lift, oversized or other MAGTF equipment within the cells of a containership. Flatracks were used for the retrograde of munitions from Southwest Asia.

d. Container Handling Equipment (CHE)

(1) Extendable Boom Forklift (EBFL). The EBFL provides the Marine Corps with the capability to stuff and unstuff 20'x 8'x 8' containers located on the ground or trailer mounted, under field conditions. The EBFL has a 20 foot reach.

(2) Lightweight Amphibious Container Handler (LACH). The LACH is a straddle-lift type, towed, two-wheel mounted, container handler. Capable of lifting and carrying containers, ramp entry into large landing craft (LCU), and loading and unloading cargo containers onto/from cargo trailers during amphibious operations. When it is propelled by it's prime mover (bulldozer), it can be maneuvered in the surf zone in up to 5' of water with a 20' container weighting up to 50,000 pounds. Each MPS squadron is equipped with four LACH's.

(3) 50,000 Pound Container Handler, Rough Terrain RTCH). The RTCH provides a capability of handling the 8' wide family of containers weighting up to 50,000 pounds. It will handle ISO containers with the length of either 20, 35, and 40 feet. It is a rough terrain truck designed for operating on soft soil conditions such as unprepared beaches. The RTCH is a four wheel drive, and capable of fording 5' of saltwater.

(4) Cranes. Although cranes are not the fastest or preferred method to lift containers they are used when a RTCH is not available.

(5) Logistics Vehicle System (LVS). The LVS consists of one front powered unit (MK48) and one of any 5 rear body unit configurations (e.g., container hauler, tilt-bed, drop side, wrecker, 5th wheel).

a. The MK14 container hauler is an ISO twist-lock equipped rear body unit designed to transport standard ISO containers, shelters, and modules. The MK14 are currently be modified to MK18 (tilt-beds). The MK18 by a hydraulic system can load and unload a container without the aid of CHE. Just like a commercial trash truck.

b. The MK17 dropside cargo with crane is a rear body unit with an 16'x 8' loading area, designed as a cargo/troop carrier as well as a carrier for small containers (e.g., PALCON'S, etc.).

(6) 5-Ton Truck Bed with ISO-Configured Locking Devices. The ISO-configured truck bed is a modification to the cargo beds of the existing 5 ton trucks to facilitate the transport of ISO-configured containers. The 14' bed will transport two SIXCON containers. While the 20' bed will transport one 20' long ISO container, or two 10' long ISO containers (HALFCON) or four QUADCON's.

(7) Commercial and other Service CHE. The use of commercial CHE (e.g., lifts or motor transport equipment) may be come essential. Especially while in theater and being supported by host nation assets or Army units.

5. MARINE CORPS UNITS CAPABLE OF HANDLING LARGE CONTAINERS. The three units that have the mission and capability to handle containers for the MAGTF are:

a. Landing Support Battalion, FSSG. The Landing Support Battalion has the RTCH, LACH, and other MHE. The Landing Support Bn is responsible to establish container marshalling areas within Beach Support Area (BSA's), Combat Service Support Area (CSSA's), seaports, and other throughput terminals.

b. Marine Wing Support Squadron (MWSS), MAW. The MWSS has the RTCH, other MHE, motor transport assets (e.g., LVS, 5 Ton Truck). The container handling capability of the MWSS could, most likely, be fully committed to handling the large volume of class V(A) containers and aviation mobile maintenance facilities (MMF).

c. Motor Transport Battalion, FSSG. The Motor Transport Battalion has the bulk of the MAGTF's motor transport assets (LVS 5 ton truck). The Motor Transport Battalion's mission as it pertains

to containers would be to distribute them from container marshalling areas to various locations.

6. CONTAINERIZATION DOCTRINE. The Marine Corps Combat Development Command is currently developing containerization doctrine. FMFM 4-17, Employment and Container Control is in draft.

7. CONTAINERIZATION PROCEDURES. The Marine Component Commands Atlantic and Pacific and COMMARCORLOGBASES Albany are currently developing container handling procedures. These procedures will include but not be limited to: leasing, accountability, tracking, maintenance, etc.