LOGISTICS HANDBOOK FOR STRATEGIC MOBILITY PLANNING

MILITARY SURFACE DEPLOYMENT AND DISTRIBUTION COMMAND
TRANSPORTATION ENGINEERING AGENCY
1 Soldier Way
Scott AFB, IL 62225-5006

SDDCTEA Pamphlet 700-2*

LOGISTICS HANDBOOK
FOR
STRATEGIC MOBILITY PLANNING

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Deployability Division

Military Surface Deployment and Distribution Command
Transportation Engineering Agency
1 Soldier Way
Scott Air Force Base, IL 62225-5006

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FOREWORD

This pamphlet provides a broad range of vital transport information and guidance for deployment and distribution planning purposes. Such data are essential for the successful mobilization, deployment, and sustainment of U.S. forces worldwide.

The goal of this publication is to provide standardized transportation information for continuity in planning throughout the joint deployment and distribution communities. It is designed to guide and assist staff and unit officers in planning unit mobilizations and deployments. This publication should be used for information purposes only.

For further assistance see Military Surface Deployment and Distribution Command Transportation Engineering Agency's (SDDCTEA) website http://www.tea.army.mil.

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I. INTRODUCTION

A. PURPOSE AND SCOPE

This pamphlet provides a broad range of transportation planning data and guidance for deployment and distribution planning purposes of U.S. joint and expeditionary forces worldwide. It contains the following information:

1. Mobility planning considerations.

2. Planning guidance for four transportation modes (highway, rail, sea, and air).

3. Unit movement requirements.

4. Containerization guidance.

5. Supplemental transportation appendices.

This pamphlet should be used for information purposes only. More precise data may exist for a specific application, exercise, or mission being planned.

B. FORMAT

This pamphlet is formatted in chapters designed to provide continuity between the four modes of transport (highway, rail, sea, and air). Each chapter contains a general discussion of the mode of transportation, an inventory of transportation assets, transit data, and loading criteria and restrictions.

Basic characteristics of several types of Army units are contained in table 1. For specific information relating to the characteristics of these Army units and their requirements for each mode of transportation, refer to SDDCTEA Pamphlet 700-5, Deployment Planning Guide.

TABLE 1. UNIT CHARACTERISTICS (REDUCED CONFIGURATION)

Unit Type	SRC	Number of Personnel	Total Square Feet	Total STON	Total MTON
Armored Calvary Regiment	17440L000	2,745	297,882	16,520	61,987
Sustainment Brigade	63400G000	5,797	660,429	29,568	130,674
Battlefield Surveillance Brigade	49100R000	1,636	99,720	3,349	15,902
Combat Aviation Brigade Heavy	01300R000	2,768	334,963	10,586	71,115
Combat Aviation Brigade Medium	01100R000	2,728	286,585	9,430	59,896
Combat Aviation Brigade Light	01200R000	2,690	266,866	9,093	53,025
Fires Brigade	06400G000	1,339	123,004	4,951	21,378
Heavy Brigade Combat Team	87300R000	3,731	337,243	21,385	66,307
Infantry Brigade Combat Team	77300R000	3,502	209,258	8,461	36,580
Stryker Brigade Combat Team	47100R000	4,247	280,819	14,364	52,149
Maneuver Enhancement Brigade	37300R000	3,404	391,570	17,472	74,388

Source: SDDCTEA Transportability Analysis Reports Generator (TARGET), using Table of Organization and Equipment (TOE) from Force Management System Website and the Aug 2010 DA standard Equipment Characteristics File (ECF).

C. DATA SOURCES

The data in this pamphlet are derived from several sources. Sources include but are not limited to historical movement experiences, Joint Chiefs of Staff (JCS)-sponsored exercises, and SDDCTEA deployability and transportability studies.

Sources are cited throughout the pamphlet. Additionally, references for supplemental information are included in Appendix A. Any discrepancies between the information in these references should be reported to the Director, SDDCTEA.

For your convenience, this and many other SDDCTEA publications are available on the internet at http://www.tea.army.mil, or on the SIPRNET at http://www.tea.army.smil.mil. You may also request SDDCTEA publications at the address below.

D. SUGGESTED IMPROVEMENTS

We encourage user recommendations, comments, and corrections. Address all correspondence to:

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We may also be contacted by email through our Web page at http://www.tea.army.mil.

NOTES

II. STRATEGIC MOBILITY

A. GENERAL

Strategic mobility is the capability to deploy and sustain military forces worldwide in support of national strategy.

B. RESPONSIBILITIES

The major players in the movement of forces, equipment, and supplies are U.S. Transportation Command (USTRANSCOM) and it's Transportation Component Commands (TCCs): Military Surface Deployment and Distribution Command (SDDC), Military Sealift Command (MSC), and Air Mobility Command (AMC). Others include U.S. Army Forces Command (FORSCOM); Army Installation Management Agency (IMA); Navy, Marine, Air Force, Coast Guard and Defense Logistics Agency (DLA) traffic management officers or installation transportation officers; strategic mobility officers; defense movement coordinators; embarkation officers; and unit movement personnel.

1. U.S. Transportation Command

USTRANSCOM Mission Statement: Develop and direct the Joint Deployment and Distribution Enterprise (JDDE) to globally project strategic national security capabilities; accurately sense the operating environment; provide end-to-end distribution process visibility; and responsive support of joint, U.S. government and Secretary of Defense-approved multinational and non-governmental logistical requirements.

USTRANSCOM is a unified command that serves as the DOD single manager for transportation (other than Service-unique or theater-assigned assets) providing common-user and commercial air, land, and sea transportation, terminal management, and aerial refueling to support the global deployment, employment, sustainment, and redeployment of U.S. forces. USTRANSCOM is also the Distribution Process Owner (DPO) for the DOD. As the DPO, USTRANSCOM is tasked with overseeing the overall effectiveness, efficiency, and alignment of DOD-wide distribution activities and developing and implementing distribution process improvements that enhance the Defense Logistics and Global Supply Chain Management System. This designation provides flexible, reliable, responsive support to the warfighter from factory to foxhole. USTRANSCOM is DOD's global distribution operations synchronizer responsible for providing military representation to U.S. national agencies, U.S. commercial entities, and international agencies for global distribution operations. The command is responsible for managing information technology in the distribution portfolio and for developing a centralized approach for the use of asset visibility technologies, including satellite tracking, and synchronizing

implementation DOD-wide. USTRANSCOM has acquisition authority to procure commercial transportation services, supplies and equipment as well as authority to manage Acquisition Category II and III programs related to distribution processes and information systems. USTRANSCOM continues to be responsible for transportation aspects of worldwide mobility planning, operating the Joint Operation Planning and Execution System (JOPES), and centralized global transportation management. Included in global transportation management is the responsibility to support rapid execution planning, deployment, employment, and sustainment of U.S. forces throughout the world. Through the Integrated Data Environment /Global Transportation Network Convergence, the command provides supply chain, distribution, and logistics information fusion enabling cohesive Command and Control and business-decisions both by and for the Combatant Commands (COCOMs), Services, Joint Staff, agencies, and other Federal organizations.

2. Surface Deployment and Distribution Command

SDDC Mission Statement: Provide expeditionary and sustained end-to-end deployment and distribution to meet the Nation's objectives.

SDDC is the Army service component of USTRANSCOM and is a major subordinate command to Army Materiel Command. This relationship links USTRANSCOM's JDDE and Army Materiel Command's materiel enterprise. Cargo distribution and port management are the two critical process components of the surface distribution mission. To meet this mission, our Global Distribution professionals develop best-value transportation contracts and container-leasing agreements, which support the transportation management of freight such as tanks, fuel, ammunition, combat vehicles, food and other commodities to locations within CONUS and throughout the world. In support of the port management function, SDDC serves as the single port manager (SPM) at 25 locations worldwide and as such is responsible for all aspects of the ship loading and un-loading process. Beyond providing SPM support, SDDC can establish port operations anywhere and anytime that there is a need.

These two capabilities combined provide SDDC with the ability to truly execute an "end-to-end" distribution mission, which facilitates in-transit visibility and total asset visibility throughout the logistics pipeline.

3. Military Sealift Command

MSC's Mission Statement is to support our nation by delivering supplies and conducting specialized missions across the world's oceans.

MSC is USTRANSCOM's Navy component for waterborne common-user transportation operations. It provides both common-user, strategic sealift capability and theater-specific prepositioned support to deliver mobility forces and assets in force structure packages designed to seamlessly transition from peace to war. In addition to providing ocean transportation, and prepositioning DOD cargo at sea, MSC also operates ships that provide combat logistics support to U.S. Navy ships at sea, provides special mission support to U.S. government agencies, and operates and maintains the Voluntary Intermodal Sealift Agreement (VISA), an agreement between DOD and commercial industry partners to support U.S. forces in wartime.

4. Air Mobility Command

AMC Mission Statement: Provide global air mobility ... right effects, right place, right time.

AMC is the air component of the USTRANSCOM. AMC serves many customers and, as the single manager for air mobility, AMC's customers have only one number to call for Global Reach. Its mission includes aerial deployment by means of airdrop and/or airland for deployment, employment, and redeployment of combat forces and their support equipment; logistical resupply of these forces; aero-medical evacuation; presidential airlift; and aerial refueling. AMC also operates air cargo and passenger terminals worldwide, and is responsible for the operation and maintenance of the Civil Reserve Air Fleet (CRAF), an agreement between DOD and commercial industry partners to support U.S. forces in wartime.

5. Forces Command

Forces Command (FORSCOM) is the Army's executive agent for training, mobilization, deploying, sustaining, transforming, and reconstituting conventional forces. Its responsibilities include development and publication of unit movement planning and execution guidance for use by Army commanders at all levels; maintenance of the Department of the Army (DA) master file of unit movement data (UMD) and standard unit movement reporting procedures for CONUS-based Army units; maintenance of the DA master file of standard equipment transportability characteristics for Army Table of Organization and Equipment (TOE); and providing guidance and assistance to installations and units on the UMD and on reporting for mobilization and deployment.

6. U.S. Army Installation Management Command

U.S. Army Installation Management Command's (IMCOM) mission is to provide standardized, effective and efficient services, facilities and infrastructure to Soldiers, Families and Civilians for an Army and Nation engaged in persistent conflict.

7. Traffic Management Officers

Traffic Management Officers (TMO) / Installation Transportation Officers (ITO) / Strategic Mobility Officers (SMO) provide guidance and assistance to assigned and supported units in preparing, maintaining, and executing movement plans. They also coordinate and monitor unit movements, provide assistance to units in or traversing the installation support area, and coordinate airlifts. Some of the TMO/ITO/SMO administrative duties include preparing movement reports and approving unit movement plans (UMP) and associated data.

8. Defense Movement Coordinators

The Defense Movement Coordinators (DMC), located in each state, direct and supervise the preparation, maintenance, and execution of contingency movement plans for mobilization and deployment within their state. DMCs coordinate surface and air movements with DOD elements, serve as the database manager for the State Mobilization Movement Control Program (MOBCON) Highway Network Database, and analyze military transportation capabilities. They also provide compiled data to appropriate agencies and process convoy clearances and special hauling permits (DD Forms 1265 and 1266). DMCs also develop procedures for review, validation, and approval of UMP and associated data for National Guard units.

9. Embarkation Officers / Unit Movement Personnel and Regional Support Command & Direct Reporting Unit Unit Movement Coordinators

Embarkation Officers (EMBO)/unit movement personnel prepare and maintain UMP and standing operating procedures (SOP). Their duties also include reviewing unit plans to ensure they meet requirements, preparing and maintaining documentation needed for unit movement and unit load plans, and coordinating operational and logistical requirements for unit moves. Regional Support Command (RSC)/Direct Reporting Unit (DRU) Unit Movement Commanders (UMCs) are responsible for approval of UMP for U.S. Army Reserve units.

C. ARMY FORCE GENERATION

Army Force Generation (ARFORGEN) is the structured progression of increased unit readiness over time, resulting in recurring periods of availability of trained, ready, and cohesive units prepared for operational deployment in support of civil authorities and combatant commander requirements. Operational requirements drive ARFORGEN. The Army focuses units against future missions as early as possible in the ARFORGEN process and task organizes modular expeditionary force packages in the ARFORGEN

synchronization process as operational requirements mature over time. Mission requirements determine unit resource priorities and readiness reporting.

The purpose of ARFORGEN is to provide combatant commanders and civil authorities with trained and ready units, task organized in modular expeditionary forces tailored to Joint mission requirements, with a sustainable campaign and depth to conduct continuous full-spectrum operations in persistent conflict. Operational requirements drive ARFORGEN training and readiness, which supports the prioritization and synchronization of institutional functions to resource, recruit, organize, man, equip, sustain, source, mobilize, and deploy cohesive units more effectively and efficiently. The Army achieves a sustained, more predictable posture to generate trained and ready modular forces tailored to Joint mission requirements while preserving the capability to defend the homeland, provide Defense Support of Civil Authorities (DSCA), deter conflict in critical regions, surge to conduct major combat operations, and preserve the quality of the All Volunteer Force in persistent conflict.

D. DEPLOYMENT PLANNING

Geographical Combatant Commanders (GCCs) develop operation plans (OPLANs) and Time-Phased Force and Deployment Data (TPFDD). The data identifies units and sustainment to support each OPLAN and provides information concerning routing from origin to destination. USTRANSCOM hosts conferences to match and refine the requirements of the supported GCC with the JCS-allocated strategic mobility resources. In these "refinement" conferences, USTRANSCOM and its TCCs flow the TPFDD using computer models to determine final port of embarkation (POE) selections and assess transportation feasibility. Transportation feasibility requires current analysis and assessment of available strategic and theater lift assets, transportation infrastructure, competing demands, and restrictions. Following all analysis inputs prescribed within the definition of transportation feasibility, the supported GCC is responsible for declaring a plan end-to-end executable.

Movement plans are prepared using reverse planning, which begins with the ultimate destination (DEST), the geographic location where the force is to be employed. The required delivery date (RDD), assigned by the supported GCC, defines when the force must arrive and unload at its destination. The original date relative to C-day, specified by the combatant commander for arrival of forces or cargo at the destination is the GCC's required date (CRD).

In the deliberate planning sequence, the supported GCC's component commanders place their requirements in the component command's TPFDD in an RDD priority sequence based on the GCC's concept of operation. When the component commander's TPFDD is consolidated into the GCC's TPFDD, the CRD is used to retain the original RDD for those movement requirements that have RDDs that shift due to reprioritization.

Strategic movement planning begins with the RDD to determine critical interim dates. The latest arrival date (LAD) is the latest date the last element of a force can arrive and complete offloading at the port of debarkation (POD). It is determined by subtracting the number of days required to move from the POD to the DEST. The earliest arrival date (EAD) is the earliest date the first element of a force can be accepted at the POD. The EAD used with the LAD defines a delivery window at the POD for planning purposes.

Origin mobilization planners are primarily concerned with preparing and scheduling at the home station, mobilization site, and the origin, which is the beginning point for a deployment move. The origin and POE may or may not be the same geographic location. The ready-to-load date (RLD) is the earliest date a unit is available at the origin for onward transportation to the POE. The available-to-load date (ALD) is the earliest date the unit can begin loading at the POE.

The earliest departure date (EDD) reflects the earliest date, after the ALD, the shipment is ready to depart from the POE. For planning purposes, these dates are calculated backward from the RDD after considering marshaling and assembly times and theater and strategic deployment transportation times. However, in practice, flexibility early in the planning cycle is rare and planners must calculate the arrival window at the POD by determining the time to complete each link in tactical, intratheater transportation.

If the RLD/ALD window given for the origin/POE is not early enough to meet the arrival window (EAD/LAD) at the POD and the RDD at the DEST, compromises must be made to ease the impact on the delivery date at the DEST. JFSC Pub 1, The Joint Staff Officers Guide 2000, gives detailed guidance in the area of deployment planning.

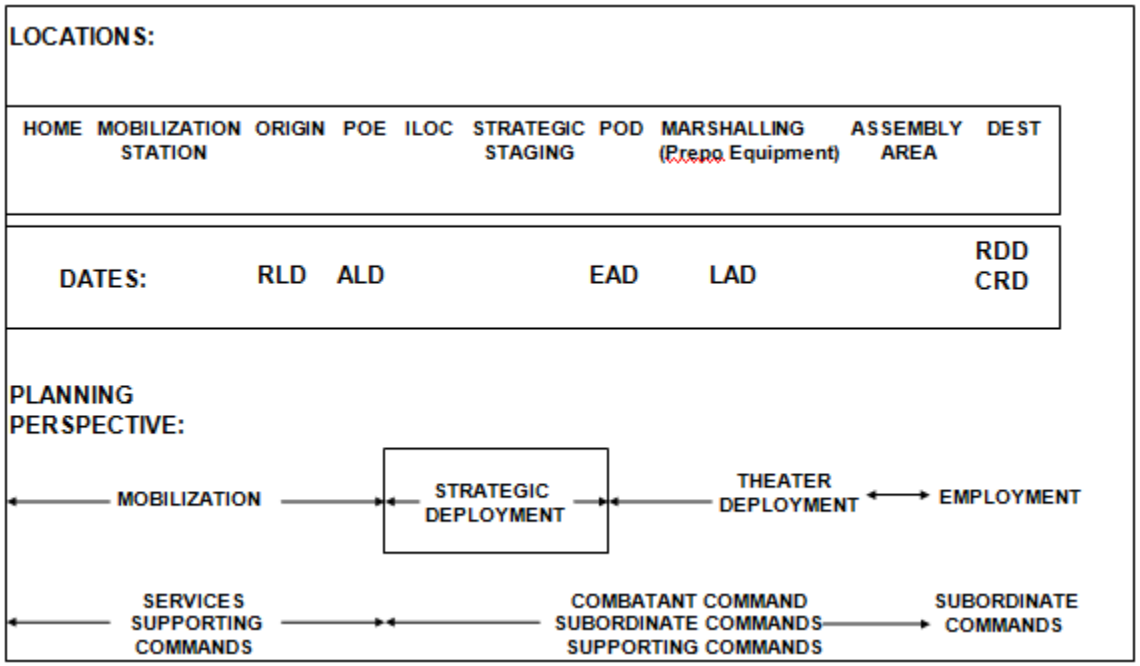


Figure 1. Movement of Forces

Figure 1 illustrates the flow of forces/units from the home station to a specified destination in the theater of operation. Arrival times for the locations shown in the figure are assigned by various sources. The determination of times associated with each location is described in the following section.

1. Origin Station

Origin station is where the deploying unit is home based. The supported or supporting commander selects the origin station departure time. It can be estimated by subtracting the transit time to the A/SPOE from the A/SPOE arrival time.

2. Force Generation Platforms

Under the Force Generation Platform concept, certain installations are designated as Power Generation Platforms (PGP), Power Projection Platforms (PPP), or as Power Support Platforms (PSP). The objective of this concept is to provide the capability to train, mobilize, and deploy the force, simultaneously, through-out the ARFORGEN process.

A PGP is an active component (AC)/reserve component (RC) installation that provides continuous Force Generation, Deployment, and Training Operations for AC/RC units. There are six PGPs installations:

Fort Riley, KS	Camp Atterbury, IN
Fort Bliss, TX	Camp Shelby, MS
Joint Base Lewis-McChord, WA	Joint Base McGuire-Dix-Lakehurst, NJ

A PPP is an Army installation that strategically deploys one or more high priority active component brigades or larger and/or mobilizes, trains, and deploys high-priority Army reserve component units (Ref. FM 3-35). There are ten CONUS PPP installations:

Fort Bragg, NC	Fort Stewart, GA
Fort Campbell, KY	Fort Sill, OK
Fort Drum, NY	Fort Carson, CO
Fort Hood, TX	Fort Polk, LA
Fort McCoy, WI	Fort Benning, GA

A PSP is an Active Army or federally-activated, state operated-installation that strategically deploys individuals from all services, the civilian force and mobilized reserve components. PSPs house training facilities and heavy equipment for RC combat units (Ref. FORSCOM Reg 500-3-1). The seven PSPs are as follows:

Hunter-Liggett/Roberts, CA	Fort Buchanan, PR
Gowen Field, ID	Fort Sam Houston, TX
Fort Leonard Wood, MO	Fort Knox, KY
Fort Gordon, GA	

All Army units that are not permanently assigned to a CONUS installation or mobilization site may be required to report to one of the Army PGPs/PPPs to begin the deployment process. FORSCOM selects the platform based on the mission, PGP/PPP capabilities, transportation assets, unit requirements, and location.

The supported or supporting commander may select the mobilization station departure time. It can be estimated by subtracting the inland transit time to the A/SPOE from the A/SPOE arrival time. For units convoying to an A/SPOE, the mobilization station departure time calculation should include estimates of anticipated time spent in FORSCOM marshaling areas.

The supported or supporting commander selects the mobilization station arrival time for units not permanently assigned to that station. It can be estimated by subtracting the processing time from the mobilization station departure time. The processing time should include the time required to receive railcars and/or commercial trucks and the time to load them.

3. Strategic Lift

AMC and MSC select and provide the supported or supporting commander with the required air and sea transportation assets. The following information lists several strategic mobility factors to be considered when deciding whether airlift or sealift is appropriate.

Strategic Mobility Options

Airlift	**Sealift**
Very fast	Slow to very slow
Very flexible	Some flexibility
Limited capacity	Huge capacity (1 Large, Medium Speed Roll-on/Roll-off is about 400 C-17 loads)
Most expensive	Least expensive
Airfield-dependent	Seaport-dependent

4. Intermediate Location

The Intermediate Location (ILOC) is a stopping point in the deployment movement that may be used for strategic staging, changing mode of transport (TRANSLOAD), necessary cargo handling, training, or marrying forces and equipment that are being transported by split shipment.

5. Aerial/Sea Port of Embarkation

USTRANSCOM, with input from deploying forces and the supported GCC, determines specific APOEs for all airlift. Determinations are based on the supported GCC's requirements, input from deploying units, airfield suitability, and origin and APOE channels. USTRANSCOM will make the final decision concerning APOE selection.

Strategic Seaports are U.S. ports designated to support major deployments under the National Port Readiness Network. These ports are chosen based on an evaluation of port capabilities compared to the military's deployment requirements. Listed below are the 17 designated commercial Strategic Seaports and 5 designated military Strategic Seaports. Figure 2 illustrates the strategic seaports locations.

Commercial Strategic Seaports:

Anchorage, AK
Tacoma, WA
Oakland, CA
Long Beach, CA
San Diego, CA
NY/NJ Complex,
Hampton Roads, VA
Wilmington, NC
Apra, Guam
Charleston, SC
Savannah, GA
Jacksonville, FL
Beaumont, TX
Corpus Christi, TX
Philadelphia, PA
Morehead City, NC
Port Arthur, TX

Military Strategic Seaports:

Indian Island Naval Magazine, WA
Military Ocean Terminal Concord, CA (MOTCO)
Naval Base Ventura County, Port Hueneme, CA
Military Ocean Terminal Sunny Point, NC (MOTSU)
Naval Weapons Station, Charleston, SC

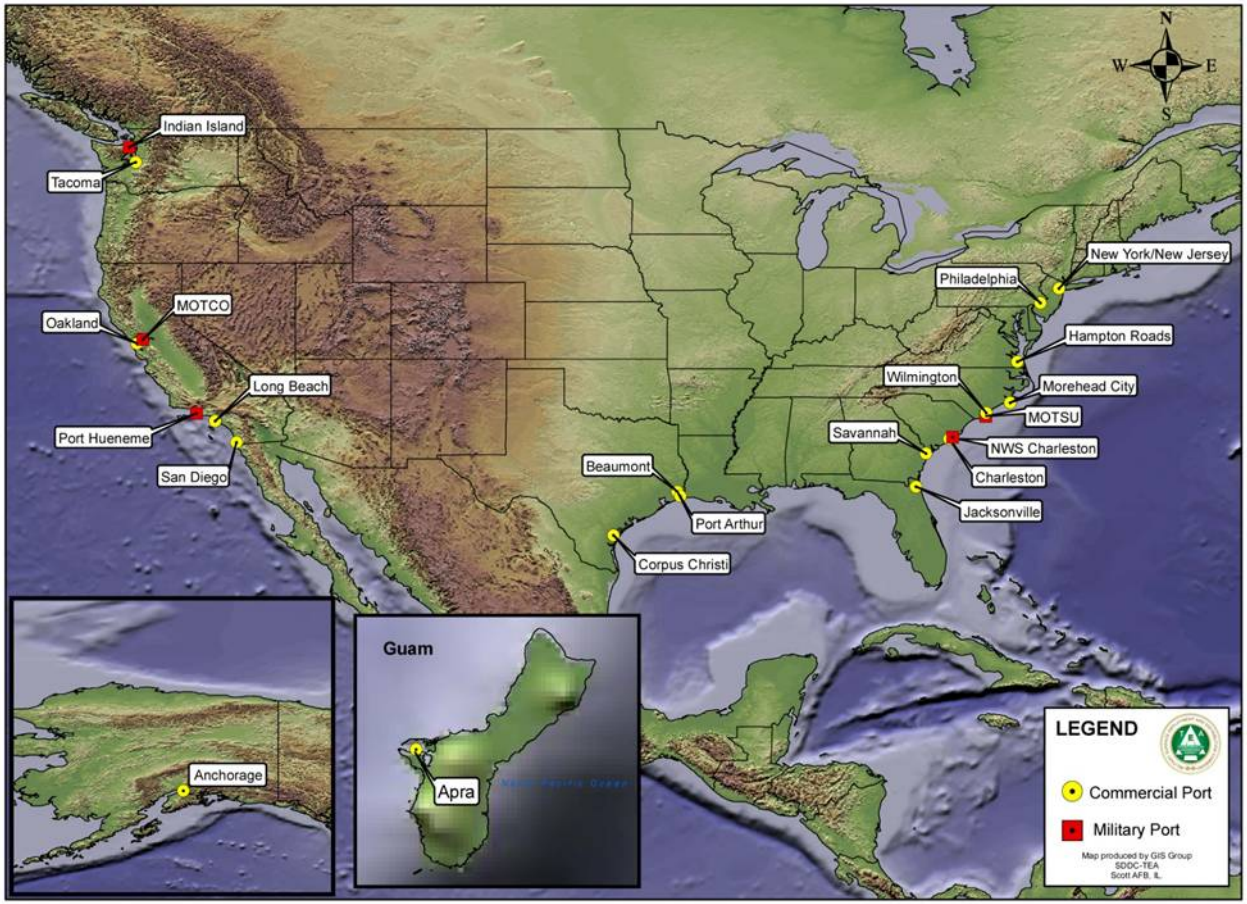


Figure 2. Strategic Seaports

USTRANSCOM's subordinate command, SDDC, determines CONUS common-user SPOEs. Determinations are based on the supported GCC's requirements, berth availability, vessel availability, input from deploying units, origin and SPOD channels, and massing cargo at ports to maximize ship utilization. Cargo arrival times at SPOEs are mandated by SDDC in a port call. For general planning purposes, select the closest Strategic Seaport or follow the supported commands guidance published in the TPFDD Letter of Instruction (TPFDD LOI).

A/SPOEs are selected based on the mission, port capabilities and location, aircraft and/or ship's characteristics and availability, cargo type, and hostile threat assessment. Appendix C provides data on worldwide ports. This information should only be used as planning factors for a port's capability to accommodate particular vessels and to calculate the handling capacity of cargo by commodity type.

A/SPOE departure times are requested by the supported commander but ultimately are selected by AMC for airlift and SDDC for sealift. The only exception is that the supported or supporting commander may sometimes select the departure times when appropriate. The departure time can normally be estimated by subtracting the air or surface overseas transit time from the scheduled-to-arrive date at the intermediate location or A/SPOD as applicable.

SDDC and AMC coordinate the A/SPOE arrival times. The times are based on availability of lift. The arrival time is calculated by subtracting the time required to process and load vehicles and equipment from the aircraft or the ship's departure time. Vehicle and equipment processing at the A/SPOE may require vehicle reduction, defueling, maintenance, washing, documentation, marking, weighing, and staging. Planning factors for estimating arrival times at the APOE are 6 hours before scheduled flight time for cargo and 3 hours for passengers.

6. Ultimate Destination

The supported commander selects the ultimate destination and required destination arrival times based on mission requirements. Actual arrival times will vary since the lift asset availability and movement priorities are established by the supported commander.

E. DISTRIBUTION PLANNING

1. General

Distribution planning is both art and science. JP 4-09, Distribution Operations, defines global distribution as the process that coordinates and synchronizes the fulfillment of joint force requirements from point of origin to point of employment. Global distribution planning involves the operations, logistics, and acquisition communities. It is an iterative process that includes detailed analysis and evaluation of the distribution networks and functions supporting the end-to-end distribution process. Global distribution planning is a collaborative effort spanning the strategic, operational, and tactical levels of war.

AR 56-4, Army Distribution and Distribution Platform Management, is the Army reference document for distribution. It focuses on distribution, i.e. providing materiel to the warfighter. Distribution as defined by AR 56-4 does not include the deployment

of forces or their respective unit equipment. This pamphlet, along with AR 56-4, recognizes that the deployment process and distribution process must be synchronized, as both processes often require the simultaneous use of the same assets and infrastructure. Distribution includes not only related infrastructure, such as depots, centers, facilities, and transportation, but also includes the process of managing those capabilities and the flow of materiel through the distribution system to final delivery. Army distribution requires active engagement with the Army and joint distribution communities, supported commanders, host nation providers, and commercial contractors and vendors. Distribution must be conducted within a supply chain and a distribution-based logistics framework.

2. Distribution and Force Deployment

As the distribution system can require the same assets simultaneously used to deploy the force, distribution and deployment must be fully synchronized to ensure that available lift, port, reception, staging, and delivery capabilities are fully exploited to best meet warfighter requirements.

3. Distribution Process Owner

The Secretary of Defense has designated the Commander, USTRANSCOM as the DPO. The DPO serves as the single entity to direct and supervise execution of the distribution system. The distribution system is the complex of facilities, installations, methods, and procedures designed to store, maintain, distribute, and control the flow of military materiel between point of receipt into the military system and the point of issue to using activities and units (JP 1-02, DOD Dictionary of Military and Associated Terms). For more and updated information on the DPO, see the DPO web site at https://dpo.transcom.mil/.

4. Deployment and Distribution Operations Center (DDOC)

Commander, USTRANSCOM; Director, DLA; and Commanding General, Army Materiel Command (AMC) collaborated to develop a deployable joint distribution operations capability to "plug" into a Combatant Command (COCOM) in order to provide direction and management of inter thru intra-theater level distribution. Coordination and collaboration are ongoing with other national partners, along with Air Force Materiel Command (AFMC), Joint Munitions Command (JMC), Army Field Services Command (AFSC), and the Services. The DDOC provides the structure, capabilities, and oversight to synchronize compelling distribution processes impacting both force and materiel movements in overseas theaters. For more updated information on the DDOC and Regional DDOCs, see the DDOC web site at https://ddoc.transcom.mil/.

5. Joint Task Force – Port Opening Capability

The Joint Task Force – Port Opening (JTF-PO) capability provides ready, expeditionary forces to conduct rapid port opening and operations within a theater to facilitate end-to-end joint distribution operations. JTF-PO forces provide the physical means to offload and convey cargo to a forward distribution node as well as provide trained personnel, communications systems, and in-transit visibility/radio frequency identification equipment to coordinate and synchronize SPOD operations with applicable strategic, operational, and tactical organizations. The ability to coordinate and synchronize joint distribution operations directly contributes to an integrated JDDE as envisioned in the Joint Requirements Oversight Council approved Joint Logistics (Distribution) Joint Integrating Concept and the overall deployment and distribution and command and control requirements.

6. Distribution Platforms

Distribution platforms include DOD or Army-owned or leased common-user intermodal American National Standards Institution (ANSI)/International Standards Organization (ISO) containers and ocean flatracks, vehicular flatracks (M1, M1077, M3, M3A1), Army owned Modified Table of Organization and Equipment (MTOE) and non-MTOE 40-foot trailers, and 463L pallets. Management of DoD-owned ANSI/ISO containers and flatracks and 463L pallets is addressed in DoD Regulation 4500.9-R Part VI and in JP 4-01.7 Joint Tactics, Techniques, and Procedures for the Use of Intermodal Containers in Joint Operations and the management of Army Distribution Platforms is covered in AR 56-4.

III. MODE SELECTION FOR CONUS MOVEMENTS

A. GENERAL

This section provides general planning criteria for selecting the mode and method of transport for passengers, unit equipment, and resupply cargo in CONUS. For resupply cargo, transportation options associated with each supply class are also listed. Additional information for CONUS movements may be found in DOD Regulation 4500.9-R, Defense Transportation Regulation.

B. CONUS MOVEMENT OF PASSENGERS

Mode selection for CONUS passenger movement should reflect the most economical means that meet DOD operational requirements. As in all movements, the mission may dictate deviation from the mode selection criteria outlined in this section. Decisions on routing authority are in accordance with the respective Service headquarter's policy.

In CONUS, transport of passengers can be by bus, rail, emergency military transportation, commercial air, chartered commercial aircraft, or Special Assignment Airlift Mission (SAAM). No limitations exist for passenger movements on these conveyances, other than passenger quantity and baggage limits. Consult DOD Reg 4500.9-R, Part I for additional information on passenger movements.

C. CONUS MOVEMENT OF UNIT EQUIPMENT

DA policy (FORSCOM/ARNG Reg 55-1, Unit Movement Planning) requires the maximum use of commercial lift capabilities in CONUS for unit deployments involving movement of unit equipment greater than 100 miles. Maximum use of these capabilities reduces wear and tear on tactical wheeled vehicles, minimizes requirements for en route support, and reduces maintenance requirements at marshaling areas. DOD Reg 4500.9-R provides guidance on routing requests.

Mode selection for CONUS unit equipment movements should reflect time constraints, economic requirements, asset availability, hostile threat assessments, and special movement requirements. The mission may dictate deviations from the mode selection criteria outlined in this section. SDDC will determine the transport mode for commercial movements, except as delegated to the ITOs, TMOs, SMOs, and EMBOs.

Transport options for CONUS surface movement of unit equipment are highway and rail. Inland waterways offer another possible option. Although no formal guidance for inland waterways exists, in recent years successful unit moves have been made via this transport system. Air transport within CONUS is unlikely for any significant quantities of unit equipment. Helicopters normally self-deploy to the APOE and SPOE for transport by airlift or sealift.

The general guidance for the use of commercial transport (motor and rail) of unit equipment in CONUS is as follows:

- Commercial transport assets will be used in CONUS for moving unit equipment during mobilization and deployment.
- Commercial assets must be available to support the nonorganic move and to satisfy the RDD.
- Commercial movement capability must be validated by SDDC.

Exceptions to this guidance, contained in FORSCOM/ARNG Reg 55-1, are made for units located within a 1-day road march to the mobilization station or POE. These units can move over the road organically when the State Area Command (STARC)/Regional Support Command (RSC), for movement to mobilization station, and the ITO, for movement to POE, determine that such a movement will not adversely affect equipment readiness, and adequate en route support is available.

The transport mode selected must meet the physical dimensions and weight requirements of the cargo to be moved. Consult Chapters 4 through 7 of this pamphlet for details pertaining to each transport mode. Special consideration must be given to determine when/if state permits are required for a specific CONUS unit movement. Depending on the dimensions and weight of equipment to be transported, obtaining a state permit could require significant coordination with state transportation officials. See FORSCOM/ARNG Reg 55-1 for specific guidance in obtaining permits.

D. CONUS MOVEMENT OF RESUPPLY CARGO

Mode selection for CONUS movement of significant quantities of resupply cargo (by definition this includes ammunition and major end items of unit equipment) should reflect consideration of economic factors, RDD, asset availability, hostile threat assessment, and specific movement requirements.

Resupply cargo should be containerized to the maximum degree to take advantage of commercial container transport and intermodal systems (trucks, containers on flatcars (COFC), and containerships). For resupply operations, both 20- and 40-foot containers are used unless otherwise directed by the GCC. Twenty-foot containers are used for ammunition. However, both 20- and 40-foot containers are used for all other classes of supply. A GCC may dictate the size of containers to be used during specific phases of an operation. See Chapter 8 of this pamphlet for more detailed information on containers. The suggested "rule of thumb" to calculate average short tons (STON) per container is based on a calculation of sixty percent of the capacity of the container for unit equipment and seventy-three percent of the capacity for resupply. This allows for blocking and bracing. Below is the calculated average stons per container:

14.4 STON per 20-foot container and 17.4 STON per 40-foot flatrack for unit equipment

17.5 STON per 20-foot container (except ammunition) and 21.1 STON per 40-foot container for resupply

13.9 STON per 20-foot container for ammunition

NOTES

IV. HIGHWAY TRANSPORT

A. GENERAL

This section provides transport-planning data for CONUS highway movement of unit equipment and military cargo. It includes background information pertaining to military convoys, motor transport types, commercial transit data, and state highway limits and restrictions.

B. HIGHWAY TRANSPORT SOURCES

Sources of highway transport assets include commercial carriers and organic assets of the mobilizing unit.

In CONUS, for units located more than 1 day (approximately 100 miles) from the mobilization station or POE, the Army policy is to maximize the use of commercial transport (rail, motor, or barge). Such use reduces wear and tear on tactical wheeled vehicles, minimizes requirements for en route support, and reduces maintenance requirements at marshaling points. When situations exist where this is not practical or feasible, a unit may move by way of a military convoy.

Units located within a 1-day road march which is generally less than 100 miles from the mobilization station or A/SPOE may convoy their roadable vehicles. Roadable vehicles are those wheeled (not tracked) vehicles that can be driven or towed on the nation's highways. Exceptions will be made to this policy when, in the commander's opinion, organic movement would adversely affect equipment readiness or en route support would be inadequate to support an organic movement. Specific guidance on road march authorization can be found in the DTR 4500.9R Part III, Appendix F or service specific publications such as Marine Corps Reference Publication 4-11.3F and Field Manual (FM) 3-35. Commercial assets will still be needed to support the movement of any equipment that cannot convoy to the A/SPOE.

C. TRANSPORT ASSETS

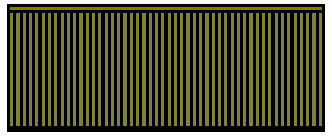
The selection of military or commercial motor transport assets for a unit move is based on the size and weight limitations of the cargo. The criteria below are examples of what should be used to select the best type of motor transport. For more specific guidance please refer to TB 55-46-1/NAVFAC P-1055 Standard Characteristics (Dimensions, Weight, And Cube) for Transportation of Military Vehicles and Other Outsize/Over Weight Equipment.

1. Motor Van

Cargo trucks are military assets capable of safe and prudent transport on public highways and are suitable for road march purposes. The M1078 4x4 cargo truck has a rated cargo capacity of 2.5 tons with loads not exceeding 149 inches in length, 92 inches in width, and 19 inches in height. The M1083 6x6 cargo truck has a rated capacity of 5 tons with loads not exceeding 170 inches in length, 59 inches in width, and 19 inches in height.

2. Containers

The criteria for containers are somewhat more restrictive. There are multiple configurations of containers. For example, items transported in the 40 foot container should not exceed 84 inches wide, by 86 inches high, by 468 inches long, and 10,000 pounds (excluding vehicles). See Chapter 8 for specific guidance.

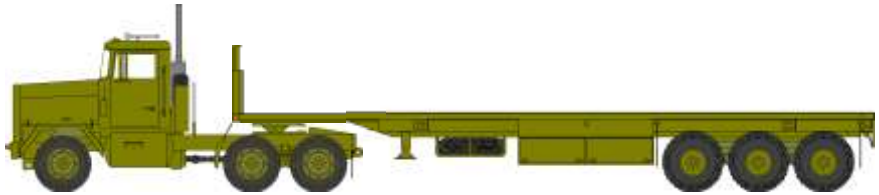


40-FT CTN

3. Flatbed Semitrailer (M871 or M872)

The commercial or military flatbed semitrailer is the highway asset for items that exceed the cargo or container criteria. The M871 flatbed trailer has a cargo area length of 350 inches with a width of 88 inches, a 45,000-pound capacity, and a deck/cargo loading height of 55/48 inches. The M872 flatbed trailer has a cargo area length of 485 inches with a width of 93 inches, a 68,000-pound capacity, and a deck/cargo loading height of 58/48 inches.

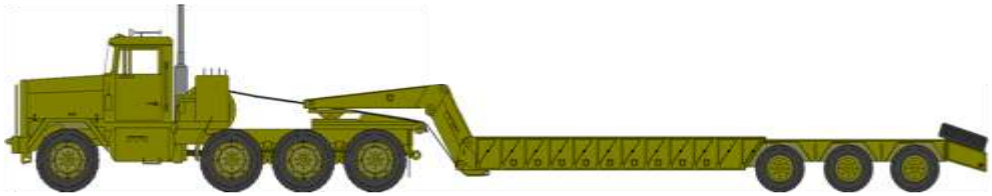
M931 Tractor w/ Semitrailer Flatbed, M871A2



M915 Tractor w/ Semitrailer, Flatbed, M872

4. Lowbed Trailer (M870)

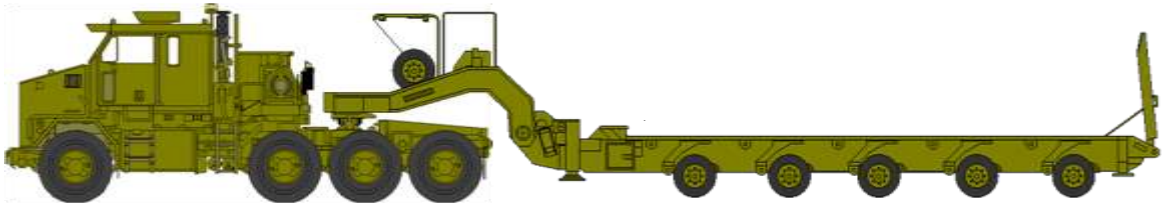
The commercial or military lowbed trailer is the highway asset for items that are too high for a flatbed semitrailer or that requires a lower bed for ease of loading. The M870 lowbed trailer has a cargo area length of 357 inches with a width of 96 inches (120" with outriggers), an 80,000-pound capacity, and a deck/cargo loading height of 40/30 inches.



M920 (MET) TRACTOR w/SEMITRAILER, LOWBED, 40 TON: M870A1

5. Heavy-Equipment Transporter System

The Army's Heavy-Equipment Transporter (HET), or a commercial equivalent, is the highway asset for moving items up to 70 tons. The Army does not routinely plan for the use of military HETs in CONUS during a mobilization and deployment because the size and weight of the combinations possible with this system and its cargo generally exceed the limits for state highway permits.



TRUCK, TRACTOR, HET w/SEMITRAILER, LOWBED: M1000

6. Palletized Load System

The Palletized Load System (PLS) is a tactical wheeled truck and trailer combination with the integral self-load/unload capability of demountable cargo beds (flatracks). The primary mission of the system is the movement of conventional and special ammunition by field artillery and their supportive transportation units throughout the battle area. It is also capable of moving all other classes of supplies throughout the battlefield in a secondary role. See Chapter 8 for more specific guidance on PLS load capability.

Truck, CGO, HEMTT-PLS: M1074

D. MILITARY CONVOY PLANNING

To improve planning and coordination of all Army unit moves to mobilization stations and A/SPOEs, SDDC, in coordination with FORSCOM, developed a mobilization movement control (MOBCON) program. The National Guard Bureau (NGB) implements the program.

Under the program, a DMC is designated for each state. DMCs assemble, analyze, and coordinate convoys for all Army moves that originate in their state and will assist in coordinating moves that originate elsewhere and traverse their state. Other service branches may use the DMC contacts but their use is not required by regulation. The DMC will establish master movement files for their state, obtain state clearances based on the master files, execute master movement plans, monitor and coordinate moves, resolve problems, and reroute moves as necessary. DMCs and their state highway civilian counterparts are listed in SDDCTEA's Directory of Highway Permit and MOBCON Officials, found on SDDCTEA's website at https://www.tea.army.mil/DODProg/HND/default.htm.

Detailed military convoy information can be found in FORSCOM/ARNG Reg 55-1, DOD Reg 4500.9-R Part III, Mobility. Intelligent Road/Rail Information Server (IRRIS) military convoy routing information can be obtained from the Strategic Highway Network (STRAHNET) Atlas, which can be found on SDDCTEA's website at https://www.tea.army.mil/pubs/res/dod/pmd/STRAHNET.htm. Figure 3 shows the current STRAHNET.

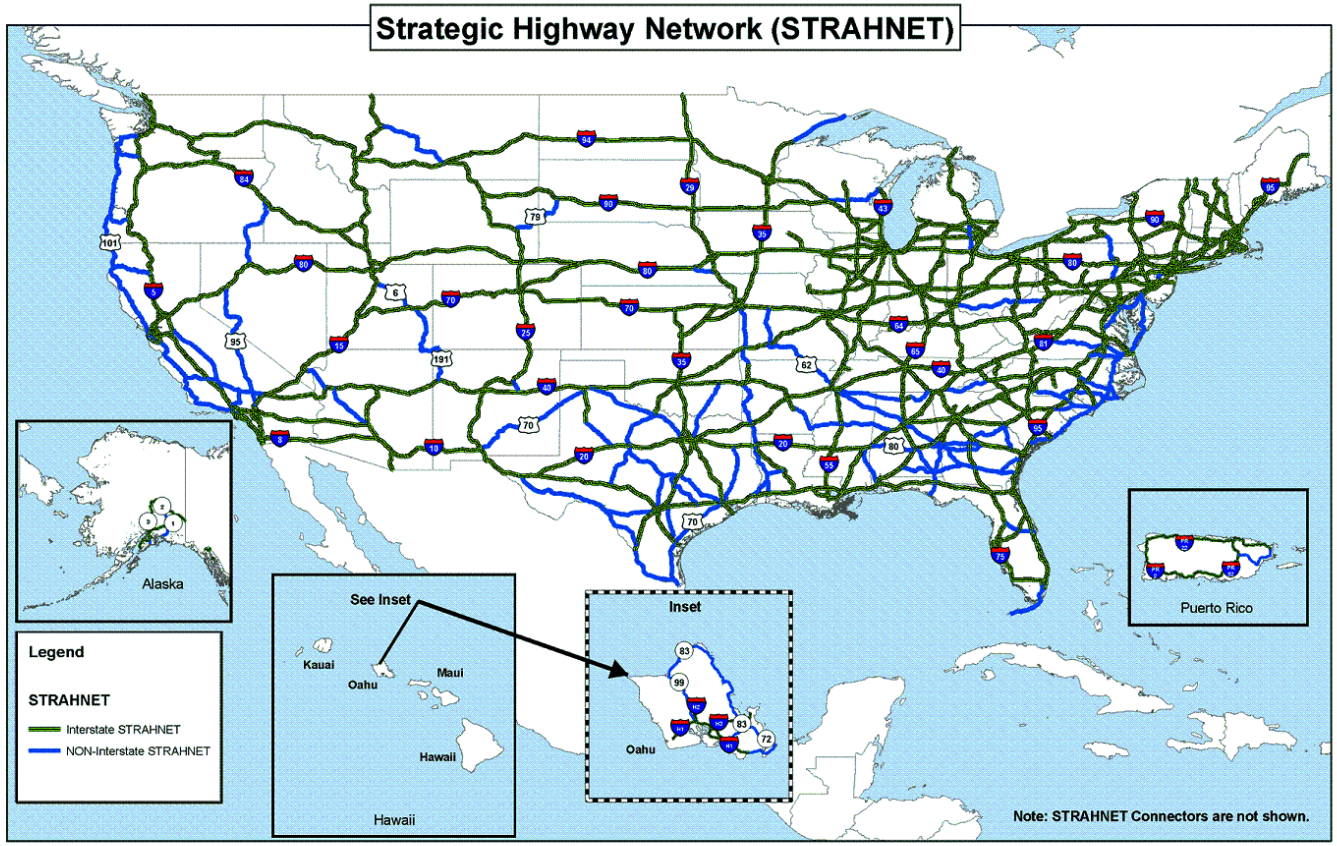


Figure 3. Strategic Highway Network

E. TRANSIT DATA

1. Military Convoy

The maximum speed for military vehicles convoying on interstate highways or expressways is 50 mph or that established by state law for commercial truck traffic. Military vehicles moving on controlled access highways will maintain the minimum posted speed or 40 mph, if a minimum speed is not posted. Military vehicles that cannot maintain the minimum posted speed must be routed over an alternate, uncontrolled route.

2. Commercial Truckload

A truckload is defined as the quantity of freight that will fill a truck, the quantity of freight weighing the maximum legal amount for a particular truck, or, when used in connection with freight rates, the quantity of freight necessary to qualify a shipment for a truckload rate.

Commercial motor truckload service is planned to average 50 miles per hour (mph) for a distance of 1,200 miles per day (mpd) using two drivers per prime mover and a sleeper berth. For shipments using a single driver, only 550 mpd can be achieved at this rate.

3. Commercial Bus

Commercial buses can be used for movement requirements when it is determined that their use is mission essential. Commercial bus travel is planned to average 50 mph for 18 hours, for a total of 900 mpd. The average commercial busload is 43 passengers per bus.

F. STATE HIGHWAY LIMITS

Two principal sets of state highway limits exist. These include limits that apply to routes on the national network and routes that are not on the national network.

1. Routes on the National Network

This network of routes (for longer, wider trucks), established as a result of the 1982 Surface Transportation Assistance Act, consists of the interstate system and other qualifying federal-aid primary system highways as listed in 23 Code of Federal Regulations (CFR) 658. The dimensions and weight restrictions established by the act are as follows:

Overall Vehicle Length: No federal length limit is imposed on most truck tractor-semitrailer operations.

Trailer Length:

- 48 feet for semitrailers in any truck tractor-semitrailer combination (varies by state). Many states may permit longer trailers (e.g. 53ft) to operate on those portions of the national network under their jurisdiction as a result of "grandfathered" rights. Refer to the respective state highway department and 23 CFR 658 for actual restrictions.
- 28 feet for each trailer in a double-trailer combination.

Width: 102 inches.

Height: no federal height restrictions; states impose their own restrictions, which range from 13.6 feet to 14.6 feet

Weight (limits apply to the Interstate System):

- 20,000 pounds for single axles.
- 34,000 pounds for tandem axles.
- Up to 80,000 pounds or the bridge formula weight for gross vehicle weight. The bridge formula weights calculation is:

  W = 500(LN/(N-1) + 12N + 36) where:

  W = overall gross weight on any group of two or more consecutive axles to the nearest 500 lbs
  L = distance in feet between the outer axles of any group of two or more consecutive axles
  N = number of axles in a group

The information pertaining to the dimensions and weight restrictions to include the Bridge Formula Weights Calculator can be found at http://www.ops.fhwa.dot.gov/freight/sw/index.htm.

2. Routes Not on the National Network

These routes are subject to dimension and weight restrictions imposed by the individual states. The restrictions vary from state to state. However, the following data can be used as a general guideline:

Length: tractor-semi trailer: 55 feet, truck: 40 feet.
Width: 96 inches.
Height: 13 feet 6 inches.
Weight: same as for national network routes.

These are the legal limits for movement of military-sponsored cargo without a permit. Since actual limits vary from state to state, the limits shown are for planning purposes only. Specific limits and permits may be obtained by contacting the appropriate State highway department. State points of contact are identified in the Directory of Highway Permit and MOBCON Officials, which is prepared and updated by SDDCTEA and available at http://www.tea.army.mil/pubs/res/dod/pmd/mobcon.pdf. Larger and heavier loads are commonly moved by permit under the provisions of DOD Regulation 4500.9-R, Parts II and III. Vehicular sizes and weights that are greater than the legal limits, in accordance with 23 CFR, must be granted a permit from the Department of Transportation (DOT) for each state involved in the move. Certain load and vehicle combinations such the M1070/M100 Heavy Equipment Transport loaded with an M1 Abrams classifies as a “superload” in most states and typically require special bridge analysis and longer permitting times.

NOTES

V. RAIL TRANSPORT

A. GENERAL

This section provides transport-planning data for rail movements of military cargo and equipment within CONUS, as well as in Korea and Europe. Only rail transport assets that are useful for the mobilization and deployment of military equipment are examined. This section includes a summary of commercial rail assets, the Defense Freight Railway Interchange Fleet (DFRIF) inventory, and rail deployment planning data.

B. RAIL TRANSPORT SOURCES

Sources of rail transport assets include commercially-owned and -operated railcars and DOD-Owned Railcars (DODX). The DODX cars make up the DFRIF inventory. The main purpose of the DFRIF is to supplement commercial railcar capability, where commercial railcars are not available in the quantities or at the time required, or a requirement exists for a specialized car type that is not available from commercial rail sources.

C. TRANSPORT ASSETS

1. Commercial Rail Inventory

Chain Tiedown Flatcars. Relatively few types of chain-equipped flatcars serve the bulk of the military's needs. Flatcar lengths fall into two main categories: 60 to 68 feet and 89 feet. Most of the commercial flatcars are nominally 70-ton capacity cars, while DoD-owned rail cars (DODX) are nominally 100-ton cars for the DODX 41000 and 42000 series and 150-ton cars for the DODX 40000 series. The weight each flat car is actually capable of carrying, which must not be exceeded, is stenciled on the side as the load limit (LD LMT). Additional information is published in MIL-STD 1366.

Among the commercial flat cars, the majority is owned by TTX Company with the others being owned by various railroads. The OTTX, ITTX, and similar flatcars are equipped with 3/8-inch chains, which are suitable for the generally lighter military vehicles (usually weighing less than 25,000 pounds). The HTTX and TTDX cars are equipped with ½ inch chains suitable for all military vehicles that will fit on each car type. OTTX and HTTX cars are 60 feet long; ITTX and TTDX cars are 89 feet.

2. Defense Freight Railway Interchange Fleet Inventory

The Defense Freight Railway Interchange Fleet (DFRIF) general purpose flatcars are available for mobilization (see Table 2). All the general-purpose flat cars have steel decks and container fittings, and most have tie-down chains. All the flatcars except the 48000-series cars have chain tie-down assemblies. The 40000-series flatcars are 68 feet long, and have a 149- to 150-ton capacity. They can carry two M1 tanks or similar heavy tracked vehicles. The 41000-series flatcars are also 68 feet long, but have a capacity of only 92 to 107 tons, depending on car design and track capacity. They can carry one M1 tank or two M2 Bradley Fighting vehicles or any wheeled vehicle. Their length and width make them ideally suited for carrying tractor-trailer combinations such as the Patriot Missile System. The 42000-series flatcars are 89 feet long and have a capacity of 85 to 101 tons depending on car design and track capacity. They were designed principally for carrying wheeled and light tracked vehicles. The 42000 series flatcars can each carry three M2 Bradley Fighting vehicles, but they cannot carry tanks. The 48000-series cars are 89 feet long and have a capacity of 76 to 80 tons. The 40000- and 41000-series cars can carry three 20-foot containers or one 40-foot container and one 20-foot container. The 42000-series cars can carry four 20-foot containers, two 40-foot containers, or one 40-foot container and two 20-foot containers. The 48000-series cars can carry four 20-foot containers.

The general-purpose tank cars are designed for top or bottom loading and unloading and have a capacity of 20,000 to 20,600 gallons each. The DOD point of contact for general-purpose flat and tank cars can be reached at SDDC.OPS.DODX@us.army.mil.

TABLE 2. DEFENSE FREIGHT RAILWAY INTERCHANGE FLEET (DFRIF) GENERAL-PURPOSE FLATCAR CHARACTERISTICS AND INVENTORY

Type	Capacity	Length	Width
	(STON)	(feet)	(feet-inches)
40000-Series	150	68	10-5
41000-Series	92 to 107	68	10-5
42000-Series	85 to 101	89	9-6
48000-Series	76 to 80	89	9-0

D. TRANSIT DATA

The criteria below are provided to assist in selecting the appropriate method of rail transport.

1. Unit Trains

Railcars loaded with unit equipment normally move as a unit train. A unit train is one in which the freight belongs to a single railroad customer and the origin and destination are the same for the entire train. The number of railcars in a unit train varies. Regardless of the number of railcars, all unit trains are planned to average 22 mph for a distance of 528 mpd.

2. Carload Shipments

For planning purposes, carload (CL) shipments totaling 49 or fewer railcars will normally move in regular train service at an average speed of 13 mph, for a distance of 312 mpd.

3. Envelope Restrictions on CONUS and Foreign Rail Systems

For relatively unrestricted movement in North America, the height and width of a loaded railcar should remain within the limitations of the Association of American Railroads (AAR) outline diagram for single loads without end overhang on open-top cars (Figure 4). Similar rail limitation criteria exist for various foreign rail systems. For a detailed description of the AAR outline diagram and other rail limitation criteria refer to Military Standard (MIL-STD)-1366E, paragraph 5.2. A loaded railcar meeting the confines of this diagram will be capable of unrestricted transport in North America, except on very few rail lines which are considered unimportant for DOD use. Loads wider than a flatcar, or combined load plus flatcar heights greater than 15 feet 1 inch above the top of the rails, are considered "dimensional loads" and must receive clearance approval from involved railroad companies prior to commencement of the move. Dimensional criteria for U.S. military equipment were used to establish the DOD clearance profile (Figure 5), which is used to evaluate a rail line's capability for meeting DOD requirements. The DOD clearance profile was used to evaluate rail lines as part of the STRACNET (Figure 6).

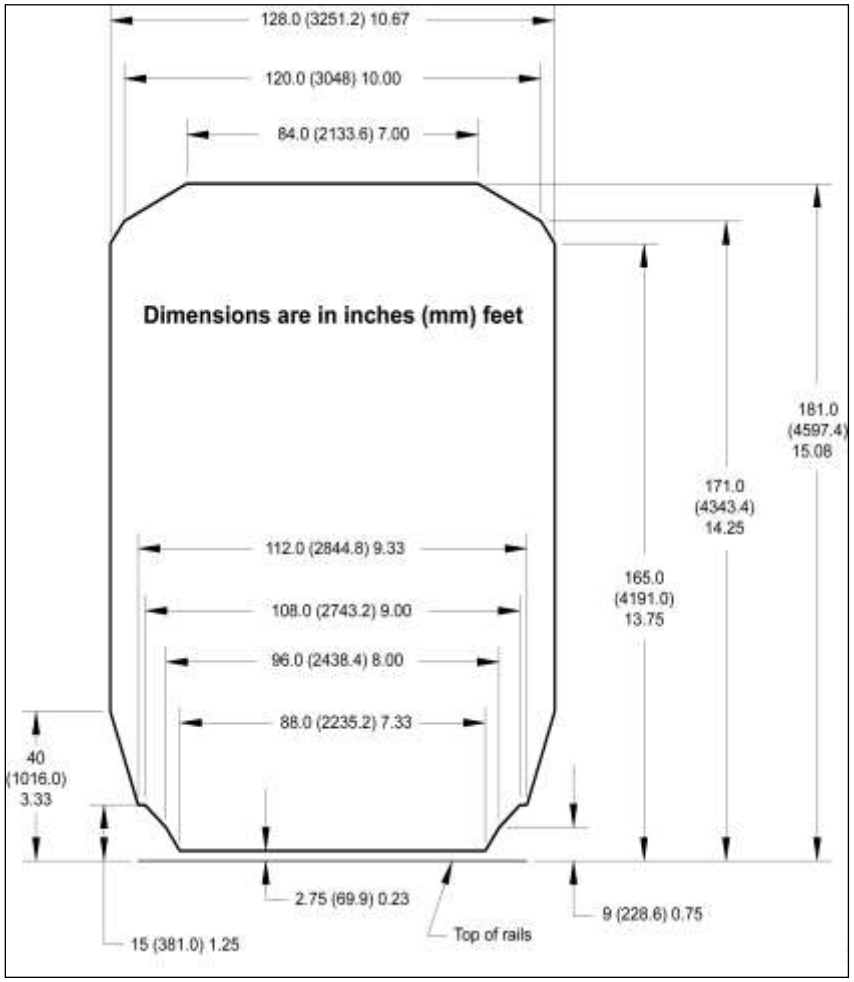


Figure 4. Association of American Railroads (AAR) Outline for Single Loads Without End Overhang on Open-Top Cars

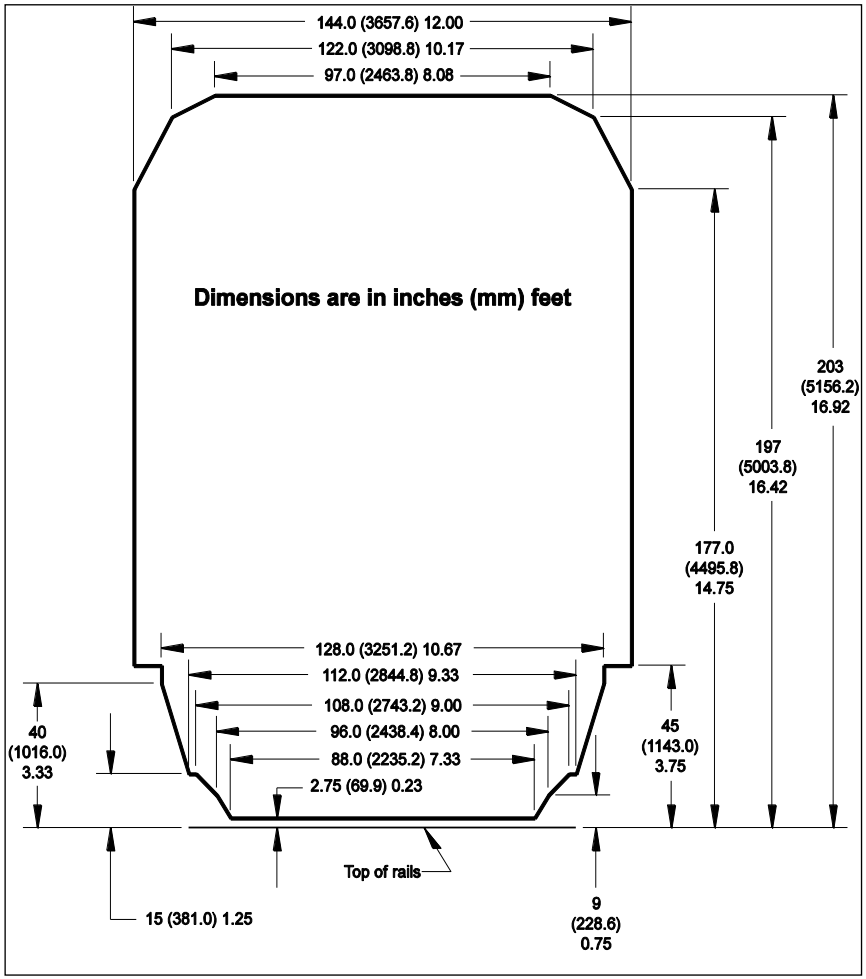


Figure 5. DOD Rail Clearance Diagram

Figure 6. Strategic Rail Corridor Network (STRACNET)

4. Foreign Rail

– Korean Rail

DOD Heavy Duty Rail Cars in Korea. There are 121 heavy duty rail cars (see Figures 7 and 8) in the Republic of Korea. The rail car has a length of 53 feet, width of 10.5 feet, capacity of 77 short tons, and can accommodate one M1 tank.

Figure 7. Example 1 of DOD Korean Heavy Duty Rail Car

Figure 8. Example 2 of DOD Korean Heavy Duty Rail Car

DOD Mobile Rail Loading Ramps in Korea. SDDC's 837th Transportation Battalion in Pusan Korea currently has on hand 15 mobile rail end-loading ramps (see Figures 9 through 11) to support military rail operations at Korean ports. The steel-end ramps designed by SDDCTEA support the circus-loading of flatcars with wheeled and heavy tracked vehicles, to include M1 tanks.

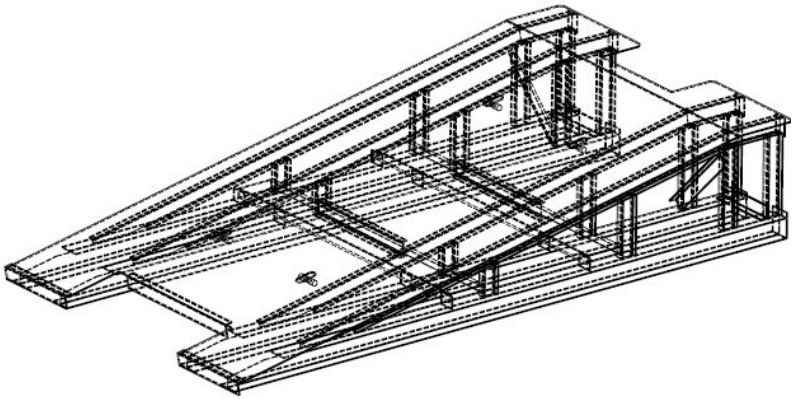


Figure 9. Diagram Mobile Rail Loading Ramp

Figure 10. Example 1 of Mobile Rail Loading Ramp

Figure 11. Example 2 of Mobile Rail Loading Ramp

Information on Korean flatcars is listed in Table 3 and the Korean rail clearance diagram is shown in Figure 12.

TABLE 3. KOREAN FLATCAR CHARACTERISTICS

Designation of Flatcars	Description of Flatcars	Typical Deck Dimensions Above Top of Rail Length x Width (meters / feet / inches)	Deck Height Above Top of Rail (meters / feet / inches)	Typical Load Limit (kg, pounds)
50T	6-axle	15.0 x 2.9 49.21 x 9.51 590.6 x 114.2	1.2 3.94 47.2	49,986 110,200
70T	6-axle	15.3 x 3.5 50.20 x 11.48 602.4 x 137.8	1.4 4.59 55.1	69,853 154,000

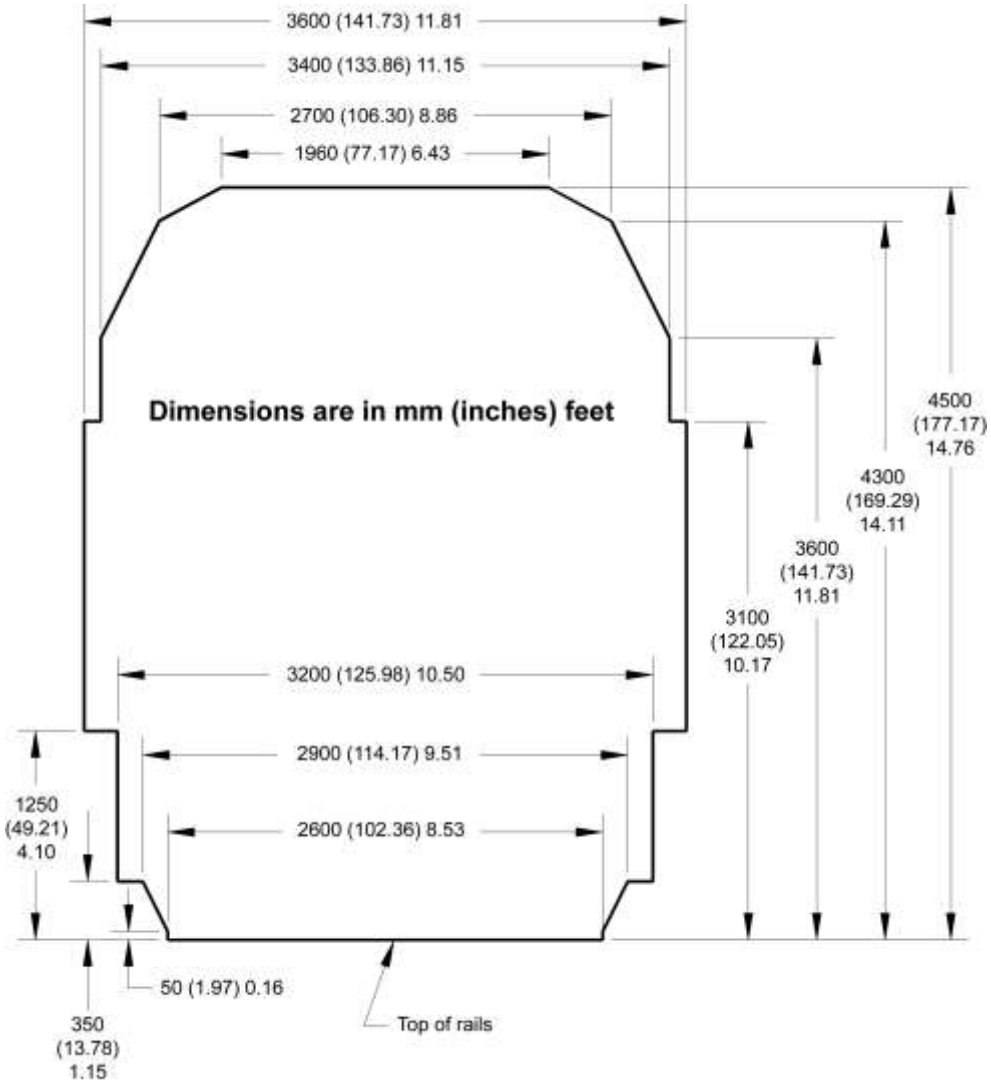


Figure 12. Korean Rail Clearance Diagram

– **North Atlantic Treaty Organization Rail**

-- **North Atlantic Treaty Organization (NATO) Railcar Availability**. The types and availability of railcars in other foreign countries vary from country to country. Standardization Agreement (STANAG) 2175 defines two types of equipment – ordinary transport military equipment and exceptional transport military equipment. This is based on the heavy duty European (Rs) flatcar. When unrestricted foreign rail transport is a requirement, the item of equipment must meet the requirements below in the definition of ordinary transport military equipment when placed on a 1305-millimeter (mm) (4.28 ft, 51.4 in) high flatcar. Table 4 shows that the most restrictive case for European rail transport is the Rs flatcar.

-- **Ordinary transport military equipment**. Ordinary transport military equipment consists of wheeled vehicles, tracked vehicles, and equipment that present all the following characteristics:

- Indivisible weight not exceeding 20,000 kg (44,092 lb).
- Length not exceeding 12,500 mm (41.01 ft, 492.1 in).
- Load distribution: 16,500 kg (36,376 lb) maximum over a length of 25,000 mm (8.20 ft, 98.4 in).
- Require no lowering of the carrying flatcar's dropsides.
- The flatcar/equipment unit conforms to the Gabarit International de Chargement (GIC) Diagram (Figure 13), with a loading tolerance of 15 mm (0.59 in.) per half-width. The 15 mm per half-width tolerance allows for some error in the placement of an item on a railcar. In other words, the equipment must be within the GIC by at least 15 mm (0.59 in.) measured horizontally.

TABLE 4. CHARACTERISTICS OF DEUTSCHE BUNDESBAHN (DB) FLATCARS

Designation of Flatcars	Description of Flatcars	Typical Deck Dimensions Length x Width (mm / feet / inches)	Deck Height Above Top of Rail (mm / feet / inches)	Typical Load Limit (kg / pounds)
Ks	Light duty flatcar, 2-axle, with removable side and end walls	12,500 x 2,770 41.0 x 9.1 492 x 109	1,238 4.06 48.7	27,000 59,500
Rs	Heavy duty flatcar, 4-axle	18,500 x 2770 60.7 x 9.1 728 x 109	1,305 4.28 51.4	50,500 111,300
Res	Heavy duty flatcar, 4-axle, with removable side wall	18,500 x 2770 60.7 x 9.1[1] 728 x 109	1,238 4.06 48.7	50,500 121,250
Rmms	Heavy duty flatcar, 4-axle, length is less than 15 meters	12,644 x 2,904 41.5 x 9.5 498 x 114.3	1,260 4.13 49.6	57,500 126,760
Remms	Heavy duty flatcar, 4-axle, with removable side walls	12,644 x 2,904 41.5 x 9.5[1] 498 x 114.3	1,260 4.13 49.6	58,500 128,900
Rlmmps	Heavy duty flatcar, equipped with stakes, 4-axle, does not have bulkhead	8,800 x 3,150 28.9 x 10.3 346.5 x 124.0	1,291 4.24 50.8	54,000 119,050
Samms	Heavy duty flatcar, 6-axle, length is less than 15 meters	15,000 x 3,110 49.2 x 10.2 591 x 122[1]	1,300 4.27 51.2	65,000 143,300

Note:
[1] The Res, Remms, and Samms flatcars have dropsides. The widths shown are the actual widths of these flatcars. For unrestricted rail transport, the designer should use 8.69 (2,649 mm, 104 in.), 9.1 (2,774 mm, 109 in.) and 8.39 feet (2,557 mm, 101 in.) as the maximum item/system width for the Res, Remms, and Samms flatcars respectively.

-- **Exceptional transport military equipment**. Exceptional transport military equipment consists of wheeled vehicles, tracked vehicles, and equipment that present at least one of the following characteristics:

- Indivisible weight over 20,000 kg (44,092 lb).
- Length over 12,500 mm (41.01 ft, 492.1 in).
- Load distribution: more than 16 500 kg (36,376 lb) over a length of 25,000 mm (8.20 ft, 98.4 in).
- Require lowering of flatcar's drop-sides.
- The flatcar/equipment unit exceeds the GIC diagram. The GIC diagram does not include the 15mm (0.59 in.) per half-width tolerance.

-- **Military equipment that is not ordinary or exceptional for transport.** Items that have dimensions that exceed the ordinary transport criteria but do not exceed the GIC diagram are not classified as either ordinary or exceptional transport. These items must be centered on the flatcar longitudinal centerline to avoid an exceptional transport military equipment classification.

-- **NATO rail transport on major rail lines**. Items of equipment that do not meet GIC diagram clearances may still be transported on the major NATO rail lines provided they meet Envelope B dimensions (see Figure 14). When transport on major NATO rail lines is a requirement, the item of equipment shall be designed to be within the Envelope B guage when placed on a 1305 mm (4.28 ft, 51.4 in.) high flatcar.

-- **Other foreign rail clearances**. Rail transport clearances in foreign countries other than NATO will vary from country to country. For simplicity, when unrestricted foreign rail transport in countries other than NATO and Korea is a requirement, the item shall meet the requirements for NATO rail.

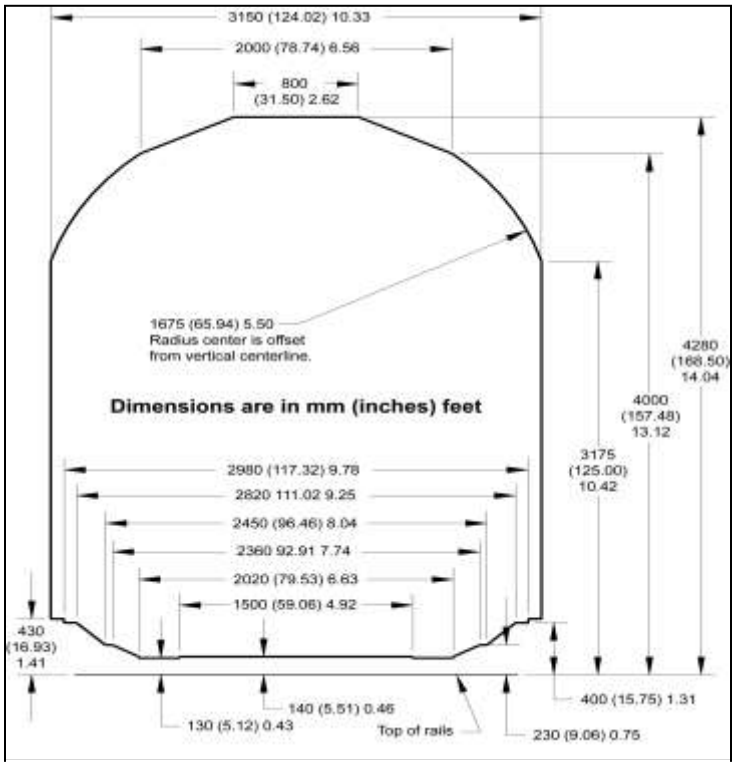


Figure 13. Gabarit International de Chargement (GIC) Diagram

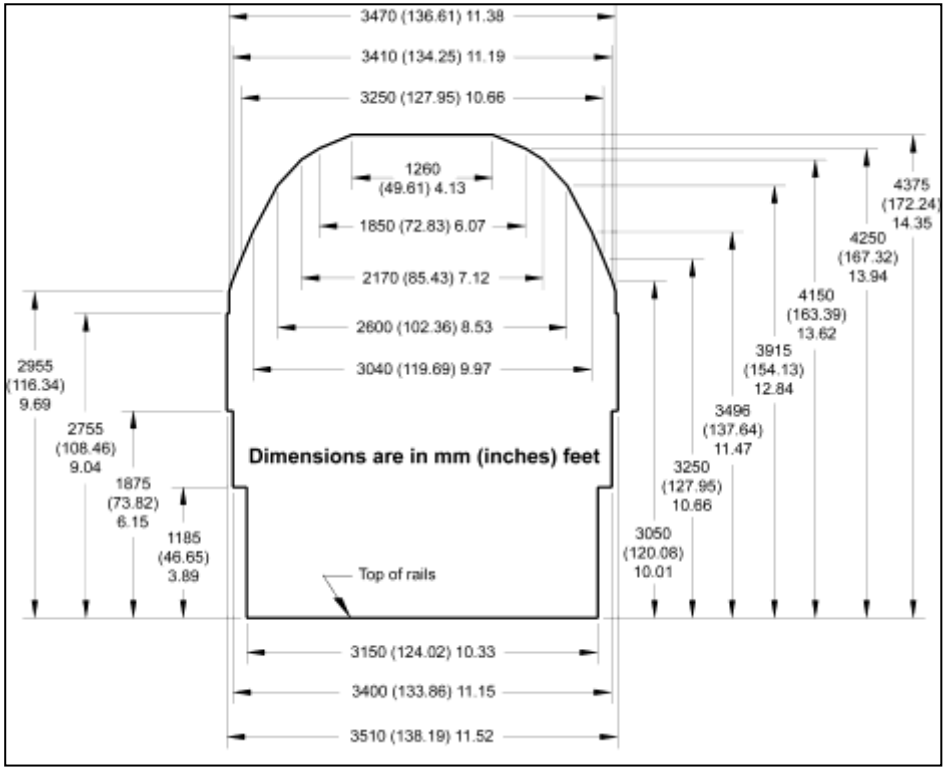


Figure 14. NATO Envelope B

5. Rail Impact Testing

Rail transport subjects items of equipment to severe longitudinal forces. Therefore, items of equipment may need to undergo testing to determine suitability for rail transport. The MIL-STD-810 rail impact test is used to validate the structural integrity of the item and the adequacy of the item tiedown provisions and procedures. Any item that passes the MIL-STD-810 test in the acquisition process should be capable of rail transport without damage to the item or tiedown equipment.

E. LOADING GUIDANCE

For specific railcar loading guidance see SDDCTEA Pamphlet 55-19, Tiedown Handbook for Rail Movements (Figure 15).

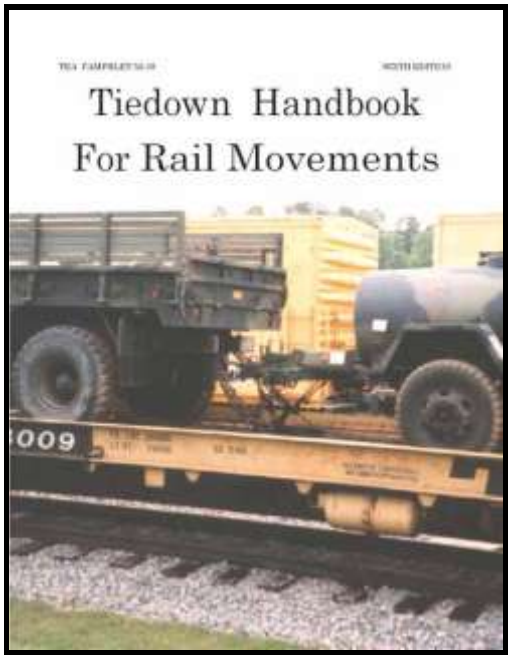


Figure 15. Cover of TEA Pamphlet 55-19

VI. SEA TRANSPORT

A. GENERAL

This section provides transportation planning data for the strategic sealift of unit equipment and other military cargo. It contains background information about strategic sealift, sealift sources, vessel types, current vessel inventories, vessel characteristics, unit movement data, special planning considerations, and ports.

B. BACKGROUND

1. Sealift Sources

To maximize DOD's logistics capability and minimize its cost, defense sealift relies heavily on the U.S. commercial sector. The ability of the United States to respond to future military contingencies will require adequate U.S.-flag sealift resources, skilled U.S. maritime labor, and the associated maritime infrastructure. The DOT helps provide for a seamless, time-phased transition from peace to war operations while balancing the defense and commercial elements of our transportation system. The Ready Reserve Force (RRF) is a key source of strategic sealift capacity to support the rapid deployment of U.S. military forces during the early stages of a military crisis. Merchant mariners employed on commercial vessels in the U.S. domestic and international trades provide the core job skills needed to crew the RRF. DOT is responsible for establishing DOD's prioritized use of ports and related intermodal facilities during DOD mobilizations, when the smooth flow of military cargo through commercial ports is critical.

The vessels referenced in this section comprise the dry cargo vessels of the Strategic Sealift Forces. Primary sources are Government-owned/controlled vessels and commercial vessels. During large deployment operations, sealift support is typically conducted in three phases: (1) the "Prepositioning (PREPO) afloat" phase provides prepositioning support to the U.S. Army, Navy, Air Force, Marine Corps, and DLA, (2) the "surge" phase includes the Large Medium Speed Roll-On/Roll-Off (RORO) (LMSR) ships, along with RRF ships; and (3) the sustainment phase includes ships from the U.S. Flag Merchant Fleet and ships from the previous phases. Discussions of the various sealift programs, the ships, and their relationships are included throughout this chapter.

– **Government-owned/Controlled Vessels.** Government-owned/controlled vessels fall under the control of either DOT or DOD. Active sealift assets are the responsibility of the DOD. The active Government-owned/controlled common-user sealift forces are MSC's common-user point-to-point shipping and Afloat Prepositioning Force (APF). Common-user ships are owned by or are under long-term charter to MSC and are employed in providing sealift to all DOD agencies on a non-dedicated basis. In a crisis, these ships may be immediately diverted to a SPOE to load deploying military cargo. Ships/programs maintained by MSC are the Naval

Fleet Auxiliary Force (NFAF) and Special Mission, Prepositioning, Sealift, and RRF ships, when activated. The Army and Navy operate vessels that support service unique mission that are also capable of transport equipment.

– **National Defense Reserve Fleet.** The DOT's Maritime Administration (MARAD) is responsible for the National Defense Reserve Fleet (NDRF) and the RRF. The NDRF (excluding the RRF) contains older dry cargo ships, tankers, and military auxiliaries that are maintained in MARAD custody under minimal preservation. Current planning considers NDRF vessels as strategic sealift resources suitable for use as replacements for combat losses, sustainment, and for economic support. Because of their relatively low level of readiness, NDRF ships, excluding the RRF, require a minimum of 30 to 120 days to activate. As of Oct 2010, the NDRF (including the RRF) contained 185 vessels, primarily dry cargo ships, with some tankers, military auxiliaries, and other types.

– **Ready Reserve Force.** The RRF is a subset of the NDRF and consists of 49 vessels as follows: 35 RO/RO vessels, 4 heavy lift or barge carrying ships, 6 auxiliary crane ships, 1 tanker, 2 aviation repair vessels, and 1 combat logistics ship. RRF ships are expected to be fully operational within their assigned 5 and 10-day readiness status and sail to designated loading berths. Ships in priority readiness have reduced operating status maintenance crews of about 10 commercial merchant mariners that are supplemented during activations.

– **Afloat Prepositioning Force.** MSC APF was established in the early 1980s to provide inter-theater mobility and reduce response time for the delivery of urgently needed U.S. military equipment and supplies to a theater of operations during a war or contingency. The APF currently has 31 ships operating around the world. MSC manages the APF under three prepositioning programs/forces that contains 31 ships, divided into the three forces that are listed below. For additional information on the APF see MSC's web site: http://www.msc.navy.mil/PM3.

-- Maritime Prepositioning Force. Sixteen MSC prepositioning ships are specially configured to transport supplies for the U.S. Marine Corps known as the Maritime Prepositioning Force (MPF). The ships contain nearly everything the Marines need for initial military operations – from tanks and ammunition to food and water and from fuel to spare parts and engine oil. Each maritime prepositioning ship carries sufficient equipment and supplies to sustain about 16,000 Marine Expeditionary Force personnel for up to 30 days. Each ship can discharge cargo either pierside or while anchored offshore using lighterage carried aboard. This capability gives the Marine Corps the ability to operate in both developed and underdeveloped areas of the world.

-- Army Prepositioned Stocks-3 Ships. Currently, six ships provide quick-response delivery of Army equipment for ground forces from strategic locations in the world's oceans. The Army Prepositioned Stocks-3 ships (APS-3) includes four LMSR vessels that are ideally suited for rapid loading and discharging of both tracked and wheeled vehicles. APS-3 also includes two container ships loaded with ammunition.

-- **Navy, Defense Logistics Agency and Air Force Ships.** The Navy, DLA, and Air Force Ships (NDAF) currently operates seven vessels around the world for the Navy, Air Force, and DLA. The NDAF ships are loaded primarily with fuels, Air Force ammunition, Marine Corps aviation support equipment, Navy munitions, and support Army ground forces.

– **Naval Fleet Auxiliary Force.** The ships of MSC's NFAF are the supply lines to U.S. Navy ships at sea. Providing fuel, food, ammunition, spare parts, mail and other supplies, NFAF ships enable the Navy fleet to operate at the highest operational tempo possible. NFAF ships provide underway replenishment services to U.S. Navy ships worldwide, alleviating the need for them to constantly return to port for supplies.

– **US Army Vessels.** Soldier-Mariners of the Transportation Corps crew United States Army Watercraft, providing the foundation for theater opening and reception of Army and joint forces committed to advancing the national military strategy. These Soldier-Mariners are integral for projecting and sustaining combat power, as waterborne logistics delivers 90 percent of all unit equipment and supplies of U.S. forces. Army watercraft – lighterage and floating utility craft (landing craft, amphibians, modular causeways, and harbor craft) – provide the critical link between offshore arrival of combat power loaded aboard strategic sealift ships and placing that power ashore in a ready-to-fight configuration. Army watercraft is prepared to deploy at any time, to any location, to fulfill the objectives of this strategy.

-- **Army Watercraft Categories:** Watercraft fall into two categories, lighterage and floating utility. These two categories are defined according to the mission they perform.

(1) Lighterage is craft used to transport equipment, cargo and personnel between ships, from ship-to-shore, or for intratheater transport. Lighterage is further classified into conventional displacement (landing craft), amphibious (wheeled), or modular causeway systems (powered ferry).

(2) Floating utility craft perform operations incidental to water terminal operations, except lighterage service. Watercraft in this category are harbor and ocean going tugs, pusher tugs, floating cranes, barges, floating machine shops, floating causeway, and RO/RO discharge facilities (RRDF).

-- **Army Watercraft Units and Their Equipment:**

(1) **Logistics Support Vessel (LSV) Detachments** carry cargo and/or equipment throughout a theater of operations or inter-theater routes not otherwise serviced by MSC. LSV Detachments also assist in RO/RO or Logistics-Over-The-Shore (LOTS) operations, particularly with container handling equipment, vehicular and other over-size/overweight cargo.

(2) **Heavy Boat Companies.** The task watercraft is the Landing Craft Utility (LCU). Unit LCUs transport personnel, containers, vehicles, and outsize cargo in offshore discharge operations. The heavy boat company also augments lighterage in a port or harbor, in inland or coastal waters, or between islands. The company also provides lighterage service required in joint amphibious or other waterborne tactical operations.

(3) **Medium Boat Companies.** The task watercraft is the Landing Craft Mechanized (LCM). Unit LCMs transport personnel and cargo in Army water terminal operations and water-borne tactical operations. It also augments naval craft in joint amphibious or other waterborne tactical operations.

(4) **Amphibian Detachments.** The task craft is the Lighter, Amphibious, Resupply, Cargo (LARC). LARCs provide the Army's only amphibious lighterage service primarily for heavy, outsize, or bulky equipment. It provides critical capability to place beach preparation equipment ashore.

(5) **Floating Craft Companies** are capable of heavy tows within a harbor area or limited offshore towing between terminals, berthing and unberthing ocean going vessels, and heavy lifts beyond the capability of ship's gear. The task craft are the 128 foot large tug, small (or pusher) tug, floating cranes, and dry and liquid cargo barges.

(6) **Causeway Companies** provide the Army with the capability to transfer cargo between ships or from ship to shore. Causeway systems provide the essential interface between Army lighterage and RO/RO ships. The task craft are RRDF, causeway ferries (CF), and floating causeways (FC).

– **Commercial Vessels**. Commercial vessels have made important and significant contributions to support large-scale deployments such as Desert Shield/Desert Storm, Operations Enduring Freedom and Operations Iraqi Freedom. DOD can obtain commercial shipping from the following sources: U.S. Flag Commercial Charters and Liner Service, Foreign-owned and –operated ships, ships committed to the Sealift Readiness Program/Voluntary Tanker Agreement, U.S.-owned ships, registered under certain flags, known as the Effective U.S. Control (EUSC) fleet, and militarily useful U.S. flag ships, which are subject to requisitioning. There are several programs set up by the Government to use commercial shipping and a total global, intermodal transportation network during national emergencies.

– **Voluntary Tanker Agreement.** The Voluntary Tanker Agreement (VTA) is an agreement established by the Maritime Administration to provide for U.S. commercial tanker owners and operators to voluntarily make their vessels available to satisfy DOD needs. It is designed to meet contingency or war requirements for point-to-point petroleum, oils, and lubricants movements, and not to deal with capacity shortages in resupply operations.

– **Voluntary Intermodal Sealift Agreement.** The Voluntary Intermodal Sealift Agreement (VISA) program is a partnership between the U.S. Government and the maritime industry to provide the DOD with "assured access" to commercial sealift and intermodal capacity to support the emergency deployment and sustainment of U.S. military forces. Intermodal capacity includes dry cargo ships, equipment, terminal facilities, and intermodal management services. The VISA program provides for a time-phased activation of state-of-the-art commercial intermodal equipment to coincide with DOD requirements while minimizing disruption to U.S. commercial operations. The VISA program can be activated in three stages as determined by DOD with each stage representing a higher level of capacity commitment. In Stage III participants must commit at least 50 percent of their capacity. Dry cargo vessels

enrolled in the Maritime Security Program must commit 100 percent during Stage III. The VISA activation process is illustrated in Figure 16.

– **Sealift Readiness Program.** The Sealift Readiness Program (SRP) is a formal agreement between U.S. Flag ocean carriers and MSC for the acquisition of ships and related equipment under conditions of less than full mobilization. Under the Merchant Marine Act of 1936, any vessel receiving MARAD's Construction and/or Operating Subsidies must be enrolled in SRP. Ships currently enrolled in SRP will remain until their obligation expires or they enroll in VISA. SRP is activated when available commercial shipping for chartering is insufficient; government owned sealift is not available or sufficient to meet DOD requirements; VISA Stage III is activated and approved by the Secretary of Defense and Secretary of Transportation. When activated, the Government enters into contract rate negotiations with carriers for needed lift.

– **Maritime Security Program.** The Maritime Security Program (MSP) serves to maintain an active, privately-owned, U.S.-flag and U.S.-crewed liner fleet in international trade. This fleet is also available to support sustainment in a contingency. On November 24, 2003 the MSP was reauthorized by the Maritime Security Act of 2003. The reauthorized program is for fiscal years 2006-2015 and provides funding for 60 U.S.-flag vessels. The MSP helps retain a labor base of skilled American mariners who are available to crew the U.S. Government-owned strategic sealift fleet, as well as the U.S. commercial fleet, both in peace and war. MSP is responsible for retaining approximately 2,200 U.S. citizen mariners. The structure of MSP encourages flexibility as operators are able to upgrade their fleets to compete in the global marketplace. MARAD approvals are required to ensure that vessels entering the MSP contracts meet DOD's needs. MARAD and the U.S. Coast Guard have established expedited procedures to encourage reflagging of modern, efficient vessels into the U.S. fleet. MSP carriers must commit 100 percent of their MSP vessel capacity and related intermodal transportation resources to Stage III of DOD's approved emergency preparedness program, VISA. MSP contributes over 70 percent of the total capacity committed to VISA. VISA operators without MSP contracts are required to commit 50 percent of their U.S.-flag capacity to Stage III of the VISA program.

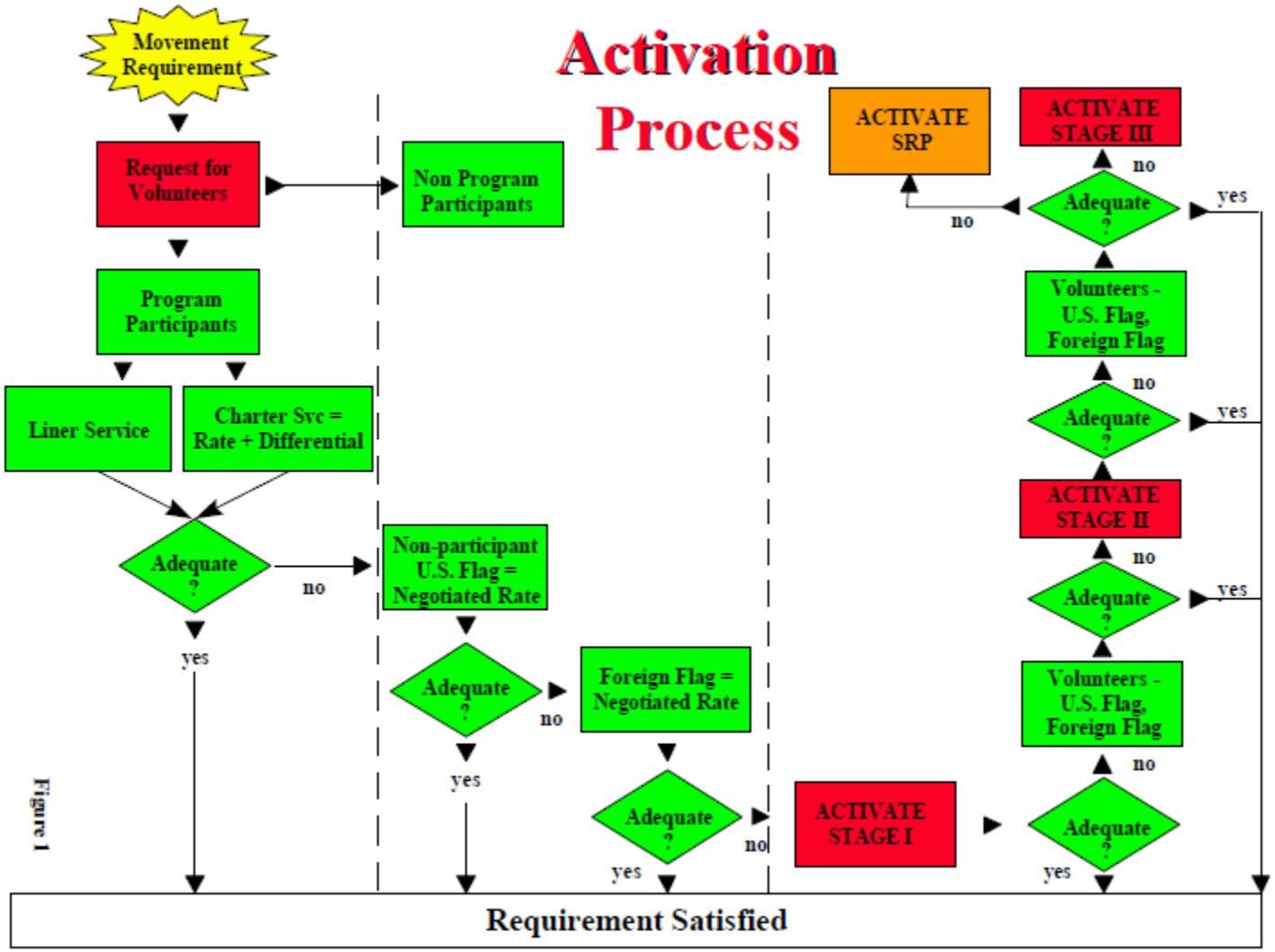


Figure 16. VISA Activation Process

C. TRANSPORT ASSETS

1. General Vessel Types

In planning a unit move by sea transport, a variety of ship types will most likely be encountered. The four conventional ship types are breakbulk, container, barge carriers, and RORO. In addition, various combinations of these four basic types may be encountered. Vessels with unique characteristics or special support missions are combined under the heading of "Special."

– **Breakbulk.** Breakbulk vessels are designated as such because of their ability to carry a variety of cargoes in various forms. These vessels can transport bagged, boxed, palletized, refrigerated, and limited containerized cargo. The configuration of a conventional breakbulk vessel is a weather deck with a series of cargo holds beneath. The cargo holds are divided by tween decks and accessed by a series of hatches. Cargo operations on a breakbulk vessel are lift on/lift off (LO/LO). Since each hold on a breakbulk vessel is serviced by ship's gear (booms, cranes, winches, and so forth), these vessels are considered to be self-sustaining. Although the breakbulk vessel is not the preferred vessel to transport tracked and wheeled military equipment, it does have the capability to offload equipment without the use of shoreside cranes. The normal constraints encountered with breakbulk vessels are low overhead clearances, limited deck strengths, limited lifting capability of the ship's gear, and slow speed of cargo operations.

– **Containerships.** Containerships are designed to carry their entire cargo load in containers (usually 20 or 40 feet in length). The full cellular stowage within their holds allows containers to be secured without the use of dunnage. Containerships are configured for the stacked stowage of containers both in the space below the main deck and on the main deck (frequently referred to as the weather deck). Since the vast majority of containerships are non-self-sustaining (that is, lack an installed crane system), cargo operations require the use of shoreside cranes or auxiliary crane ships (T-ACS). Under certain circumstances mobile cranes could be placed on the weather deck of containerships to facilitate the offload of containers at unimproved ports without container cranes. This was successfully tested in two Turbo CADS exercises.

While containerships are designed to transport only standard containers, they regularly use flatracks in commercial service without ship modification. The flatracks fit in the ship's cell guides and create a false deck system. This system allows the ship to transport a limited number of oversized, wheeled, and heavy tracked equipment. Flatracks are also used on board combination ships with container capability, such as the T-ACS and FSS.

– **Barge Carriers.** Barge carriers are designed to carry specially designed barges or a combination of such barges and containers. These barges are loaded or discharged at berths by shore-based cranes. When cargo operations are complete, the barges are ferried by tugs or other similar watercraft to the barge carrier, or mother ship, where the barges are brought aboard the vessel. The

two types of barge carrying systems are the lighter aboard ship (LASH) and the sea barge (SEABEE). The basic differences between the two types of barge carriers are their methods of discharging, retrieving, and stowing barges.

-- **LASH.** The LASH is a single-decked vessel with large hatches, wing-tank arrangements, and a clear access to the stern. The LASH has a gantry crane with a cargo handling capability of up to 446 LT. The function of this crane is to convey barges or lighterage from the stowed location aboard the ship to the stern region and to lower the barges or lighterage into the water. Some LASH ships are equipped with container gantry cranes for handling the onboard complement of containers. Different classes of LASH ships have capacities ranging from 49 to 89 barges or a mixture of LASH barges and military lighterage.

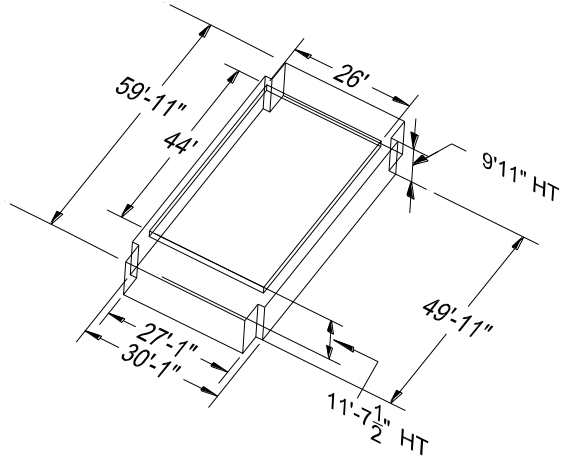


Figure 17. LASH Barge (Cargo Area Dimensions)

The external dimensions of LASH barges are 61'-6" long by 31'-2" wide with a clear hatch opening of 26' by 44'. The internal dimensions are 59'-11" long by 30'-1" wide (see Figure 17). The minimum overhead clearance within the barge is 9'-11". The barge has stacking spacers that provide about 1-foot of additional overhead clearance when the hatch covers of the individual barge are not used. The use of spacers provides an approximate class height of 13'-6" in the hatch square of the barge. The typical empty LASH barge weighs 80 LTON and has an average cargo capacity of 370 LTON. The draft ranges from 2'-9" to 8' from light to loaded, respectively.

-- **SEABEE.** The SEABEE is arranged much differently from the LASH in that it has three decks on which the cargo barges are stowed. Barges are brought to each deck level by a stern elevator and are moved internally within the ship by the transporter (conveyor) system. Two barges can be loaded or discharged in a cycle of about 40 minutes.

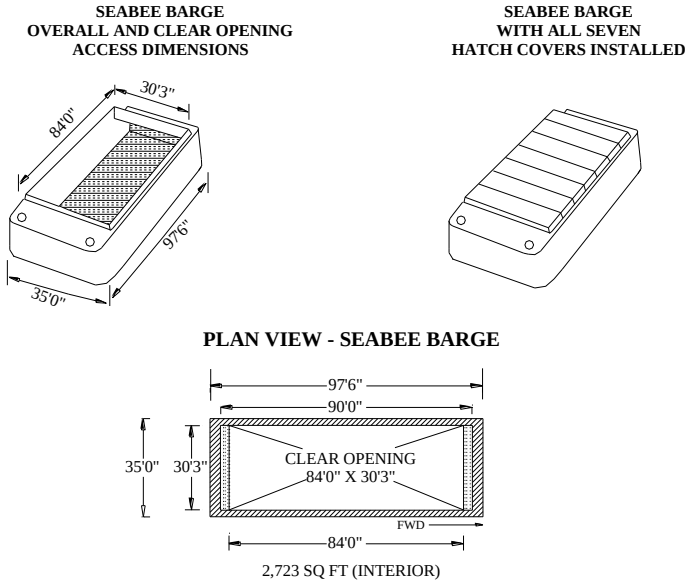


Figure 18. SEABEE Barge

The spatial characteristics of the SEABEE barge are shown in Figure 18. The overhead clearance directly below the hatch opening is 14'-7", and 3' from the forward and aft ends – the overhead clearance is 11'-3". The clear opening, with all hatch covers removed, is 84'-0" by 30'-3". The overhead clearance below the hatch opening of the barges loaded on the weather deck can be increased to 16'-11" by leaving off the hatch covers. The typical empty SEABEE barge weighs 166 LTON and has a cargo capacity of 834 LTON. The draft ranges from 1'-9" to 10'-7" from light to loaded, respectively.

– **RORO.** RORO vessels are designed primarily as vehicle transports. Cargo includes helicopters, wheeled vehicles, tracked vehicles, self-propelled vehicles, and towed vehicles. Rapid cargo loading and discharge rates characterize RORO vessels. The rapid movement of cargo is accomplished by a series of external and internal ramps. The cargo holds are typically large, open bays, where

equipment may be driven into, parked, and lashed down. Most RORO ships have external ramps that rest on the pier, allowing access to the cargo holds. For this reason, RORO ships are considered to be self-sustaining. Because of the versatility of these vessels, they are ideally suited for the movement of unit equipment.

– **Combination.** A combination vessel employs the cargo operation features of the combined ship types making up its configuration. For example, a combination RORO and container vessel may have a stern ramp, RORO decks, and holds configured for the stowage of containers.

– **Special.** The category of Special is comprised of special mission and support vessels. Examples of these are semi-submersible, heavy-lift, integrated tug and barge (ITB) units, and T-ACS. These ships are referenced because they assist in the movement of dry cargo.

– **Auxiliary Crane Ship.** A highly useful ship within this category is the T-ACS. They are specifically designed with several cranes with extra long reaching booms to enable transloading between vessels on the port and starboard sides. The T-ACS can offload containers and other outsized equipment from non-self-sustaining ships offshore or from shore locations in underdeveloped or damaged ports. According to MARAD sources, the seasheds on all of the T-ACS will eventually be removed. To date, seasheds were removed from the SS Flickertail State (T-ACS 5) and the SS Cornhusker State (T-ACS 6). These areas are now dedicated to containers.

D. TRANSIT DATA

1. Vessel Characteristics

Average vessel characteristics are contained in Table 5. Specific vessel characteristics to include deck strengths, side profiles, deck drawings, and other pertinent data for individual vessels can be found in SDDCTEA Pamphlet 700-4, *Vessel Characteristics for Shiploading*, September 2007.

TABLE 5. PLANNING FACTORS BY SHIP TYPE

Ship Type	Average Gross Cargo Space (SQFT)	Average Usable Cargo Space (SQFT) [1]	Average TEU Capacity (Weather Deck)[2]	Average TEU Capacity (Below Deck)[2]	Average TEU Capacity (All Container Sockets) [2]
LMSR - All	373,815	280,361	128	209	337
-LMSR- Conversion	311,959	233,969	63	216	279
-LMSR - New Construction	390,310	292,733	146	207	353
Fast Sealift Ship	202,627	151,970	174	46	220
Auxiliary Crane Ship	17,991	13,493	253	371	524
Breakbulk	93,594	70,196	289	235	524
Non-Self-Sustaining Container Ship	-	-	-	-	2,341
Self-Sustaining Container Ship	-	-	-	-	1,649
Notional Roll-On/Roll-Off (MSP/VISA)	161,338	121,004	754	-	754
Notional Roll-On/Roll-Off (RRF)	161,358	121,018	453		453

Notes:
[1] Assumes 25% broken stowage without containers loaded.
[2] Reduces the average usable cargo space.
[3] Cargo space on main deck without containers

One of the most important planning elements found in this table is the total square feet for loading cargo. This figure represents the maximum available area for cargo stowage. This figure cannot be used as is, but must be reduced by a broken stowage factor that takes into account obstructions found in the cargo hold, dead space around the cargo, the area required for lashing gear or blocking and bracing, firelanes, sequenced offloading and so forth. The ratio between a ship's capacity and the actual amount of cargo that can be loaded is known as the stow factor. Stow factors are expressed in the form of percentages. For planning purposes, the total square feet must be multiplied by a stow factor to arrive at a proper planning cargo capacity of a vessel. Stow factors vary according to the type of cargo and vessel. In the absence of specific cargo and vessel information, a stow factor of 75 percent can be used for general planning purposes. This stow factor should be looked at as an "operational range," as some vessels may have a higher stow factor and others may have a lower one depending on the type of cargo loaded and the way it is loaded, port constraints i.e. depth of water, and vessel stability. Table 5 shows the average total square feet and the average usable square feet with the 75 percent stow factor applied.

2. Vessel Loading/Discharge Times and Planning Factors

Table 6 shows a range of average cargo loading and discharge times by ship type. The data in this table are the result of an extensive analysis of actual Desert Shield/Storm and Operation Iraq Freedom vessel cargo operations.

TABLE 6. AVERAGE SHIPLOADING AND UNLOADING TIMES

Ship Type	Load Times (in hours)	Unload Times (in hours)
Barge Carrier (LASH)	232 - 264	232 - 264
Barge Carrier (SEABEE)	79 - 92	79 - 92
Breakbulk	72 - 96	72 - 96
Self-Sustaining Containership (Average Capacity: 1,763 TEUs)	12 - 24	12 - 24
Non-Self-Sustaining Containership (Average Capacity: 2,718 TEUs)	12 - 24	12 - 24
Fast Sealift Ship (FSS)	48 - 72	24 - 36
Large Medium Speed RORO (LMSR)	48 - 72	24 - 48
Maritime Prepositioning Ship (MPS)	72 -122	60 - 100
Roll-on Roll-off (RORO)	24 - 48	24 - 48
Auxiliary Crane Ship (T-ACS)	24 - 48	24 - 48

General planning factors for vehicle cargo on RO/RO ships are listed below. For conversion factors for STONs and Measurement tons by Commodity see Appendix D.

Average vehicle Sq/ft	185
Average vehicle Short Tons	10
Average vehicle Sqft to Short Tons conversion	20
Average vehicle M/T	40

3. Port Time

Be aware that Table 6 does not reflect the total time a ship is in port. Other factors such as piloting and docking procedures, tides and weather, bunkering operations, receiving ship's stores, and cast-off procedures affect the total port time a vessel keeps a berth from being used for other purposes. For planning purposes, suggest adding 12-24 hours to the vessel loading or discharge time to determine the ships total cycle time in port.

In-the-stream loading/unloading times are highly variable and depend on many factors including weather, sea state, available lighterage and distance from the shore. These operations characteristically require more time and planning than pier side operations. Estimated sailing times based on a ships sailing speed is provided in Table 7.

TABLE 7. ESTIMATED TRANSIT TIMES

Distance (nautical miles)	Speed in Knots												
	14	15	16	17	18	19	20	21	22	23	24	25	30
	Days-Hours	Days-Hours	Days-Hours	Days-Hours	Days-Hours	Days-Hours	Days-Hours	Days-Hours	Days-Hours	Days-Hours	Days-Hours	Days-Hours	Days-Hours
50	0-04	0-03	0-03	0-03	0-03	0-03	0-03	0-02	0-02	0-02	0-02	0-02	0-02
100	0-07	0-07	0-06	0-06	0-06	0-05	0-05	0-05	0-05	0-04	0-04	0-04	0-03
200	0-14	0-13	0-13	0-12	0-11	0-11	0-10	0-10	0-09	0-09	0-08	0-08	0-07
300	0-21	0-20	0-19	0-18	0-17	0-16	0-15	0-14	0-14	0-13	0-13	0-12	0-10
400	1-05	1-03	1-01	1	0-22	0-21	0-20	0-19	0-18	0-17	0-17	0-16	0-13
500	1-12	1-09	1-07	1-05	1-04	1-02	1-01	1	0-23	0-22	0-21	0-20	0-17
600	1-19	1-16	1-14	1-11	1-09	1-08	1-06	1-05	1-03	1-02	1-01	1	0-20
700	2-02	1-23	1-20	1-17	1-15	1-13	1-11	1-09	1-08	1-06	1-05	1-04	0-23
800	2-09	2-05	2-02	1-23	1-20	1-16	1-15	1-14	1-12	1-11	1-09	1-08	1-03
900	2-16	2-12	2-08	2-05	2-02	1-23	1-21	1-19	1-17	1-15	1-14	1-12	1-06
1,000	2-23	2-19	2-15	2-11	2-08	2-05	2-02	2	1-21	1-19	1-18	1-16	1-09
2,000	5-23	5-13	5-05	4-22	4-15	4-09	4-04	3-23	3-19	3-15	3-11	3-08	2-19
3,000	8-22	8-08	7-20	7-08	6-23	6-14	6-06	5-23	5-16	5-10	5-05	5	4-04
4,000	11-22	11-03	10-10	9-19	9-06	8-19	8-08	07-22	7-14	7-06	6-23	6-16	5-13
5,000	14-21	13-21	13-01	12-06	11-14	10-23	10-10	09-22	9-11	9-01	8-16	8-08	6-23
6,000	17-21	16-16	15-15	14-17	13-21	13-04	12-12	11-22	11-09	10-21	10-10	10	8-08
7,000	20-19	19-11	18-06	17-04	16-05	15-09	14-14	13-22	13-06	12-16	12-04	11-16	9-17
8,000	23-19	22-06	20-21	19-15	18-13	17-14	16-16	15-22	15-03	14-11	13-22	13-08	11-02
9,000	26-18	25-01	23-12	22-02	20-21	19-19	18-18	17-22	17	16-06	15-16	15	12-11
10,000	29-17	27-20	26-03	24-13	23-05	22	20-20	19-22	18-21	18-01	17-10	16-16	13-20

NOTE: When a vessel is to pass through the Panama Canal or Suez Canal, 16 hours should be added to the estimated transit times.

E. SPECIAL PLANNING CONSIDERATIONS

The sea transport arena is not a static environment. Planning personnel must be able to react and adjust to sudden asset and schedule changes. Special planning considerations that could have a drastic impact upon the planning and execution of a sea transport cargo operation are listed below:

1. Availability of Preferred Sea Transport Assets

Since preferred vessel types and quantities may not be readily available, close coordination with MSC is required.

2. Availability of Port Assets

All assets at a particular port may not be at the disposal of operations personnel. For this reason, it is very important that available port assets, such as staging areas, berths, cranes, and material handling equipment (MHE) necessary to support a sealift operation, be identified.

F. PORT CHARACTERISTICS

Compatibility between vessels chosen for a sealift operation and the Seaport of Embarkation (SPOE) and Seaport of Debarkation (SPOD) is essential. For berthing capability and other such specific characteristics about individual CONUS ports and specific marine terminals, refer to Appendix C. SDDCTEA Ports for National Defense (PND) provides additional port information which is available on the SDDCTEA website (https://www.tea.army.mil/res/worldport/default.htm). For specific vessel characteristics, refer to SDDC Pamphlet 700-4.

NOTES

VII. AIR TRANSPORT

A. GENERAL

This section provides data useful for planning for air transport by fixed-wing aircraft. DOD Regulation 4500.9-R, Part III, *Defense Transportation Regulation - Mobility* and Air Force Pamphlet (AFP) 10-1403, *Air Mobility Planning Factors*, should be consulted for specific details for planning actual movement of unit equipment including vehicles and supplies.

B. AIR TRANSPORT SOURCES

Air transport assets are derived from two sources: USAF military air assets and civil aircraft.

1. USAF Assets

The fixed-wing aircraft available for strategic airlift are the USAF C-5, C-17, KC-135, and KC-10. The C-130, C-27J, and C-17 are available for tactical airlift. The maximum allowable cabin load (ACL) for each aircraft depends on a number of variables, such as weather, runway length, altitude, and mission range. AFP 10-1403 provides broad planning factors that are useful for mission planning.

- **C-5 Galaxy.** The C-5 is a high-speed, high capacity, long-range jet aircraft used for worldwide strategic deployment, sustainment, and redeployment. It has the ability of airlifting very large outsize and oversize equipment, which can be loaded through either a forward visor door or an aft door. The C-5 is also capable of taking off and landing in relatively short distances. It is capable of carrying 36 463L pallets and 73 passengers.

- **C-17 Globemaster III.** The C-17 adds the capability of both high capacity strategic deployment and tactical forward airfield delivery of personnel and equipment to the airlift fleet. It occupies about the same ramp space as its predecessor, the C-141, and is able to generate the same cargo throughput capacity (million ton-miles/day) as the C-5. It can land at numerous austere airfields, accessible to the C-130, but unavailable to the C-5. The cargo compartment is designed for side-by-side loading of two 99-inch-wide vehicles or International Organization for Standardization (ISO) containers in a single row. It is capable of transporting 18 463L pallets or 101 passengers.

- **KC-135 Stratotanker**. The KC-135 is also a mobility enhancement air-to-air refueling aircraft. It is mostly used to support USAF deploying flying units, but also provides refueling support to Navy and Marine Corps aircraft, as well as aircraft of

allied nations. It can carry a maximum of six 463L pallets or 53 passengers, and has a maximum fuel offload capability of 122,200 pounds.

- **C-130 Hercules.** The C-130 is primarily used as a tactical, intratheater aircraft. It is not designed for long-haul strategic deployment of military personnel or equipment. The aircraft is capable of operating from rough, dirt air strips, and is capable of airdrop delivery of personnel, heavy equipment loads, and container delivery system (CDS) loads. It can carry up to 6 463L pallets or 90 passengers.

- **KC-10 Extender.** The KC-10 is an advanced tanker and cargo aircraft designed to increase the global mobility of military forces and equipment. Although its primary mission is aerial refueling, it can combine the tasks of a tanker and cargo aircraft by refueling fighters while simultaneously carrying fighter support personnel and equipment on deployments. It can carry a maximum of 23 463L pallets or 75 passengers, and has a maximum fuel offload capability of 233,500 pounds.

- **C-27J JCA.** The C-27J JCA is a medium lift cargo airplane capable of carrying 13,227 pounds of payload at 3,200 nautical miles both inter and intra-theater to the forward operating base (FOB). Other capabilities include adverse weather, night vision compatible, heads up display, airdrops, medical transport, and short field landing and takeoff ability.

2. Civil Reserve Air Fleet

The Civil Reserve Air Fleet (CRAF) program is a voluntary civil and military partnership that uses commercial aircraft to support DOD airlift requirements during airlift emergencies. For DOD to efficiently use this resource with minimum disruption to civil commercial services, the CRAF is activated in three stages, as shown below:

- Stage I - Committed Expansion.
- Stage II - Airlift Emergency.
- Stage III - National Emergency CRAF Activation.

USTRANSCOM, with the approval of SECDEF or designee, may activate any stage of CRAF during national emergencies and defense-oriented situations when expanded civil augmentation of military airlift is required.

Once activated, the response time for carriers, after mission is assigned, is 24 hours for aircraft called up for Stages I and II and 48 hours for aircraft called up for Stage III. The exact number and type of aircraft in each stage varies during each CRAF contract cycle, based on airline inventory and policies. AMC publishes a quarterly CRAF Capability Summary.

C. TERMINOLOGY

1. 463L Pallet. A 463L pallet is an aluminum surfaced, balsa wood-core pallet designed for rollerized handling in and around cargo aircraft. With cargo restraining nets and straps, each pallet weighs 355 pounds including the nets and takes up 2.25 inches of the aircraft headroom. The usable space on a pallet is 104 inches by 84 inches. Each pallet can carry up to 10,000 pounds of cargo. Height restrictions vary by the aircraft and the cargo weight of the pallet. The design height limit is 96 inches. If the pallet load does not exceed 8,000 pounds, the height limit is 100 inches depending on position in the aircraft. Pallets can be configured into a "train" (linked) to carry items that exceed the length limit of a single pallet.

2. Passenger Planning Weights.

(1) With web gear and weapon or carryon baggage - 210 pounds.

(2) With web gear, weapon, and rucksack or combat equipment/tools - 300 pounds.

(3) With web gear, weapon, and rucksack or with duffle bag and combat equipment or tools - 400 pounds.

3. Non-Air Transportable Cargo. Non-air transportable cargo is any single piece of cargo that exceeds the capabilities of the C-5 aircraft.

4. Oversize Cargo (Air). Oversized air cargo is cargo exceeding the usable dimension of a 463L pallet loaded to the design height of 96 inches, but equal to or less than 1,000 inches in length, 117 inches in width, and 105 inches in height. This cargo is air transportable on the C-5, C-17, C-130, KC-10, and most civilian contract cargo carriers.

5. Outsize Cargo (Air). Outsize air cargo is cargo that exceeds the dimensions of oversize cargo and requires the use of a C-5 or C-17 aircraft. It is cargo in a single item that exceeds 1,000 inches long, by 117 inches wide, by 105 inches high in any one dimension.

D. PLANNING FACTORS

1. USAF Planning Factors. Table 8 provides the number of USAF aircraft in the primary inventory. Table 9 provides basic planning factors for the use of military airlift resources.

TABLE 8. USAF AIRCRAFT INVENTORY

Aircraft Type	Inventory (PAI)[1]
C-5	108
C-17	207
C-130	376
KC-10	59
KC-135	414

Note:
[1]Primary Aircraft Inventory – as of DTG 7 Mar 2011.
Source: USAF Logistics Installations and Mission Support - Enterprise View.

TABLE 9. USAF AIRCRAFT PAYLOADS[1]

Aircraft Type	Pallet Positions	Cargo (s/t)		Passengers		Standard NEO
		ACL[2]	Planning	ACL	Planning	Passengers
C-130	6	17	12	90	80	92/74[3]
C-17	18	65	45	101	90	101
C-5A/B	36	89	61.3	73	51	73
KC-10	23	60	32.6	75	68	75
KC-135	6	18	13	53	46	53

Notes:
1. Cargo and passenger payloads (except for the C-5) are exclusive of one another.
2. Calculated as the maximum ACL for a 3200 nm leg (except for C-130, which is 1000 nm).
3. Lower Non-combatant Evacuation Operations (NEO) number reflects life raft capacity.

Legend:
ACL: Allowable cabin load
NEO: Non-combatant evaucation operations

2. CRAF Planning Factors. AMCI 10-402, *Civil Reserve Air Fleet (CRAF)*, will establish procedures for the CRAF program. AMCP 24-2 Vols 1-18, *Civil Reserve Air Fleet Load Planning Guide*, gives detailed information and guidance on use of CRAF cargo aircraft. It should be used during the initial stage of establishing CRAF cargo loads. Narrow-body aircraft, like the B-707 and DC-8, are limited mainly to bulk cargo, while wide-body aircraft, like the B-747 and DC-10, carry bulk and oversize cargo.

Table 10 provides the number of CRAF assets available, by stage, for each flight segment. Cargo capabilities for the three CRAF stages for the various aircrafts can be found in AMCP 24-2.

TABLE 10. INVENTORY OF CARGO/PASSENGER CRAF AIRCRAFT

			CRAF Stages		
CRAF Segments			**I**	**II**	**III**
International	Long	Passenger	43	119	524
		Cargo	29	70	232
	Short	Passenger		10	312
		Cargo		9	9
National	Domestic	Passenger		23	36
		Cargo			0
	Alaskan	Passenger			0
		Cargo		2	2
Aeromedical Evacuation				25	34
TOTAL			72	258	1149
Source: TCJ5/4-IP *Turbo Distribution 2010 Briefing*, dated 8 Aug 10					

NOTES

VIII. CONTAINER TRANSPORT

A. GENERAL

This section provides planning information on the use of dry cargo containers and flatracks. It lists and discusses references for current container inventories, container and flatrack characteristics, and unit movement requirements. For additional information on containers and to review container doctrine, see:

- DOD Regulation 4500.9-R, VOL VI, *Management and Control of Intermodal Containers.*
- AR 56-4, *Distribution of Materiel and Distribution Platform Management.*
- FM 55-80, *Army Container Operations.*
- FM 55-60, *Army Terminal Operations.*

B. CONTAINER CHARACTERISTICS

All figures are average measurements and capacities. Slight variations may be found between manufacturers for the same type of container.

1. 20-Foot / 40-Foot Containers

- DOD standards for transportation containers are as follows:
  - -- 8' wide x 8' high x 20' long ANSI/ISO steel frame construction container.
  - -- 8' wide x 8'6" high x 20' long ANSI/ISO steel frame construction container.
  - -- 8' wide x 8'6" high x 40' long ANSI/ISO steel frame construction container
- The 20-foot container is designated as the primary size for containerized munitions shipments. Twenty- and 40-foot ISO containers are standard for sustainment and unit equipment.
- The capability of the user to handle and transport containers will be the overriding factor when determining container size.

- A container modified for a specific mission must meet the requirements for the transport vehicle. The container and subsystems must be certified by the applicable agency.

2. EDSS - Quadruple Container

The Equipment Deployment and Storage System (EDSS) containers are designed to support unit deployments/enabling the units to be capable of strategic and tactical delivery via both surface and air transportation modes. There are two types of EDSS modules: a ground dominant system - quadruple container, QUADCON, similar to that used by the Marine Corps, to be used by units that deploy by sea, and an air dominant system - Internal Airlift/Helicopter Slingable Container Unit (ISU), to be used by units that deploy by air.

The QUADCON is the dominant surface/sea deployment system. QUADCONs are capable of being locked together into an array of four to form an 8-foot by 20-foot intermodal American National Standards Institute (ANSI)/ISO envelope that enhances strategic surface deployment by container ships. Table 11 lists the dimensions and capability of the QUADCON. Figure 19 shows a single QUADCON and a set of four. The QUADCON can be shipped as a single unit or can be divided into four components for transport by unit organic assets. Each QUADCON container meets ISO/Convention for Safe Containers (CSC) standards.

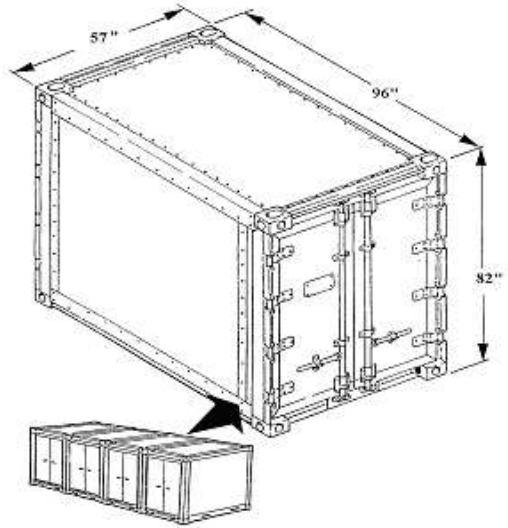


Figure 19. Quadruple Container (QUADCON)

TABLE 11. EQUIPMENT DEPLOYMENT AND STORAGE SYSTEMS (EDSS)

Exterior Dimensions (L x W x H)	Interior Dimensions (L x W x H)	Interior Capacity (Cubic Feet)	Interior Capacity (Square Feet)	Max Weight (lbs)
QUADCON (Single): 96" x 57" x 82"	83.8" x 55.6" x 75.3"	203	32.3	10,000
ISU:				
108" x 88" x 60"	97.5" x 77.5" x 53.59"	234	58	10,000
108" x 88" x 90"	100.28" x 77.5" x 83.59"	375	58	10,000
Legend: L = length, W = width, H = height				

3. EDSS - ISU Container

The ISU is specifically designed for air transport. It is 463L-pallet compatible and has internal and external air transportation capability. Figures 20 and 21 show two typical ISU containers.

The owning unit of either type of EDSS will move the modules, using organic ground and air transportation assets. They are compatible with current and projected military aircraft, the Family of Medium Tactical Wheeled Vehicles, and the Palletized Loading System. The EDSS also interfaces with current and proposed automated systems, such as Automated Identification Technologies (AIT). Table 11 lists the standard dimensions and capabilities of the EDSS.

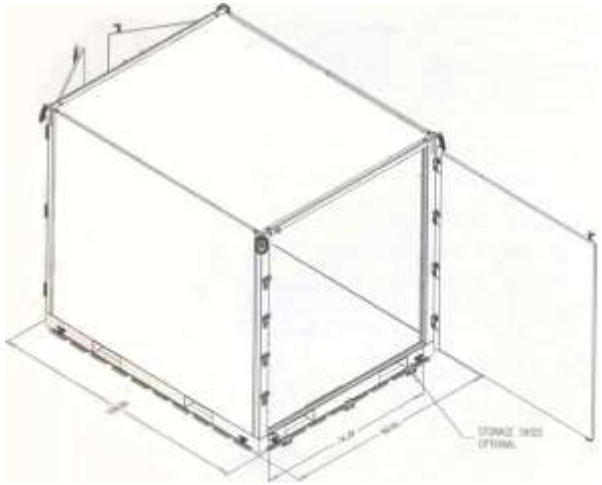


Figure 20. ISU-90-EO Single Door

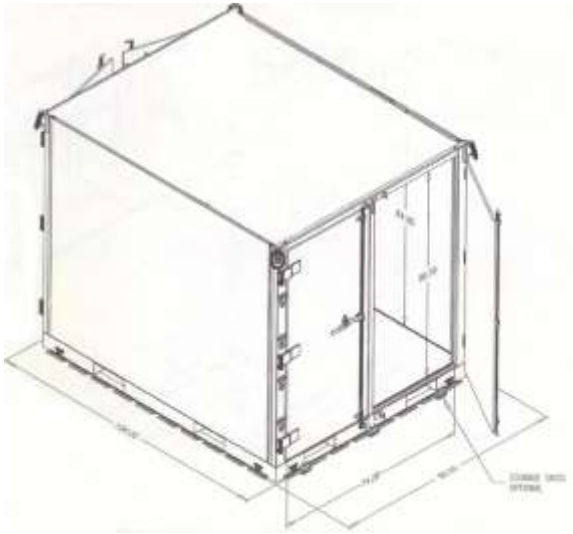


Figure 21. ISO-90-EO Double Door

4. Flatrack Characteristics

Flatracks are portable, open-top, open-side containers designed largely for ship operations and could be used for inland movement if required. Flatracks have the capability to stow aircraft, vehicles, outsized, and breakbulk cargo that cannot normally be stowed in containers.

Flatracks may be used as individual units or combined horizontally to create a false deck effect within a containership hold. Military flatracks, when placed side by side, have an integral folding flap that is positioned between the flatracks, to create a flush deck. However, this folding flap is not available on most commercial flatracks. This flap provides the capability to drive from one flatrack to the other or to stow cargo that spans more than one flatrack. Figures 22 - 25 show various types of flatracks used during deployment.

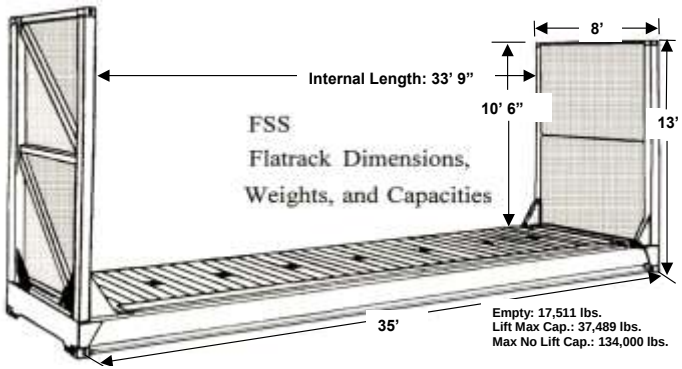


Figure 22. Thirty-five foot Fast Sealift Ship (FSS) Flatrack

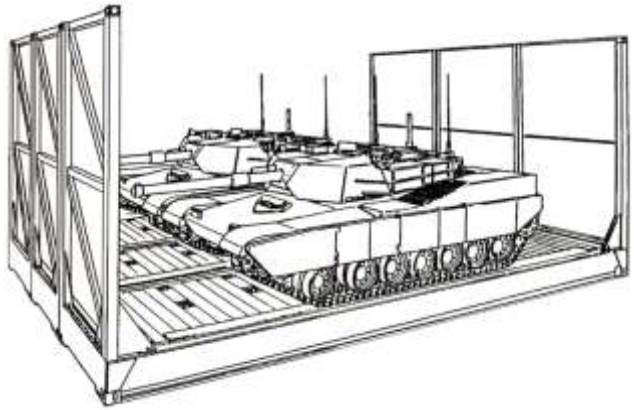


Figure 23. Flatracks Used as a Temporary "tween deck"

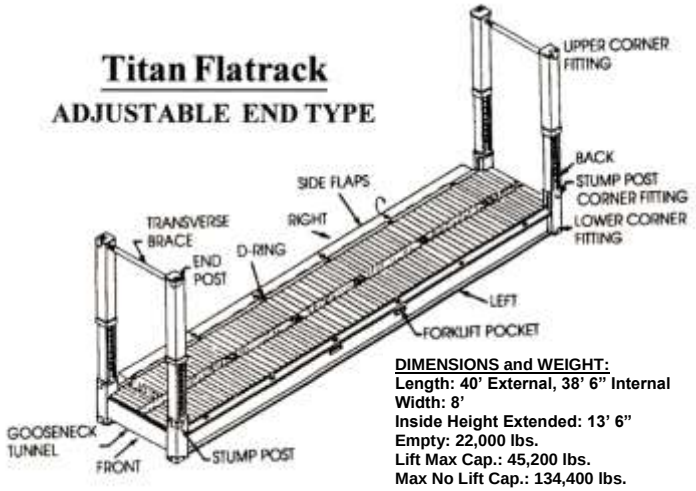


Figure 24. Titan Flatrack Adjustable End Type

	FIXED
LENGTH	40'
WIDTH	8'
CLEAR HEIGHT FOR CARGO	10'6"
MAXIMUM OVERALL HEIGHT	13'

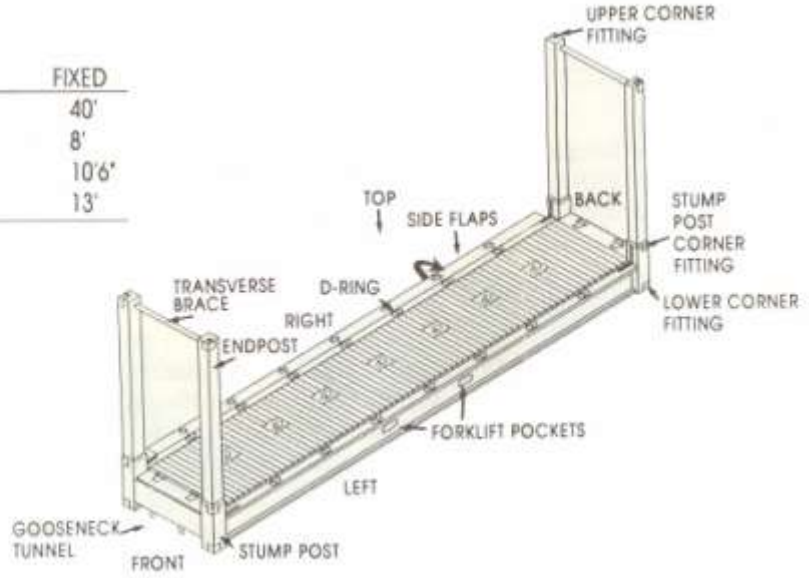


Figure 25. DeNardi Heavy Duty Flatrack

5. Palletized Load System

The palletized load system, PLS, is a tactical wheeled truck and trailer combination with the integral self-load/unload capability of demountable cargo beds (flatracks). The primary mission of the system is the movement of conventional and special ammunition by field artillery and their supportive transportation units throughout the battlespace. It is also capable of moving all other classes of supply throughout the battlefield in a secondary role.

Two PLS configurations exist. The basic configuration (M1075) consists of a truck with accompanying towed trailer (M1076). The second truck configuration (M1074) has the same payload capacity and towed trailer, but incorporates a materials handling crane (MHC). The flatrack is loaded and unloaded off the truck and trailer with the truck's hydraulic load handling system (LHS).

The three versions of PLS flatracks are the M1077 basic flatrack, the M1 Intermodal Flatrack, and the M3, Container Roll-in/out Platform (CROP).

- The M1077 flatrack is a 20-foot-long by 8-foot-wide by 68.4" high sideless platform, built in accordance with tripartite (UK, GER, US) agreement standards. The M1077 has a tare weight of 3,190 pounds and a payload capacity of 33,000 pounds. The flatrack is NATO interoperable but does not have intermodal capability. The M1077 can be transported on M871 and M872 semitrailers and can transport a 20-foot ISO container. The M1077 is shown in Figure 26.

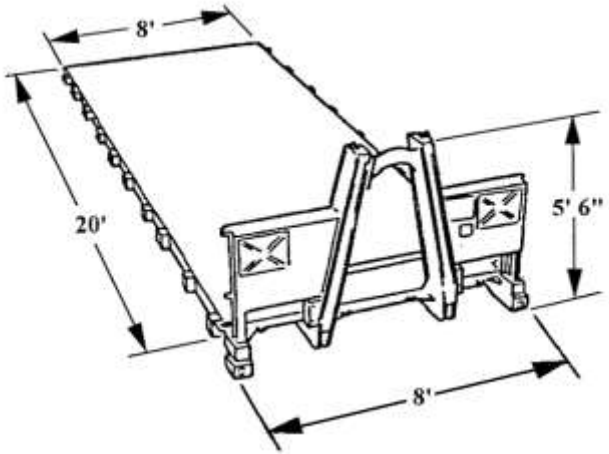


Figure 26. Palletized Loading System (PLS) Flatrack (M1077)

- The M1 Intermodal Flatrack is a 20-foot-long by 8-foot-wide by 82" high sideless container built to ISO and tripartite standards. The flatrack has inward collapsing endwalls and a tare weight of 7,300 pounds. With the PLS, the flatrack has a maximum payload capacity of 28,950 pounds. For intermodal transport, the M1 can transport a maximum payload of 31,200 pounds. The M1 is NATO interoperable and capable of fully intermodal transport. The M1 is shown in Figure 27.

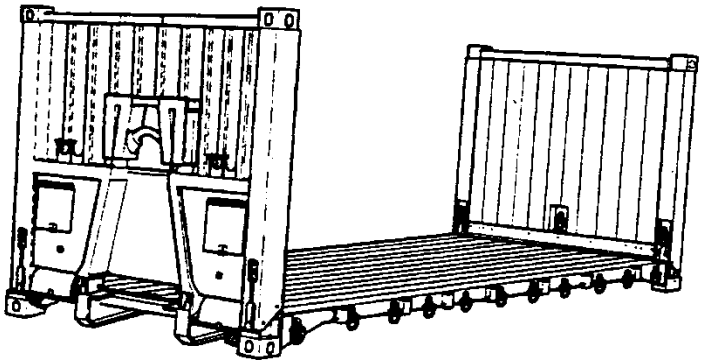


Figure 27. M1 Intermodal Flatrack

- The M3 CROP is a cargo-carrying platform that is transportable inside a 20-foot ISO container. Maximum gross weight of the M3 is 36,250 lbs. The M3 has folding endwalls for retrograde stacking inside a container or on the PLS truck or trailer. The CROP is shown in Figure 28.

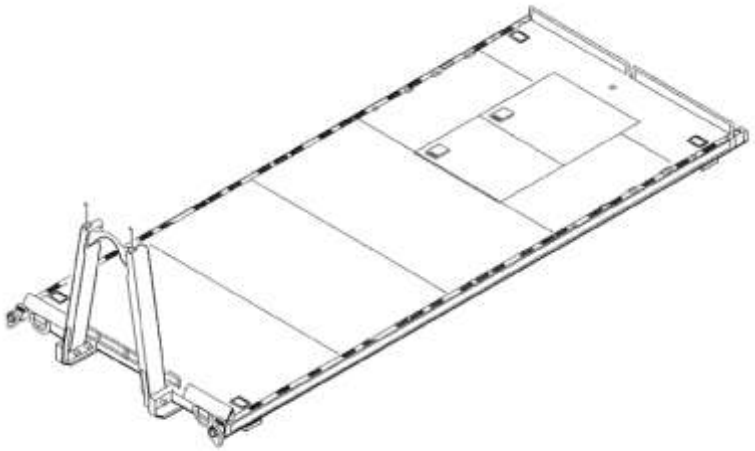


Figure 28. M3 Flatrack (CROP)

- The Container Handling Unit (CHU) is a kit installed on the PLS which allows the direct load, transport, and unload of 20' ISO containers without the use of an external flatrack. The CHU is shown in Figure 29.

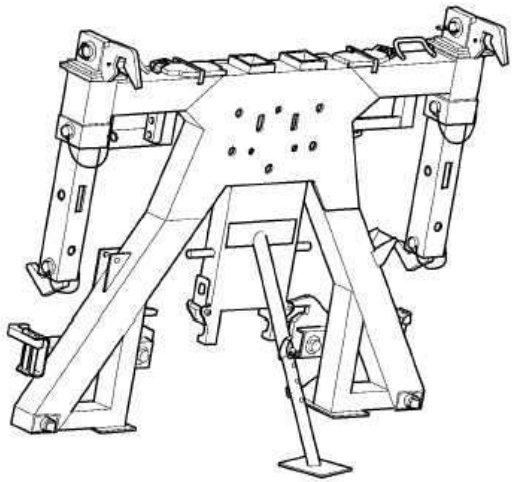


Figure 29. Container Handling Unit (CHU)

C. CONTAINER MANAGEMENT

The Army's Single Manager for ISO containers, flatracks, and other distribution platforms is the Army Intermodal & Distribution Platform Management Office (AIDPMO). The primary focus of the AIDPMO is to maintain control and readiness condition of Army-owned/Leased intermodal assets. The AIDPMO maintains a central repository for Convention for Safe Containers (CSC) inspection reports and issue notification of pending inspection expirations to Army container owners. AIDPMO represents Army on Container issues and in Operational Level Forums. AIDPMO provides container management support to Army units and activities worldwide. For container management issues contact AIDPMO at the following email address toby.aidpmo@us.army.mil. Additional contact information can be obtained at http://www.sddc.army.mil/Public/AIDPMO.

During deployment planning, units develop a deployment movement plan and are required to first contact their assigned mobilization site to begin establishing container requirements. The Installation Transportation Officer (ITO) will work with AIDPMO for assistance in fulfilling a unit's container requirements.

During redeployment, the unit container control officer (CCO) will provide both the deployment container list and the redeployment container list to AIDPMO in advance of redeployment. The unit CCO will provide AIDPMO a status of containers not returning with redeployment and any changes within the container list through to the final unit ship date. AIDPMO will provide container ownership information to appropriate sites and activities upon completion of redeployment to facilitate efficient redistribution of containers. AIDPMO will determine and coordinate the most cost effective disposition based on ownership condition of containers, proximity to regional maintenance support facility, next deployment requirements, or backfill obligations to maintain deployment stock levels. Where repair/maintenance capabilities exist on location, AIDPMO will require a cost estimate for all unserviceable containers. AIDPMO also ensures all supporting documentation for turn-in, Foreign Excess Personal Property Program containers are maintained to clear hand receipts during demobilization.

D. CONTAINER DAMAGE

Container damage and subsequent failure to meet standards for movement are generally the result of not properly following procedures during the operation of container handling equipment. Dragging containers severely damages them. When loaded, ISO containers are designed to be lifted by the top corner posts. Any other technique can cause severe damage.

APPENDIX A

REFERENCES

1. JOINT SERVICE PUBLICATIONS

Joint Pub 1	Doctrine for the Armed Forces of the United States
Joint Pub 3-0	Doctrine for Joint Operations
Joint Pub 3-02	Joint Doctrine for Amphibious Operations
Joint Pub 3-04	Joint Shipboard Helicopter Operations
Joint Pub 3-17	Air Mobility Operations
Joint Pub 3-35	Deployment and Redeployment Operations
Joint Pub 4-0	Joint Logistics
Joint Pub 4-01	Joint Doctrine for the Defense Transportation System
Joint Pub 4-01.2	Sealift Support to Joint Operations
Joint Pub 4-01.5	Joint Tactics, Techniques, and Procedures for Transportation Terminal Operations
Joint Pub 4-01.6	Joint Logistics Over-the-Shore
Joint Pub 4-01.7	JTTP for Use of Intermodal Containers in Joint Operations
Joint Pub 4-05	Joint Mobilization Planning

Joint Pub 4-07	JTTP for Common-User Logistics During Joint Operations
Joint Pub 4-09	Distribution Operations
Joint Pub 5-0	Joint Operation Planning

2. AIR FORCE PUBLICATIONS

AFP 10-1403	Air Mobility Planning Factors

3. AIR MOBILITY COMMAND

AMC Pam 24-2	Civil Reserve Air Fleet (CRAF) Load Planning Guide

4. ARMY FIELD MANUALS

FM 3-35	Army Deployment and Redeployment
FM 4-01.41	Army Rail Operations
FM 55-1	Transportation Operations
FM 55-30	Army Motor Transport Units and Operations
FM 55-50	Army Water Transport Operations
FM 55-60	Army Terminal Operations
FM 55-80	Army Container Operations

5. ARMY REGULATIONS

AR 56-3	Management of Army Rail Equipment
AR 56-4	Distribution of Materiel and Distribution Platform Management
AR 700-15	Packaging of Army Materiel
AR 700-80	Army In-Transit Visibility

6. ARMY TECHNICAL BULLETINS

TB 55-46-1	Standard Characteristics (Dimensions, Weight, and Cube) for Transportability of Military Vehicles and Other Outsize/Overweight Equipment (In TOE Line Item Number Sequence)
TB 55-46-2	Standard Transportability Characteristics (Dimensions, Weight, and Cube) for Military Vehicles and Equipment

7. ARMY TECHNICAL MANUALS

TM 55-1520-400-14	Transportability Guidance, Marine Transport of US Army Helicopter
TM 55-2200-001-12	Application of Blocking, Bracing, and Tie-down Materials for Rail Transport

8. National Imagery and Mapping Agency (NIMA, formerly Defense Mapping Agency)

Pub 150	World Port Index
Pub 151	Distance Between Ports

9. SDDC PUBLICATIONS

TEA Pam 55-19	Tiedown Handbook for Rail Movements
SDDCTEA Pam 55-20	Tiedown Handbook for Truck Movements
SDDCTEA Pam 55-21	Lifting and Tiedown Handbook for Helicopter Movements
SDDCTEA Pam 55-22	Lashing Handbook for Marine Movements
TEA Pam 55-23	Containerization of Military Vehicles
SDDC Reg 56-69	Terminal Operations
TEA Pam 70-1	Transportability for Better Deployability
SDDC Pam 700-4	Vessel Characteristics for Shiploading
SDDCTEA Pam 700-5	Deployment Planning Guide
SDDCTEA Pam 700-7	Fast Sealift Ship Users' Manual
Unnumbered	Strategic Highway Network
Unnumbered	Directory of Highway Permit Officials and Mobilization Movement Control Officials

11. MISCELLANEOUS

AFSC Pub 1	The Joint Staff Officers Guide
DOD 4500.9-R	Defense Transportation Regulation, Parts I, II, III and IV
FORSCOM Reg 55-1	Unit Movement Planning

FORSCOM Reg 55-2	Unit Movement Data Reporting and Systems Administration
MIL-HDBK-138	Container Inspections
MIL-STD-1366E	Interface Standard for Transportability Criteria
Unnumbered	Official Intermodal Equipment Register
Unnumbered	Official Railway Equipment Register
Unnumbered	Guide to Port Entry
Unnumbered	Lloyd's List of Ship Owners & Managers
Unnumbered	Lloyd's Maritime Guide
Unnumbered	Lloyd's Register of Ships

NOTES

APPENDIX B

ABBREVIATIONS AND ACRONYMS

AAR	Association of American Railroads
ACL	Allowable Cabin Load
AFMC	Air Force Materiel Command
AFSC	Army Field Services Command
AIDPMO	Army Intermodal and Distribution Platform Management Office
ALD	Available-to-load Date
AMC	Air Mobility Command
APF	Afloat Prepositioning Force
APOE	Aerial Port of Embarkation
APS-3	Army Prepositioned Stocks Afloat
C2	Command and Control
CCO	Container Control Officer
CDS	Container Delivery System
CF	Causeway Ferries
CFR	Code of Federal Regulation
CHU	Container Handling Unit
CL	Carload
COCOMS	Combatant Commands
COFC	Containers on Flatcars
CONUS	Continental United States
CRAF	Civil Reserve Air Fleet
CRD	Regional Combatant Command Required Date
CROP	Container Roll-in/out Platform
CSC	Convention for Safe Containers
DB	Deutsche Bundesbahn

DDOC	Deployment and Distribution Operations Center
DEST	Destination
DFRIF	Installation Management Agency
DLA	Defense Logistics Agency
DMC	Defense Movement Coordinator
DOD	Department of Defense
DODX	Department of Defense-Owned Rail Cars
DOT	Department of Transportation
DPO	Distribution Process Owner
DRU	Direct Reporting Unit
DSCA	Defense Support of Civil Authorities
DST	Destination
EAD	Earliest Arrival Date
EDD	Earliest Departure Date
EDSS	Equipment Deployment and Storage System
EMBO	Embarkation Officer
EUSC	Effective US Control
FC	Floating Causeways
FOB	Forward Operating Base
FORSCOM	United States Army Forces Command
FSS	Fast Sealift Ship
GCC	Geographical Combatant Command
GIC	Gaboret International de Chargement
GTN	Global Transportation Network
HET	Heavy-Equipment Transporter
IDE	Integrated Data Environment
IGC	IDE/GTN Convergence
ILOC	Intermediate Location
IMA	Installation Management Agency
IRRIS	Intelligent Road/Rail Information Server
ISO	International Organization for Standardization

ISU	Internal Airlift/Helicopter Slingable Container Unit
ITB	Integrated Tug and Barge Unit
ITO	Installation Transportation Office
JCS	Joint Chiefs of Staff
JDDE	Joint Deployment and Distribution Enterprise
JOPES	Joint Operation Planning and Execution System
JP	Joint Publication
JTF-PO	Joint Task Force – Port Opening
LAD	Latest Arrival Date
LARC	Lighter, Amphibious, Resupply, Cargo
LASH	Lighter Aboard Ship
LCM	Landing Craft Mechanized
LCU	Landing Craft Utility
LD LMT	Load Limit
LHS	Load Handling System
LMSR	Large Medium Speed RO/RO
LO/LO	Lift On/Lift Off
LOTS	Logistics Over The Shore
LSV	Logistics Support Vessel
LTON	Long Ton
MARAD	Maritime Administration
MHC	Materials Handling Crane
MHE	Material Handling Equipment
MOBCON	Mobilization Movement Control
MOTCO	Military Ocean Terminal Concord, CA
MOTSU	Military Ocean Terminal Sunny Point, NC
MPD	Miles per Day
MPF	Maritime Pre-positioning Force
MPH	Miles Per Hour
MSC	Military Sealift Command
MSP	Maritime Security Program

MTOE	Modified Table of Organization & Equipment
NATO	North Atlantic Treaty Organization
NDAF	Navy, Defense Logistics Agency and Air Force Ships
NDRF	National Defense Reserve Fleet
NEO	Noncombatant Evacuation Operations
NFAF	Naval Fleet Auxiliary Force
NGB	National Guard Bureau
OPLAN	Operation Plan
PGP	Power Generation Platform
PLS	Palletized Loading System
POD	Port of Debarkation
POE	Port of Embarkation
PPP	Power Projection Platform
PREPO	Prepositioning
PSP	Power Support Platform
QUADCON	Quadruple Container
RC	Reserve Component
RCC	Regional Combatant Command
RDD	Required Delivery Date
RORO	Roll-On/Roll-Off
RRDF	Roll-On/Roll-Off Discharge Facilities
RRF	Ready Reserve Force
RSC	Regional Support Command
SDDC	Surface Deployment and Distribution Command
SDDCTEA	Surface Deployment and Distribution Command Transportation Engineering Agency
SEABEE	Sea Barge
SMO	Strategic Mobility Officer
SPM	Single Port Manager
SRP	Sealift Readiness Program
STANAG	Standardization Agreement
STARC	State Area Command

STON	Short Ton
STRACNET	Strategic Rail Corridor Network
STRAHNET	Strategic Highway Network
T-ACS	Auxiliary Crane Ship
TCC	Transportation Component Command
TEU	Twenty-Foot Equivalent Unit
TMO	Traffic Management Office
TPFDD	Time-Phased Force and Deployment Data
TPFDD LOI	Time-Phased Force and Deployment Data Letter of Instruction
UMC	Unit Movement Coordinator
UMP	Unit Movement Plan
USTRANSCOM	United States Transportation Command
VISA	Voluntary Intermodal Sealift Agreement
VTA	Voluntary Tanker Agreement

NOTES

APPENDIX C

WORLDWIDE PORT CHARACTERISTICS														
PORT NAME	TERMINAL NAME	BERTH GROUP	DEPTH MLW	BERTH LGTH	BARGE MTON	BB MTON	RORO MTON	CONT MTON	MIXED MTON	BARGE STON	BB STON	RORO STON	CONT STON	MIXED STON
Abadan	Terminal 7	Berth 7B	28	509		2239			2239		895			895
Abadan	Terminal 7	Berth 7C	28	509		2239			2239		895			895
Abadan	Terminal 7	Berth 7D	28	610										
Abadan	Terminal 7	Berth 7A	28	656		2239			2239		895			895
Abadan	**{PORT TOTAL}**													**2685**
Ad Dammam	Ad Dammam Terminal	Berth 39	41	623		1220			1220		490			490
Ad Dammam	Ad Dammam Terminal	Berth 35	37	672										
Ad Dammam	Ad Dammam Terminal	Berth 1	45	787										
Ad Dammam	Ad Dammam Terminal	Berths 4-5	35	1180		2090	6190		5090		840	1550		1350
Ad Dammam	Ad Dammam Terminal	Berths 12-13	36	1180		2090	6190		5130		840	1550		1360
Ad Dammam	Ad Dammam Terminal	Berths 17-18	36	1180		2550	6190		5270		1020	1550		1420
Ad Dammam	Ad Dammam Terminal	Berths 19-20	36	1180		2550	6190		5270		1020	1550		1420
Ad Dammam	Ad Dammam Terminal	Berths 30-31	43	1180		2090	6190		5230		840	1550		1380
Ad Dammam	Ad Dammam Terminal	Berths 10-11	31	1295		2090	6190		5140		840	1550		1370
Ad Dammam	Ad Dammam Terminal	Berths 21-22	42.6	1574		3140	18580	1740	14560		1250	4640	700	3750
Ad Dammam	Ad Dammam Terminal	Berths 2-3	45	1574										
Ad Dammam	Ad Dammam Terminal	Berths 32-34	36	1770		3140	12390		10000		1250	3100		2620
Ad Dammam	Ad Dammam Terminal	Berths 14-16	36	1770		3850	18580		14800		1530	4640		3850
Ad Dammam	Ad Dammam Terminal	Berths 36-38	39	1770										
Ad Dammam	Ad Dammam Terminal	Berths 6-9	26	2063										
Ad Dammam	Ad Dammam Terminal	Berths 27-29	43	2214		4180	18580		15210		1670	4640		3950
Ad Dammam	Ad Dammam Terminal	Berths 23-26	43	3148		6270	37160	36560	30130		2510	9290	14620	7920
Ad Dammam	**{PORT TOTAL}**													**30880**
Ad Dawhah	Ad Dawhah Terminal	Berth 9	23	585	140	310			460	60	120			180
Ad Dawhah	Ad Dawhah Terminal	Berths 7-8	23	1410	390	310			700	160	120			280
Ad Dawhah	Ad Dawhah Terminal	Berth 1	26	770		310			330		120			130
Ad Dawhah	Ad Dawhah Terminal	Berths 2-5	29	3075		5600	25000	2300	20000		2300	6200	930	5100
Ad Dawhah	**{PORT TOTAL}**													**17610**
Adabiya	Adabiya	Berth 1	24	967	1474				1474	589				589
Adabiya	Adabiya	Berth 2	32	492		1990			1990		796			796
Adabiya	Adabiya	Berths 4-5	36	1098		3981		3300	11949		1592	3686	1320	3137
Adabiya	Adabiya	Berths 7-8	36	1558		5971			23986		2388	7372		6205
Adabiya	**{PORT TOTAL}**													**10727**
Akita	Akita	Nakajima 2-3	32	1214	690				3780		1770	5800		1140
Akita	Akita	Ohama 2-3	32	1214					3670		1770	5800		1190
Akita	**{PORT TOTAL}**													**2330**
Akizuki AD	Akizuki AD Terminal	Pier 379	11.5	50	100			100	100					100
Akizuki AD	Akizuki AD Terminal	Pier 380	11.5	80	100			100	100					100
Akizuki AD	**{PORT TOTAL}**													**200**
Alexandria	Alexandria Terminal	RoRo2	29	515	1658	2239	13271		10409	663	896	3318		2685
Alexandria	Alexandria Terminal	RoRo4	29	918	1658	2239	13271		10409	663	896	3318		2685
Alexandria	Alexandria Terminal	RoRo3	26	718	2488		13271		12839	995		3318		3224
Alexandria	Alexandria Terminal	RoRo1	46	528		2239	13271		10689		896	3318		2750
Alexandria	Alexandria Terminal		32	550										
Alexandria	El Dekheila Terminal	Berth 96-1	32	825		2322	14745		11837		928	3686		3040
Alexandria	Alexandria Terminal	Berths 1-4	32	1000		7838	39813		32329		3135	9953		8357

Note: Worldport database updated December 2010

WORLDWIDE PORT CHARACTERISTICS														
PORT NAME	TERMINAL NAME	BERTH GROUP	DEPTH MLW	BERTH LGTH	BARGE MTON	BB MTON	RORO MTON	CONT MTON	MIXED MTON	BARGE STON	BB STON	RORO STON	CONT STON	MIXED STON
Alexandria	El Dekheila Terminal	Berths 98-1 & 2	32	1680		1990	14745							
Alexandria	Alexandria Terminal	Berths 49-53 odd	32	1740		8957	39813	42440	32895		3583	9953	16976	8725
Alexandria	El Dekheila Terminal	Berths 94-3 & 4	32	1780		5971	29491		23986		2388	7372		6205
Alexandria	Alexandria Terminal	GenCar16-19	32	2000		7838	39813							
Alexandria	El Dekheila Terminal		32	2475										
Alexandria	El Dekheila Terminal		32	2810										
Alexandria	Alexandria Terminal	GenCar11-15	32	3000		13063	53084							
Alexandria	Alexandria Terminal	GenCar5-10	32	3000		13063	53084							
Alexandria	Alexandria Terminal		32	13798										
Alexandria	**{PORT TOTAL}**													**71811**
Almirante	Almirante Terminal	Barge Dock	4	50										
Almirante	Almirante Terminal	Ferry Dock	6	150										
Almirante	Almirante Terminal	Cargo Pier	25	350										
Almirante	Almirante Terminal	Banana Pier 1	25	650										
Almirante	**{PORT TOTAL}**													
Amsterdam	Amsterdam	Ceres Amsterdam	40	4200	4645	15328	66355	12740	55357	1858	6131	16589	5096	14180
Amsterdam	**{PORT TOTAL}**													**14180**
Ancona	Ancona Terminal	6 S Prim	24	318								2400		2400
Ancona	Ancona Terminal	3 MRizz	31	383								2400		2400
Ancona	Ancona Terminal	16 M29S	26	393								2400		2400
Ancona	Ancona Terminal	8 MWojt	22	400								2400		2400
Ancona	Ancona Terminal	9 MWojt	25	406								2400		2400
Ancona	Ancona Terminal	10 CSau	24	426								2400		2400
Ancona	Ancona Terminal	11 MSMa	25	482								2400		2400
Ancona	Ancona Terminal	24 NDar	34	492							600	2400		2000
Ancona	Ancona Terminal	13 MSMa	26	511								2400		2300
Ancona	Ancona Terminal	2 MRizz	28	623										
Ancona	Ancona Terminal	14 CdRe	28	656							600	4700		3700
Ancona	Ancona Terminal	22 Msud	29	656										
Ancona	Ancona Terminal	4 MRizz	30	656							600	4700		3800
Ancona	Ancona Terminal	15 M29S	28	702							700	4700	2100	3600
Ancona	Ancona Terminal	17 M29S	23	820								4700		4500
Ancona	Ancona Terminal	25 NDar	34	849							800	4700	3200	3700
Ancona	Ancona Terminal	23 NDar	32	859							700	4700	5600	3800
Ancona	Ancona Terminal	1 MClem	29	866							800	4700	4200	3700
Ancona	**{PORT TOTAL}**													**54100**
Antalya	Antalya Terminal	Q4	23	196										
Antalya	Antalya Terminal	Q1	32	492		1655	9806		7898		662	2452		2035
Antalya	Antalya Terminal	Q2-3	18	541			9806		9806			2452		2526
Antalya	Antalya Terminal	Q7	32	557		1655	9806		7898		662	2452		2035
Antalya	Antalya Terminal	Q8	32	557		1655	9806		7898		662	2452		2035
Antalya	Antalya Terminal	Q9	18	885			9806		19612			2452		5052
Antalya	Antalya Terminal	Q5-6	32	951		1931	29417		22984		772	7354		5921
Antalya	**{PORT TOTAL}**													**19604**
Antwerp	Churchilldok Terminal	Berths 414-418	42	1201	1935	6390	25800	2900	20130	770	2550	6450	1160	5260
Antwerp	Hansadok Terminal	Berth 236-240	38	1640	1935	5515	25800	7620	20080	770	2210	6450	3050	5240

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WORLDWIDE PORT CHARACTERISTICS														
PORT NAME	TERMINAL NAME	BERTH GROUP	DEPTH MLW	BERTH LGTH	BARGE MTON	BB MTON	RORO MTON	CONT MTON	MIXED MTON	BARGE STON	BB STON	RORO STON	CONT STON	MIXED STON
Antwerp	6e Havendok Terminal	Berths 314-326	38	3535	2580	5610	25800	7620	20120	1030	2245	6450	3050	5260
Antwerp	5e Havendok Terminal	Berth 303-319	37	5436	3225	5710	38710	10520	29540	1290	2280	9680	4210	7630
Antwerp	Delwaidedok Terminal	Berth 702-714	50	3501	4515	11130	64510	33380	50030	1810	4450	16130	13350	13050
Antwerp	Hansadok Terminal		38	922										
Antwerp	Churchilldok Terminal		8	984										
Antwerp	6e Havendok Terminal		50	2740										
Antwerp	Hansadok Terminal		38	2867										
Antwerp	Car Terminal	Berths 1233-1249	48	3117		10450	64540		51860		4180	16130		13330
Antwerp	Churchilldok Terminal		42	3130										
Antwerp	Delwaidedok Terminal		55	3237										
Antwerp	Churchilldok Terminal		50	3238										
Antwerp	Noordzee Terminal	Berths 901-915	48	3697		12190	64510	30480	51590		4880	16130	12190	13450
Antwerp	Europa Terminal	Berths 855-869	50	3869		12190	90320	45720	71220		4880	22580	18290	18430
Antwerp	Churchilldok Terminal		42	7428										
Antwerp	6e Havendok Terminal		50	7442										
Antwerp	5e Havendok Terminal		37	7732										
Antwerp	Delwaidedok Terminal		50	8510										
Antwerp	**{PORT TOTAL}**													**81650**
Apra	Apra Outer Terminal	G	50	370										
Apra	Apra Outer Terminal	H	23	499										
Apra	Apra Outer Terminal	F1	70	550										
Apra	Apra Outer Terminal	F2	28	650										
Apra	Apra Outer Terminal	D	44	663										
Apra	Apra Outer Terminal	E	41	745										
Apra	Apra Outer Terminal	F3	26	750					7601		637	4031		1956
Apra	Apra Outer Terminal	F4-F6	23	1956										
Apra	**{PORT TOTAL}**													**1956**
Aqaba	Main Terminal	Berth 7	26.2	472	1474	2322			1474	589				589
Aqaba	Main Terminal	Berth 2	32.8	591	1474	2322			2220	589	928			887
Aqaba	Main Terminal	Berth 6	36.1	597	1474	2322			2220	589	928			887
Aqaba	Container Terminal	RO/RO Berth	32.8	131										
Aqaba	Container Terminal	Al Mushtarak Cement Berth	38.7	394										
Aqaba	Main Terminal	Berth 10B	11.5	443										
Aqaba	Main Terminal	Berth 10A	11.5	486										
Aqaba	Container Terminal	Yarmouk Passenger Berth	29.5	492										
Aqaba	Container Terminal	Mo' ta Floating Berth	65.6	492										
Aqaba	Main Terminal	Berth 1	35.4	525		2322	14745		11837		928	3686		3040
Aqaba	Main Terminal	Berth 9	17.7	541										
Aqaba	Main Terminal	Berth 8	19	541										
Aqaba	Main Terminal	Berth 5	36.1	591		2322			2322		928			928
Aqaba	Main Terminal	Berth 4	37.7	591		2322			2322		928			928
Aqaba	Main Terminal	Berth 3	42.6	591		2322			2322		928			928
Aqaba	Container Terminal	Container Berth 2	45.9	591										
Aqaba	Container Terminal	Container Berth 3	45.9	591										
Aqaba	Container Terminal	Container Berth 1	65.6	591										
Aqaba	Main Terminal	Phosphate Berth B	47.2	594										
Aqaba	Main Terminal	Phosphate Berth A	36.1	689										

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WORLDWIDE PORT CHARACTERISTICS														
PORT NAME	TERMINAL NAME	BERTH GROUP	DEPTH MLW	BERTH LGTH	BARGE MTON	BB MTON	RORO MTON	CONT MTON	MIXED MTON	BARGE STON	BB STON	RORO STON	CONT STON	MIXED STON
Aqaba	**{PORT TOTAL}**													**8187**
Assab	Assab Terminal	Berths 1-3	32	1608	1327			2980	16643		2229	5308	1192	4363
Assab	Assab Terminal	South 6-7	28	1099	3686				2712		706			1083
Assab	Assab Terminal	Berth 7A	33	236										
Assab	Assab Terminal	Berth 4	21	246										
Assab	Assab Terminal	Berth 5	24	394										
Assab	**{PORT TOTAL}**													**5446**
Augusta Bay	Augusta Bay	Augusta Bay	39	853		1391	8835		7138		557	2209		1795
Augusta Bay	**{PORT TOTAL}**													**1795**
Balboa	Balboa Terminal	Berth 8	36	470										
Balboa	Balboa Terminal	Berth 6	30	742							700	2800		2200
Balboa	Balboa Terminal	Berth 16	33	742							900	2800		2300
Balboa	Balboa Terminal	Berth 14	33	775							900	2800		2300
Balboa	Balboa Terminal	Pier 18A&B	33	1000							900	2800		2300
Balboa	Balboa Terminal	Pier 18C&D	36	1000							900	2800		2300
Balboa	Balboa Terminal	Berth 7	36	1058							1500	2800		2500
Balboa	Balboa Terminal	Berth 15	36	1146							1500	2800	1900	2500
Balboa	**{PORT TOTAL}**													**16400**
Baltimore	Fairfield Marine Terminal	Berth 4 East	50	427										
Baltimore	North Locust Point Terminal	Berth 8 East	34	463										
Baltimore	North Locust Point Terminal	Berth 8 West	34	463										
Baltimore	North Locust Point Terminal	Berth 10	34	636										
Baltimore	Fairfield Marine Terminal	Berth 2 East	50	807										
Baltimore	Fairfield Marine Terminal	Berth 2 West	50	807										
Baltimore	Fairfield Marine Terminal	Berth 4 West	50	830										
Baltimore	Fairfield Marine Terminal	Berth 1	50	896										
Baltimore	North Locust Point Terminal	Berth 6 West	34	948										
Baltimore	North Locust Point Terminal	Berth 6 East	34	955										
Baltimore	North Locust Point Terminal	Berth 7	39	1001										
Baltimore	Seagirt Marine Terminal	Barge Berth	32	1078					5000			1250		1250
Baltimore	South Locust Point Terminal	Berth 9	31	1158										
Baltimore	North Locust Point Terminal	Berth 4	34	1201										
Baltimore	North Locust Point Terminal	Berth 5	40	1204										
Baltimore	North Locust Point Terminal	Berth 3 West	34	1211										
Baltimore	North Locust Point Terminal	Berth 3 East	34	1234										
Baltimore	Fairfield Marine Terminal	Berth 5	50	1414										
Baltimore	South Locust Point Terminal	Berths 10-12	36	2076										
Baltimore	Dundalk Marine Terminal	Berths 7-10	42	2796					5714			1429		1429
Baltimore	Dundalk Marine Terminal	Berths 11-13	42	2883					5714			1429		1429
Baltimore	Seagirt Marine Terminal	Berths 1-3	42	3126					15000			3750		3750
Baltimore	Dundalk Marine Terminal	Berths 1-6	36	3808					8571			2143		2143
Baltimore	**{PORT TOTAL}**													**13000**
Bandar Khomeini	Bandar Khomeini Terminal	5-9		3448	6635	13436	66355		52505	2654	5374	16589		13613
Bandar Khomeini	Bandar Khomeini Terminal	1-4		2528		10450	39813	26120	32729		4180	9953	10448	8658
Bandar Khomeini	Bandar Khomeini Terminal	10-14		2988		13063	53084		43717		5225	13271		11387
Bandar Khomeini	Bandar Khomeini Terminal	15-20		4185		18289	79626		65270		7316	19907		16959

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WORLDWIDE PORT CHARACTERISTICS														
PORT NAME	TERMINAL NAME	BERTH GROUP	DEPTH MLW	BERTH LGTH	BARGE MTON	BB MTON	RORO MTON	CONT MTON	MIXED MTON	BARGE STON	BB STON	RORO STON	CONT STON	MIXED STON
Bandar Khomeini	Bandar Khomeini Terminal	21-28		4185		18289	79626		65270		7316	19907		16959
Bandar Khomeini	**{PORT TOTAL}**													**67576**
Bandirma	Bandirma Terminal	6	32.8	426			9806		9806			2452		2526
Bandirma	Bandirma Terminal	1	27	466			9806		9806			2452		2526
Bandirma	Bandirma Terminal	11	32.8	623		2298	19612	11032	15420		919	4903	4413	3972
Bandirma	Bandirma Terminal	2-3	32.8	795		2114	19612	5516	15207		846	4903	2206	3917
Bandirma	Bandirma Terminal	4-5	32.8	1062		3677	29417	11032	23011		1471	7354	4413	5928
Bandirma	Bandirma Terminal	7-8	29.4	1246		3769	39223	13789	30396		1508	9806	5516	7830
Bandirma	**{PORT TOTAL}**													**26699**
Bar	Bar Terminal	B6	32	469	516	309			333		123			132
Bar	Bar Terminal	B5	32	625	516	1703			1560		681			623
Bar	Bar Terminal	B1	39	1041	516	2864	10321	6080	8259	6080	1145	2580	2432	2188
Bar	Bar Terminal	B3	39	1250	516	3328	10321		8431		1331	2580		2223
Bar	Bar Terminal	B4	32	729	1548	1703	10321		8095		681	2580		2088
Bar	Bar Terminal	B2	39	833		1625	10321		8285		650	2580		2128
Bar	**{PORT TOTAL}**													**9382**
Bar	**{PORT TOTAL}**													**9382**
Basrah	Basrah Terminal	B1	30	656	2488	2239	13271		10435	995	896	3318		2695
Basrah	Basrah Terminal	B2	30	656		2239	13271		10689		896	3318		2750
Basrah	Basrah Terminal	B7	30	656		2239	13271		10689		896	3318		2750
Basrah	Basrah Terminal	B3-4	30	1377		4478	26542	27060	21553		1791	6636	10824	5665
Basrah	**{PORT TOTAL}**													**13860**
Beaumont	Beaumont Terminal	Berth 1	30	580										
Beaumont	Beaumont Terminal	Berths 2-4	38	1373					6000			1500		1500
Beaumont	Beaumont Terminal	Carroll Street	40	1435					6000			1500		1500
Beaumont	Beaumont Terminal	Berths 5-7	36	1438										
Beaumont	Beaumont Terminal	HIMT	40	1880					6000			1500		1500
Beaumont	**{PORT TOTAL}**							**4800**	**18000**		**400**	**4500**	**1800**	**4500**
Beirut	Beirut Terminal	1-6	39	613	1935	2032		2900	2114	774	812		1160	845
Beirut	Beirut Terminal	1-9	39	1115	1935	3483	12902	2900	10200	774	1393	3225	1160	2686
Beirut	Beirut Terminal	1-5	32	826	2580	2032	12902		10117	1032	812	3225		2609
Beirut	Beirut Terminal	1-17	36	905	2580	2032	12902		10117	1032	812	3225		2609
Beirut	Beirut Terminal	1-15	36	947	2580	2032	12902		10117	1032	812	3225		2609
Beirut	Beirut Terminal	1-8	36	984	2580	2032	12902	2900	9900	1032	812	3225	1160	2566
Beirut	Beirut Terminal	1-4	26	1046	3225				3225	1290				1290
Beirut	Beirut Terminal	1-16	36	1466	4515	4064	25804		20214	1806	1625	6451		5212
Beirut	Beirut Terminal	1-18	36	1984	5806	6096	38707		30293	2322	2438	9676		7806
Beirut	Beirut Terminal	1-14	45	787		2032	12902		10357		812	3225		2660
Beirut	Beirut Terminal	1-11	42	1121		3483	12902		10697		1393	3225		2796
Beirut	Beirut Terminal	1-13	39	1144		3483	12902		10697		1393	3225		2796
Beirut	Beirut Terminal	1-12	39	1462		4064	25804		20715		1625	6451		5321
Beirut	**{PORT TOTAL}**													**41805**
Benghazi	Benghazi Terminal	1	27	1016	1990	398		2980	845	796	159		1192	337
Benghazi	Benghazi Terminal	3	27	551		398			398		159			159
Benghazi	Benghazi Terminal	2	27	918		398			398		159			159
Benicia	Benicia Terminal		38	800										

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WORLDWIDE PORT CHARACTERISTICS														
PORT NAME	TERMINAL NAME	BERTH GROUP	DEPTH MLW	BERTH LGTH	BARGE MTON	BB MTON	RORO MTON	CONT MTON	MIXED MTON	BARGE STON	BB STON	RORO STON	CONT STON	MIXED STON
Benicia	Benicia Terminal		38	1600										
Benicia	**{PORT TOTAL}**													
Berbera	Berbera Terminal	Berth 1	28	1180	1327	3782	10616		8778	531	1513	2654		2329
Berbera	**{PORT TOTAL}**													**2329**
Bourgas	West Port	Berth 22-24	36	1968	4417	4705	44175		38005	1767	1882	11044		9570
Bourgas	East Port	East Port	22.3	2165	5743		53010		50384	2297		13252		12644
Bourgas	**{PORT TOTAL}**													**22214**
Bremen	Bremen Terminal	Getreider	22	1850	2949		47185	13920	44204	1179		11796	5568	11104
Bremen	Bremen Terminal	Kaphorn	29	2375		6370	66060	13920	50909		2548	16515	5568	12788
Bremen	Bremen Terminal	EuropaN	26	4450		353	132120	21880	98825		141	33030	8752	24825
Bremen	Bremen Terminal	EuropaS	26	4450			122683	13920	118332			30671	5568	29725
Bremen	Bremen Terminal	Neustader	22	4500			132120	34820	128228			33030	13928	32211
Bremen	Bremen Terminal	Ubersee	26	9700			273678	13920	263287			68420	5568	66138
Bremen	**{PORT TOTAL}**													**176791**
Bremerhaven	Bremerhaven Locks Terminal	Nordhafen East	39	1103		3480	25800	15240	20400		1390	6450	6100	5290
Bremerhaven	Bremerhaven Locks Terminal	Nordhafen West	39	1305		4050	25800		24600		1600	6451		6200
Bremerhaven	Bremerhaven Locks Terminal	Kaiserhafen 2 South	36	1598		7000	38700		32240		2790	9680		8060
Bremerhaven	Bremerhaven Locks Terminal	Kaiserhafen 1 West	36	1950		8000	25800	8700	23050		3210	6450	3500	5310
Bremerhaven	Bremerhaven River Terminal	CT2	45.9	1950		6100	25800	30500	21480		2440	6450	12200	5720
Bremerhaven	Bremerhaven Locks Terminal	Kaiserhafen 3 South	36	1968		6100	25800		22000		2440	6450		5510
Bremerhaven	Bremerhaven Locks Terminal	Kaiserhafen 3 North	36	2364		8700	38700		32900		3480	9680		8230
Bremerhaven	Bremerhaven River Terminal	Columbus Quay	38	3345										
Bremerhaven	Bremerhaven River Terminal	Columbuskaje	38	3400		18000	77400		60250		19350	19350		19190
Bremerhaven	Bremerhaven River Terminal	CT3	46.6	3420		7000	38700	30500	31250		2790	9680	12190	8190
Bremerhaven	Bremerhaven River Terminal	CT1	45.9	5200		17420	90320	68580	73110		6970	22580	27430	19200
Bremerhaven	**{PORT TOTAL}**													**90900**
Brindisi	Brindisi Terminal	10Mont	27	747	500		18800		18000	200		4700		4500
Brindisi	Brindisi Terminal	2,3&4	29	1705	500	4750	47200		36800	200	1900	11800		9200
Brindisi	Brindisi Terminal	New Wharf 2	36	492	750	1000	9600		7600	300	400	2400		1900
Brindisi	Brindisi Terminal	1 Cent	29	1043	1250	3250	28400		22400	500	1300	7100		5600
Brindisi	Brindisi Terminal	11SAP	24	295			9600		9600			2400		2400
Brindisi	Brindisi Terminal	6Leva	19	459			9600		9600	2		2400		2400
Brindisi	Brindisi Terminal	5NTra	19	524			9600		9600	2		2400		2400
Brindisi	Brindisi Terminal	5Vtra	19	524			9600		9600	2		2400		2400
Brindisi	Brindisi Terminal	8Felt	24	728			18800		18800	2		4700		4700
Brindisi	Brindisi Terminal	26RCM	45	984		1750	18800	2800	15200	2	700	4700	2800	3800
Brindisi	Brindisi Terminal	19NSCM	45	1213		3750	28400		23200		1500	7100		5800
Brindisi	Brindisi Terminal	9PFra	24	1328		250	37600		29200	2	100	9400		7300
Brindisi	Brindisi Terminal	20DCM	45	1640		4750	28400		23600	2	1900	7100		5900
Brindisi	Brindisi Terminal	New Wharf 1	49	1640		3250	28400		22800	2	1300	7100		5700
Brindisi	**{PORT TOTAL}**													**64000**
Busan	North Harbor Terminal	Berth 13	27.2	1890	800	1090	830		500	436	200			200
Busan	North Harbor Terminal	Berth 75	32.8	1968	800			57800	11900		1100	5626		3300
Busan	North Harbor Terminal	Berth 12	24.6	2166	800	1090			500	436	200			200
Busan	North Harbor Terminal	Berths 14-15	27.2	1968	1700	1990	1657.5		1100	796	400		2548	400
Busan	North Harbor Terminal	Berths 73-74	32.1	3267	1700			5600	11100		1800	5626		3000

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WORLDWIDE PORT CHARACTERISTICS														
PORT NAME	TERMINAL NAME	BERTH GROUP	DEPTH MLW	BERTH LGTH	BARGE MTON	BB MTON	RORO MTON	CONT MTON	MIXED MTON	BARGE STON	BB STON	RORO STON	CONT STON	MIXED STON
Busan	North Harbor Terminal	Berths 21-22	21.3	3819	1700	1990	1657.5	11200	11000	796	1900	5626		3000
Busan	North Harbor Terminal	Berths 45-46	26.2	3957	1700	1990	1657.5	11200	20500	796	1900	11252	2548	5300
Busan	North Harbor Terminal	Berths 24-25	29.5	4113	1700	1990	1657.5	11200	20500	796	1900	11252	2548	5300
Busan	North Harbor Terminal	Berths 32-33	27.6	4428	1700			11200	20500		1900	11252		5300
Busan	North Harbor Terminal	Berths 35-37	26.2	4626	1700			24300	20900		1900	11252		5500
Busan	North Harbor Terminal	Berths 41-43	25.6	5451	1700	1090	830	11200	31100	436	3700	17052		8100
Busan	North Harbor Terminal	Berths 61-64	39.4	12444	3300	7600	5802.5	134400	65500	3040	7400	33945	12416	17600
Busan	North Harbor Terminal	Berths 81-83	29.5	5274	5800	2940	2487.5	16800	21500	1176	3000	11252	3184	5700
Busan	North Harbor Terminal	Berths S1-S4	42.6	11808	5800	4930	4145	104500	44100	1972	4600	22693	4140	11900
Busan	North Harbor Terminal	Berth 31	20.3	786										
Busan	North Harbor Terminal	Berth 86	14.1	1083										
Busan	North Harbor Terminal	Berth 10	3.3	1143										
Busan	North Harbor Terminal	Berth 23	24.6	1152										
Busan	North Harbor Terminal	Berth 11	15.1	1182										
Busan	North Harbor Terminal	Berth 44	18	1428										
Busan	North Harbor Terminal	Berth 34	27.9	1428										
Busan	Gamchun Terminal	Berth C6	24.6	1575										
Busan	North Harbor Terminal	Berth 84	29.5	1644										
Busan	North Harbor Terminal	Berth 65	32.8	1821										
Busan	North Harbor Terminal	Berth 85	17.7	1869										
Busan	Gamchun Terminal	Berth C5	26.2	1869										
Busan	Gamchun Terminal	Berth C4	29.5	1920										
Busan	North Harbor Terminal	Berth 47	24.6	2067										
Busan	Gamchun Terminal	Berth 34	29.5	2313										
Busan	Gamchun Terminal	Berth 33	29.5	2559										
Busan	Gamchun Terminal	Berth 32	36.1	2559										
Busan	Gamchun Terminal	Berth 31	36.1	2757										
Busan	Gamchun Terminal	Berth C3	39.4	2757										
Busan	North Harbor Terminal	Berth 71_72	14.8	2883										
Busan	North Harbor Terminal	Berth 76	32.8	2934										
Busan	Gamchun Terminal	Berths C1-C2	19.7	2952										
Busan	Gamchun Terminal	Berths 11-12A	13.1	3453										
Busan	Gamchun Terminal	Berths 23-31	31.2	3837										
Busan	Gamchun Terminal	Berths 53-54	26.2	3936										
Busan	Gamchun Terminal	Berths 51-52	19.7	4173										
Busan	Gamchun Terminal	Berth 41	39.4	4605										
Busan	Gamchun Terminal	Berths 61-63	26.2	5808										
Busan	Gamchun Terminal	Berths 71-73	42.6	5904										
Busan	North Harbor Terminal	Berths C1-C3	27.9	6357										
Busan	North Harbor Terminal	Berths E1-E3	23	8127										
Busan	Gamchun Terminal	Berths 12B-22	19.7	11247										
Busan	North Harbor Terminal	Berths R1-R4	49.2	13776		7710	6632.5	126900	67300	3084	7500	33945	1103.06	18000
Busan	**{PORT TOTAL}**													**211000**
Bushire	Bushire Terminal	Jetty 2	25	600	2488	497			735	995	198.8			294
Bushire	Bushire Terminal	Jetty 1	26	600		497			497		198.8			199
Bushire	**{PORT TOTAL}**													**493**
Callao	Callao Terminal	Pier 1A	30	599	1327	1791	10616		8327	531	716	2654		2148

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WORLDWIDE PORT CHARACTERISTICS														
PORT NAME	TERMINAL NAME	BERTH GROUP	DEPTH MLW	BERTH LGTH	BARGE MTON	BB MTON	RORO MTON	CONT MTON	MIXED MTON	BARGE STON	BB STON	RORO STON	CONT STON	MIXED STON
Callao	Callao Terminal	Pier 1B	30	599	1327	1791	10616		8327	531	716	2654		2148
Callao	Callao Terminal	Pier 4A	30	599		1791	10616		8550		716	2654		2200
Callao	Callao Terminal	Pier 4B	30	599		1791	10616		8550		716	2654		2200
Callao	Callao Terminal	Pier 2A	31	599		2090	10616		8620		836	2654		2228
Callao	Callao Terminal	Pier 2B	31	599		2090	10616		8620		836	2654		2228
Callao	Callao Terminal	Pier 3A	32	599		2090	10616		8620		836	2654		2228
Callao	Callao Terminal	Pier 3B	32	599		2090	10616		8620		836	2654		2228
Callao	Callao Terminal	5A	32	642		2090	10616	2980	8446		836	2654	1192	2196
Callao	**{PORT TOTAL}**													**19804**
Cape Town	Cape Town Terminal	B-D	29	2106	663	7166	31850		25287	265	2866	7963		6568
Cape Town	Cape Town Terminal	500	31	660		2090	10616		8620		836	2654		2228
Cape Town	Cape Town Terminal	600	32	721		2090	10616		8620		836	2654		2228
Cape Town	Cape Town Terminal	E	34	740		2090	10616		8620		836	2654		222
Cape Town	Cape Town Terminal	601	40	774		2090	10616		8620		836	2654		2228
Cape Town	Cape Town Terminal	A	33	899		2090	10616		8620		836	2654		2228
Cape Town	Cape Town Terminal	501-502	31	1200		4180	21233	7820	16950		1672	5308	3128	4415
Cape Town	Cape Town Terminal	J-L	32	2447		8360	42467		34484		3344	10617		8914
Cape Town	Cape Town Terminal	F-H	36	2684		8957	42467		34624		3583	10617		8969
Cape Town	Cape Town Terminal	602-604	45	3001		10450	42467	34320	34953		4180	10617	13728	9252
Cape Town	**{PORT TOTAL}**													**47252**
Catania	Catania	Container Berth	30	984			35340		34358			8835		8590
Catania	**{PORT TOTAL}**													**8590**
Charleston	Columbus Street Terminal	C1-2	45	1640					4000			1000		1000
Charleston	Columbus Street Terminal	C3-6	45	2234					8000			2000		2000
Charleston	Union Pier Terminal	U1-4	45	2450					6000			1500		1500
Charleston	North Charleston Terminal	N1-3	45	2460					20000			5000		5000
Charleston	Wando Welch Terminal	W1-4	45	3800					20000			5000		5000
Charleston	Veterans Terminal			4765										
Charleston	**{PORT TOTAL}**													**14500**
Cheju	Cheju Terminal	2 (S3)	16	472	1032				1032					412
Cheju	Cheju Terminal	3	20	1312	1548				1548					619
Cheju	Cheju Terminal	6	16	1279	3096				3096					1238
Cheju	Cheju Terminal	5 (S1)	20	459										
Cheju	Cheju Terminal	5 (S2)	20	459										
Cheju	Cheju Terminal	4 (S1)	20	590										
Cheju	Cheju Terminal	4 (S2)	20	590										
Cheju	Cheju Terminal	5 (S3)	20	590										
Cheju	**{PORT TOTAL}**													**2269**
Chi Lung	**{PORT TOTAL}**													
Chinhae	Chinhae Terminal	Breakbulk Pier	36	600					1210		1100			1100
Chinhae	Chinhae Terminal	Container Wharf	36	1056				9020	9020					8200
Chinhae	**{PORT TOTAL}**													**9300**
Coco Solo	Coco Solo Terminal	Pier 1W	30	285										
Coco Solo	Coco Solo Terminal	Pier 2	13	480										
Coco Solo	Coco Solo Terminal	Pier 3	13	480										
Coco Solo	Coco Solo Terminal	Pier 1S	26	1665										

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WORLDWIDE PORT CHARACTERISTICS															
PORT NAME	TERMINAL NAME	BERTH GROUP	DEPTH MLW	BERTH LGTH	BARGE MTON	BB MTON	RORO MTON	CONT MTON	MIXED MTON	BARGE STON	BB STON	RORO STON	CONT STON	MIXED STON
Coco Solo	**{PORT TOTAL}**													
Constantza	South Terminal	Berth 122-123	42	702	1062	2309	10618	5096	9172	425	924	2654	2038	2395
Constantza	North Terminal	Berth 74	40	194										
Constantza	North Terminal	Berth 30	29	200										
Constantza	North Terminal	Berth 71	40	217										
Constantza	North Terminal	RoRo Berth 1	17	220										
Constantza	North Terminal	Berth 0	33	230										
Constantza	North Terminal	Berth 10	22	277										
Constantza	North Terminal	Berth 9	22	277										
Constantza	North Terminal	RoRo Berth 3	36	310										
Constantza	North Terminal	RoRo Berth 5	22	315										
Constantza	North Terminal	Berth 22	24	318										
Constantza	North Terminal	Berth 7	33	323										
Constantza	North Terminal	Berth 6	31	331										
Constantza	North Terminal	RoRo Berth 2	29	345										
Constantza	North Terminal	Berth 16	24	348										
Constantza	North Terminal	Berth 17	20	367										
Constantza	North Terminal	Berth 18	22	367										
Constantza	North Terminal	Berth 19	25	370										
Constantza	North Terminal	Berth 8	28	375										
Constantza	North Terminal	Berth 4	30	394										
Constantza	North Terminal	Berth 1	33	394										
Constantza	North Terminal	Berth 2	33	394										
Constantza	North Terminal	Berth 3	33	394										
Constantza	North Terminal	Berth 5	33	394										
Constantza	North Terminal	Berth 13	24	400										
Constantza	North Terminal	Berth 14	24	400										
Constantza	North Terminal	Berth 20	22	410										
Constantza	North Terminal	Berth 21	22	410										
Constantza	North Terminal	Berth 24	27	450										
Constantza	North Terminal	Berth 15	24	453										
Constantza	North Terminal	Berth 11	26	453										
Constantza	North Terminal	Berth 23	24	463										
Constantza	North Terminal	Berth 12	27	463										
Constantza	South Terminal	Berth 110	27	469										
Constantza	South Terminal	Berth 109	22	482										
Constantza	South Terminal	Berth 108	22	486										
Constantza	South Terminal	Berth 102	23	581										
Constantza	North Terminal	Berth 58	31	594										
Constantza	South Terminal	Berth 101	11	623										
Constantza	South Terminal	Berth 100	14	633										
Constantza	North Terminal	Berth 34	32	646										
Constantza	North Terminal	Berth 39	35	656										
Constantza	South Terminal	Berth 114	40	659										
Constantza	North Terminal	Berth 38	34	673										
Constantza	North Terminal	Berth 68	35	679										
Constantza	South Terminal	Berth 103	21	682										

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WORLDWIDE PORT CHARACTERISTICS														
PORT NAME	TERMINAL NAME	BERTH GROUP	DEPTH MLW	BERTH LGTH	BARGE MTON	BB MTON	RORO MTON	CONT MTON	MIXED MTON	BARGE STON	BB STON	RORO STON	CONT STON	MIXED STON
Constantza	North Terminal	Berth 36	31	682										
Constantza	North Terminal	Berth 35	34	682										
Constantza	North Terminal	Berth 37	34	682										
Constantza	North Terminal	Berth 40	34	682										
Constantza	North Terminal	Berth 41	34	682										
Constantza	North Terminal	Berth 42	34	682										
Constantza	North Terminal	Berth 43	34	686										
Constantza	South Terminal	Berth 124	46	688										
Constantza	South Terminal	Berth 121	45	696		836	5308		5084		334	1327		1277
Constantza	North Terminal	Berth 64	30	705										
Constantza	North Terminal	Berth 65	30	705										
Constantza	North Terminal	Berth 66	30	705										
Constantza	North Terminal	Berth 67	30	705										
Constantza	South Terminal	Berth 113	32	712										
Constantza	South Terminal	Berth 118	42	712										
Constantza	North Terminal	Berth 33	27	715										
Constantza	South Terminal	Berth 111	32	715										
Constantza	North Terminal	Berth 53	29	718										
Constantza	South Terminal	Berth 115	45	718										
Constantza	North Terminal	Berth 63	31	722										
Constantza	South Terminal	Berth 112	32	722										
Constantza	North Terminal	Berth 44	34	722										
Constantza	North Terminal	Berth 46	33	735										
Constantza	North Terminal	Berth 45	34	735										
Constantza	North Terminal	Berth 47	34	735										
Constantza	North Terminal	Berth 48	34	735										
Constantza	North Terminal	Berth 31	33	741										
Constantza	North Terminal	Berth 49	29	748										
Constantza	South Terminal	Berth 116	45	748										
Constantza	North Terminal	Berth 57	33	751										
Constantza	North Terminal	Berth 32	33	755										
Constantza	North Terminal	Berth 52	29	761										
Constantza	North Terminal	Berth 60	28	768										
Constantza	North Terminal	Berth 54	31	768										
Constantza	North Terminal	Berth 61	32	768										
Constantza	North Terminal	Berth 62	32	768										
Constantza	North Terminal	Berth 55	33	768										
Constantza	North Terminal	Berth 56	33	768										
Constantza	North Terminal	Berth 59	34	768										
Constantza	North Terminal	Berth 50	26	771										
Constantza	North Terminal	Berth 51	27	771										
Constantza	South Terminal	Berth 120	35	780		836	5308		5084		334	1327		1277
Constantza	South Terminal	Berth 117	45	787										
Constantza	South Terminal	Berth 84	33	820										
Constantza	South Terminal	Berth 83	41	820										
Constantza	South Terminal	Berth 82	50	958										
Constantza	North Terminal	Cruise Berth	40	971										

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WORLDWIDE PORT CHARACTERISTICS															
PORT NAME	TERMINAL NAME	BERTH GROUP	DEPTH MLW	BERTH LGTH	BARGE MTON	BB MTON	RORO MTON	CONT MTON	MIXED MTON	BARGE STON	BB STON	RORO STON	CONT STON	MIXED STON
Constantza	South Terminal	Berth 80	60	1001										
Constantza	South Terminal	Berth 81	54	1007										
Constantza	South Terminal	Berth 119	35	1050										
Constantza	North Terminal	Berth 75	40	1070										
Constantza	North Terminal	Berth 76	40	1070										
Constantza	North Terminal	Berth 70	34	1073										
Constantza	North Terminal	Berth 69	38	1073										
Constantza	North Terminal	Berth 72	40	1073										
Constantza	North Terminal	Berth 73	37	1079										
Constantza	South Terminal	Berth 85	33	1090										
Constantza	North Terminal	RoRo Berth 4	29	1194										
Constantza	**{PORT TOTAL}**													**4949**
Corpus Christi	Corpus Christi Terminal	RORO Berth	38	130										
Corpus Christi	Corpus Christi Terminal	Cargo Dock 12	22	200										
Corpus Christi	Corpus Christi Terminal	Cargo Dock 9	38	660										
Corpus Christi	Corpus Christi Terminal	Cargo Dock 10	30	665										
Corpus Christi	Corpus Christi Terminal	Bulk Terminal 1	35	835										
Corpus Christi	Corpus Christi Terminal	Cargo Dock 8 - 14/15	45	865										
Corpus Christi	Corpus Christi Terminal	Cargo Dock 8 - 14/15	36	938										
Corpus Christi	**{PORT TOTAL}**													**4000**
Cristobal	Cristobal Terminal	Pier 10	42	423										
Cristobal	Cristobal Terminal	Pier 7AB	42	977							800	2600		2200
Cristobal	Cristobal Terminal	Pier 8AB	42	990							800	2600		2200
Cristobal	Cristobal Terminal	Pier 7CD	42	1000							800	2600		2200
Cristobal	Cristobal Terminal	Pier 8CD	42	1010							800	2600		2200
Cristobal	Cristobal Terminal	Pier 6AB	42	1030							800	2600		2200
Cristobal	Cristobal Terminal	Pier 6CD	42	1030							800	2600		2200
Cristobal	Cristobal Terminal	Pier 9	42	1068							1400	2600	6100	2400
Cristobal	Cristobal Terminal	Pier 16AB	42	1070							1800	3300		3000
Cristobal	Cristobal Terminal	Pier 16CD	42	1070							1800	3300		3000
Cristobal	**{PORT TOTAL}**													**21600**
DAKAR	DAKAR	Mole 1	32.8	486										
DAKAR	DAKAR	Mole 2	32.8	650										
DAKAR	DAKAR	North Jetty		693										
DAKAR	DAKAR	Mole 6	38	696										
DAKAR	DAKAR	Mole 4		766										
DAKAR	DAKAR	Mole 2	34.4	1000										
DAKAR	DAKAR	Mole 4	16.4	1170										
DAKAR	DAKAR	Mole 3	32.8	1181										
DAKAR	DAKAR	Mole 6	38	1316										
DAKAR	DAKAR	Mole 2	27.9	1679										
DAKAR	DAKAR	Mole 9	39.4	1681										
DAKAR	DAKAR		32.8	2147										
DAKAR	DAKAR	Mole 8	25.9	2629										
DAKAR	DAKAR	Mole 1	34.4	2808										
DAKAR	**{PORT TOTAL}**													
Damietta	Damietta	B5-8	39	2624	3225	8805	64511		49981	1290	3522	16127		12809

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WORLDWIDE PORT CHARACTERISTICS														
PORT NAME	TERMINAL NAME	BERTH GROUP	DEPTH MLW	BERTH LGTH	BARGE MTON	BB MTON	RORO MTON	CONT MTON	MIXED MTON	BARGE STON	BB STON	RORO STON	CONT STON	MIXED STON
Damietta	Damietta	RORO	39.4	98										
Damietta	Damietta	RORO	47.6	101										
Damietta	Damietta	LNG	47.6	1300										
Damietta	Damietta	Multi purpose	47.6	1941										
Damietta	Damietta	Grain	47.6	1971										
Damietta	Damietta	B9-12	39	2624		8805	38707		31708		3522	9676		8235
Damietta	Damietta	General	39.4	2626										
Damietta	Damietta	Bulk	39.4	2931										
Damietta	Damietta	B1-4	47	3444		10547	77414	30480	60796		4219	19353	12192	15699
Damietta	Damietta	Container	47.6	3444										
Damietta	**{PORT TOTAL}**													**36743**
Dar Es Salaam	Dar Es Salaam Terminal	Berth 1-4	29	2400	1935				1935	774				774
Dar Es Salaam	Dar Es Salaam Terminal	Berth 9-11	35	1800				15241	15241				6096	6096
Dar Es Salaam	Dar Es Salaam Terminal	Berth 5-8	31	2400			51609		51609			12902		12902
Dar Es Salaam	**{PORT TOTAL}**													**19772**
Derince	Derince Terminal	7	33	525		2114	9806	13789	8185		846	2452	5516	2109
Derince	Derince Terminal	6	39	722		2390	19612	13789	15526		956	4903	5516	3999
Derince	Derince Terminal	3-4	49	1312		3861	392223		30947		1544	9806		7972
Derince	**{PORT TOTAL}**													**14080**
Diego Garcia	Diego Garcia Terminal	Berth B	45	1000		2128	10321		4863		851	2580		1435
Diego Garcia	Diego Garcia Terminal	Berth A	45	1000		2128	10321	2654	4848		851	2580	1062	1448
Diego Garcia	**{PORT TOTAL}**													**2883**
Dilli	Dilli Terminal	Wharf	23	590	1658	497			636	663	199			254
Dilli	**{PORT TOTAL}**													**254**
Djibouti	Djibouti Terminal	Quay 5	23	787	1290				1290	516				516
Djibouti	Djibouti Terminal	Quay 3	5	230										
Djibouti	Djibouti Terminal	Quay 11	34	558										
Djibouti	Djibouti Terminal	Quay 1	26	591		2212		16722	5556	16722	885		6689	2223
Djibouti	Djibouti Terminal	Quay 9	30	656		1741	10321							
Djibouti	Djibouti Terminal	Quay 8	23	663		2101	14746		13921		840	3686		3495
Djibouti	Djibouti Terminal	Quay 13	31	689		2101	14746		11137		840	3686		2796
Djibouti	Djibouti Terminal	Quay 2	39	722		2654	14746	16722	14527	16722	1062	3686	6689	4152
Djibouti	Djibouti Terminal	Quay 4	14	787										
Djibouti	Djibouti Terminal	Quay 10	34	886										
Djibouti	Djibouti Terminal	Quay 12	38	886										
Djibouti	Djibouti Terminal	Quay 14-15	39	1302		5087	14746		11231		2035	3686		2834
Djibouti	Djibouti Terminal	Quay 6-7	23	1421										
Djibouti	**{PORT TOTAL}**													**18155**
Durban	Durban Terminal	100	29	905	700	1800	10600		8300	300	700	2700		2100
Durban	Durban Terminal	C	29	698	2000	1900	10600		8400	800	800	2700		2200
Durban	Durban Terminal	15	32	698		2100	10600		8600		800	2700		2200
Durban	Durban Terminal	N	40	859		2100	10600		8600		800	2700		2200
Durban	Durban Terminal	A	38	944		2100	10600		8600		800	2700		2200
Durban	Durban Terminal	B	34	1079		3600	10600		9000		1400	2700		2400
Durban	Durban Terminal	104	42	1151		3600	10600		9000		1400	2700		2400
Durban	Durban Terminal	Q-R	36	1200		4200	10600		9100		1700	2700		2400

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WORLDWIDE PORT CHARACTERISTICS														
PORT NAME	TERMINAL NAME	BERTH GROUP	DEPTH MLW	BERTH LGTH	BARGE MTON	BB MTON	RORO MTON	CONT MTON	MIXED MTON	BARGE STON	BB STON	RORO STON	CONT STON	MIXED STON
Durban	Durban Terminal	6-7	32	1305		4200	10600		9100		1700	2700		2400
Durban	Durban Terminal	10-11	32	1364		4200	21200		17200		1700	5300		4500
Durban	Durban Terminal	108-109	42	1787		5400	31900	10800	25200		2100	8000	4300	6500
Durban	Durban Terminal	L-M	36	2000		6300	31900		25900		2500	8000		6700
Durban	Durban Terminal	O-P	36	2033		6300	31900		25900		2500	8000		6700
Durban	Durban Terminal	200-202	42	2191		7200	31900	15700	25800		2900	8000	6300	6800
Durban	Durban Terminal	101-103	42	2220		7200	31900		26100		2900	8000		6800
Durban	Durban Terminal	105-107	42	2250		7200	31900		26100		2900	8000		6800
Durban	Durban Terminal	203-205	42	3001		10500	42500	39200	35100		4200	10600	15700	9300
Durban	**{PORT TOTAL}**													**74600**
Durres	Durres Terminal	6	24.5	374										
Durres	Durres Terminal	4	24.5	570										
Durres	Durres Terminal	1	24.5	610										
Durres	Durres Terminal	9	24.5	617										
Durres	Durres Terminal	2	24.5	958										
Durres	Durres Terminal	5	24.5	1260										
Durres	Durres Terminal	East Berth	24.5	1310										
Durres	Durres Terminal	7-8	24.5	1334										
Durres	**{PORT TOTAL}**													
Emden	Emden	Emden (outer)	27	891			8835							
Emden	Emden	Emden (inner)	35	4763		11530	44175			1060				
Emden	**{PORT TOTAL}**													**11261**
Felixstowe	Felixstowe Terminal	RORO 3	23	439	1290	387			495	516	154			197
Felixstowe	Felixstowe Terminal	RORO 2	23	495	1290				1290	516				516
Felixstowe	Felixstowe Terminal	Landguard 2	30	521	1290	1741		15240	3138	516	696		6096	1255
Felixstowe	Felixstowe Terminal	RORO 1	23	605	1935	387			572	774	154			228
Felixstowe	Felixstowe Terminal	RORO 4	32	820	1935	2032	12902		10097	774	812	3225		2601
Felixstowe	Felixstowe Terminal	Landguard 1	37	918		2032	12902	15240	10508		812	3225	6096	2766
Felixstowe	Felixstowe Terminal	Trinity CT	37	7655		24385	141926	144780	115355		9754	35481	57912	30339
Felixstowe	**{PORT TOTAL}**													**37902**
Frederiksted	Frederiksted Terminal	Frederiksted	25	700						300		2900		2850
Frederiksted	**{PORT TOTAL}**													**2850**
FREETOWN	FREETOWN	Quay II	31.5	371										
FREETOWN	FREETOWN	Quay II	29	1396										
FREETOWN	FREETOWN	Quay II	29.5	1734										
FREETOWN	**{PORT TOTAL}**													
Fujairah	Vopak Enoc Terminal	Vopak Enoc		1862										
Fujairah	Container Terminal	Bulk		1929										
Fujairah	Container Terminal	Container		2574										
Fujairah	Container Terminal	Tanker		2754										
Fujairah	**{PORT TOTAL}**													
Gabes	Gabes Terminal	Quay 1	34	1230	2654	4180	10616		8910	1062	1672	2654		2382
Gabes	Gabes Terminal	Quay 3	41	852		2090	10616		8620		836	2654		2228
Gabes	Gabes Terminal	Quay 2	34	1968		6270	21233		17731		2508	5308		4652
Gabes	**{PORT TOTAL}**													**9262**
Gaeta	Gaeta Terminal	Caboto	20	426			9437		9437			2359		2359

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WORLDWIDE PORT CHARACTERISTICS														
PORT NAME	TERMINAL NAME	BERTH GROUP	DEPTH MLW	BERTH LGTH	BARGE MTON	BB MTON	RORO MTON	CONT MTON	MIXED MTON	BARGE STON	BB STON	RORO STON	CONT STON	MIXED STON
Gaeta	Gaeta Terminal	NewQy	26	820			18874		18874			4719		4719
Gaeta	**{PORT TOTAL}**													**7078**
Galveston	Galveston Terminal	Berth 26	32	400										
Galveston	Galveston Terminal	Berth 34	32	632		2128	12902							
Galveston	Galveston Terminal	Berth 14E	32	663		2128	12902							
Galveston	Galveston Terminal	Berth 15	33	663		2128	12902							
Galveston	Galveston Terminal	Berth 14W	32	689		2128	12902							
Galveston	Galveston Terminal	Berth 39-40 Face	33	787										
Galveston	Galveston Terminal	Berth 12	32	845		2128	12902			516				
Galveston	Galveston Terminal	Berths 23-25	32	1014		3580	25804			1806				
Galveston	Galveston Terminal	Berth 37	32	1163		3580	12902							
Galveston	Galveston Terminal	Berth 40	32	1163		3580	12902							
Galveston	Galveston Terminal	Berth 39	23	1173		3580	12902							
Galveston	Galveston Terminal	Berth 38	20	1180										
Galveston	Galveston Terminal	Berth 41	32	1195		4161	12902							
Galveston	Galveston Terminal	Berths 16-18	32	1203		4161	12902							
Galveston	Galveston Terminal	Berth 36	31	1205		4161	12902			1548				
Galveston	Galveston Terminal	Berth 10	40	1346		4161	25804							
Galveston	**{PORT TOTAL}**													
Genova	Genova Terminal	16 Asse 2	19	164										
Genova	Genova Terminal	16 Asse N5	19	164								6200		6200
Genova	Genova Terminal	16 Asse N4	19	287								2050		2050
Genova	Genova Terminal	16 Asse S3	19	287								2050		2050
Genova	Genova Terminal	14 Colo 3	19	328										
Genova	Genova Terminal	10 PMill 1	22	328										
Genova	Genova Terminal	13 S Lazz	19	369										
Genova	Genova Terminal	14 Colo 2	19	369										
Genova	Genova Terminal	14 Colo 4	19	369										
Genova	Genova Terminal	10 PMill 2	22	410								2050		2050
Genova	Genova Terminal	18 Cara E	19	485								2050		2050
Genova	Genova Terminal	30 Mass	26	514								2050	3700	2050
Genova	Genova Terminal	32 Moga	36	514							600	2050	3700	1750
Genova	Genova Terminal	28 Ing	19	524								2050	1850	2050
Genova	Genova Terminal	38 Dem	29	524							600	2050		1750
Genova	Genova Terminal	34 Trip	19	528								2050	5550	2050
Genova	Genova Terminal	36 Beng	29	528							600	2050	7300	1750
Genova	Genova Terminal	10 PMill 3	22	533								2050		2050
Genova	Genova Terminal	8 Paro E	22	557								2050		2050
Genova	Genova Terminal	14 Colo 1	19	574								2050		2050
Genova	Genova Terminal	18 Cara N	19	728								4150		4150
Genova	Genova Terminal	12 Dor W	26	764								2050		2050
Genova	Genova Terminal	12 Dor F	26	780								2050		2050
Genova	Genova Terminal	29 Eti E	19	803								4150		4150
Genova	Genova Terminal	15 Chia	26	803								2050		2050
Genova	Genova Terminal	16 Asse 6	19	1148										
Genova	Genova Terminal	37 Can W	32	1180							1200	6200		5000
Genova	Genova Terminal	16 Asse S1	19	1189								6200		6200

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WORLDWIDE PORT CHARACTERISTICS														
PORT NAME	TERMINAL NAME	BERTH GROUP	DEPTH MLW	BERTH LGTH	BARGE MTON	BB MTON	RORO MTON	CONT MTON	MIXED MTON	BARGE STON	BB STON	RORO STON	CONT STON	MIXED STON
Genova	Genova Terminal	33 Som E	29	1279							1400	8250		6650
Genova	Genova Terminal	25 S Gio E	32	1279							1400	8250	2800	6500
Genova	Genova Terminal	35 Leb E	29	1295							1300	8250		6550
Genova	Genova Terminal	31 Eri E	29	1295							1200	8250		6600
Genova	Genova Terminal	31 Eri W	32	1305							1500			1750
Genova	Genova Terminal	29 Eti W	29	1308							1300	8250		6550
Genova	Genova Terminal	33 Som W	29	1315							1350	8250	6500	6600
Genova	Genova Terminal	35 Lib W	32	1315							1350	8250	3700	6650
Genova	Genova Terminal	39 Ronco E	36	1344							1350	8250	7300	6650
Genova	Genova Terminal	22 Bett	29	1397							1250	6200	9750	5000
Genova	Genova Terminal	19 Sani	45	1705							1750	8250		6800
Genova	Genova Terminal	40 Voltri	49	4592							4600	31000	9750	24350
Genova	**{PORT TOTAL}**													**148250**
Gioia Tuara	Gioia Tuara	Levante 1	42	4101	5500	16000	82612	62460	43508	2200	6400	20650	24980	15470
Gioia Tuara	Gioia Tuara	Levante 2	36	5777	6880	22718	151456	78070	62860	2750	9090	37864	31230	21600
Gioia Tuara	**{PORT TOTAL}**													**37070**
Gizan	Gizan Terminal	06	32	600	645	2128	12900		10072	258	851	3225		2593
Gizan	Gizan Terminal	02-3	39	1154	645	3580	25800		19972	258	1432	6450		5117
Gizan	Gizan Terminal	08-10	32	1617	645	5321	38700		29937	258	2128	9675		7668
Gizan	Gizan Terminal	11-12	39	1416	1290	4257	25800	14624	19990	516	1703	6450	5850	5210
Gizan	Gizan Terminal	07	32	400										
Gizan	Gizan Terminal	01	39	652		2032	12900		10344		813	3225		2657
Gizan	Gizan Terminal	04-5	32	1121		3483	25800		20552		1393	6450		5260
Gizan	**{PORT TOTAL}**													**28505**
Grays Harbor	Terminal 1	Berth 1	30	480										
Grays Harbor	Terminal 3	Berth 3	36	600										
Grays Harbor	Terminal 2	Berth 2	41	600										
Grays Harbor	Terminal 4	4A-4B	41	1440										
Grays Harbor	**{PORT TOTAL}**							**3072**			**800**		**1152**	
Guantanamo	Guantanamo Terminal	ConRORO	35	1427	663	4478	21233	2980	16382	265	1791	5308	1192	4259
Guantanamo	Guantanamo Terminal	Ammo	34	1775	3317	5673	21233		17149	1327	2269	5308		4495
Guantanamo	**{PORT TOTAL}**													**8754**
Guayaquil	Guayaquil Terminal	BB	31	2976	3981	9356	42467		33766	1592	3742	10617		8777
Guayaquil	Guayaquil Terminal	Container	32	1719		5573	21233	7820	17266		2229	5306	3128	4542
Guayaquil	**{PORT TOTAL}**													**13319**
Gulfport	West Pier	Berth WT1-WT7A	14	350										
Gulfport	East Pier	Berth EP1	32	700		1593								
Gulfport	West Pier	RORO Berth	26	750										
Gulfport	West Pier		26	750										
Gulfport	East Pier	Berth EP2-EP3	32	1534		1858								
Gulfport	West Pier	Berth WT1-WT7A	32	3740										
Gulfport	**{PORT TOTAL}**													
Gunsan	Gunsan Terminal	Pier 2	36	1807	2900				14400		2800	7511		3700
Gunsan	Gunsan Terminal	Pier 3	36	2100	2900				18300		3200	10237		4700
Gunsan	Gunsan Terminal	Pier 1	36	1722	3700			12000	14100		2400	7511		3700
Gunsan	Gunsan Terminal	Pier 4	36	984										

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WORLDWIDE PORT CHARACTERISTICS														
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Gunsan	Gunsan Terminal	Pier 6	36	3045										
Gunsan	Gunsan Terminal	Pier 5	36	5510										
Gunsan	**{PORT TOTAL}**													**12100**
Hachinohe	Hachinohe Terminal	Berth C	32.8	607										
Hachinohe	Hachinohe Terminal	Berths A-B	24.6	852										
Hachinohe	Hachinohe Terminal	Berths H-I	24.6	852										
Hachinohe	Hachinohe Terminal	Berths L-M	24.6	852										
Hachinohe	Hachinohe Terminal	Berths N-O	24.6	852										
Hachinohe	Hachinohe Terminal	Berths F-G	32.8	1214					18620		2000	10063		4900
Hachinohe	Hachinohe Terminal	Berth P	39.4	1280					10260		1900	4945		2700
Hachinohe	Hachinohe Terminal	Berths D-E	42.6	1772				10250	26600		2400	15008		7000
Hachinohe	Hachinohe Terminal	Pier No. 1	45	1837					19760		2800	10063		5200
Hachinohe	**{PORT TOTAL}**													**19800**
Haifa	Haifa Terminal	Quays 14-18 (ECT)	45.9	3230	645	10450	64511	53340	50366	258	4180	16127	21336	13178
Haifa	Haifa Terminal	Quay 7	37.7	518	1290	1741			1686	516	696			674
Haifa	Haifa Terminal	Quay 5-6	32.8	845	2580	2032	12902	2900	9900	1032	812	3225	1160	2566
Haifa	Haifa Terminal	Quays 10-11	27.9	1278	3870	3483	12902	7620	10400	1548	1393	3225	3048	2766
Haifa	Haifa Terminal	Kishon Quay 1	33.1	340										
Haifa	Haifa Terminal	Kishon Quay 2	33.1	340										
Haifa	Haifa Terminal	Kishon Quay 3	33.1	340										
Haifa	Haifa Terminal	Quay 8	45.3	381										
Haifa	Haifa Terminal	Quay 9	45.3	381										
Haifa	Haifa Terminal	Quay 12	26.2	400										
Haifa	Haifa Terminal	Quay 1	15.1	420										
Haifa	Haifa Terminal	Quay 2	26.2	420										
Haifa	Haifa Terminal	Quay 3	29.5	420										
Haifa	Haifa Terminal	Quay 4	32.8	420										
Haifa	Haifa Terminal	Fuel Pier 1	35.1	951										
Haifa	Haifa Terminal	Kishon Quay 4	33.1	1067										
Haifa	Haifa Terminal	Fuel Pier 2	35.1	1365										
Haifa	**{PORT TOTAL}**													**19184**
Hakata	Hakata Terminal	Hakozaki 11	22	426										
Hakata	Hakata Terminal	Central Pier 7-8	10.8	1309										
Hakata	Hakata Terminal	Central Pier 9-12	22	1729										
Hakata	Hakata Terminal	Hakozaki 12-13	39	1760										
Hakata	Hakata Terminal	Central Pier 3-6	30.5	1924										
Hakata	Hakata Terminal	Hakozaki 6-10	22	2130										
Hakata	Hakata Terminal	Suzaki 1-4	26.2	2325										
Hakata	Hakata Terminal	Suzaki 5-10	16.4	2381										
Hakata	Hakata Terminal	Hakozaki 1-5	22.6	2762										
Hakata	**{PORT TOTAL}**													
Hampton Roads	Newport News Marine Terminal	Berth B-S	32	600										
Hampton Roads	Lamberts Point Dock	Berth L-S	32	725		1900	9400		6100		760	2350		2440
Hampton Roads	Newport News Marine Terminal	Berth B-N	32	790										
Hampton Roads	Norfolk International Terminal	RORO Berth	32	892										
Hampton Roads	Newport News Marine Terminal	Berth C-N	36	950					3000			750		750
Hampton Roads	Newport News Marine Terminal	Berth C-S	36	950					3000			750		750

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WORLDWIDE PORT CHARACTERISTICS														
PORT NAME	TERMINAL NAME	BERTH GROUP	DEPTH MLW	BERTH LGTH	BARGE MTON	BB MTON	RORO MTON	CONT MTON	MIXED MTON	BARGE STON	BB STON	RORO STON	CONT STON	MIXED STON
Hampton Roads	Portsmouth Marine Terminal	Berth 3	40	971					3000			750		750
Hampton Roads	Lamberts Point Dock	Berth N-N	32	1100										
Hampton Roads	Lamberts Point Dock	Berth N-S	32	1100										
Hampton Roads	Norfolk International Terminal	Berths 3A-3B	30	1180										
Hampton Roads	Norfolk International Terminal	Berths 3C-3D	30	1180										
Hampton Roads	Lamberts Point Dock	Berth P-N	32	1200		3800	19000	2700	10000		1520	4750	1080	4000
Hampton Roads	Lamberts Point Dock	Berth P-S	32	1200		3800	19000	2700	10000		1520	4750	1080	4000
Hampton Roads	Norfolk International Terminal	Berth 1-S	30	1260										
Hampton Roads	Norfolk International Terminal	Berth 2-N	31	1300										
Hampton Roads	Norfolk International Terminal	Berth 2-S	31	1320										
Hampton Roads	Norfolk International Terminal	Berth 1-N	32	1320										
Hampton Roads	Norfolk International Terminal	North Berth	50	1500					4800			1200		1200
Hampton Roads	Portsmouth Marine Terminal	Berths 1-2	40	3540					9000			2250		2250
Hampton Roads	Norfolk International Terminal	Berths 1-4	32	4220					19200			4800		4800
Hampton Roads	**{PORT TOTAL}**													**20940**
Harcourt	Harcourt Terminal	1-7	23.9	3196	1990	1194				796				
Harcourt	**{PORT TOTAL}**													**515**
Hiro AD	Hiro AD Terminal	Pier 155	30	50	100			100	100					100
Hiro AD	Hiro AD Terminal	Pier 154	26	100	100			100	100					100
Hiro AD	**{PORT TOTAL}**				**200**									**200**
Hobart-Tasmania	Hobart-Tasmania	Macquarie no 4	40	800	664	2190	13271	3185	11078	265	876	3318	1274	2839
Hobart-Tasmania	**{PORT TOTAL}**													**2839**
Inchon	Inchon	Pier 4 berths 44-45	39	1755	3440			31230	22060			9382		9090
Inchon	**{PORT TOTAL}**													**9090**
Iskenderun	Iskenderun Terminal	5	16	449			9806		9806			2452		2526
Iskenderun	Iskenderun Terminal	6	16	449			9806		9806			2452		2526
Iskenderun	Iskenderun Terminal	1	28	557		1839	9806	5516	7866		736	2452	2206	2026
Iskenderun	Iskenderun Terminal	2	28	557		1931	9806	8274	7972		772	2452	3310	2054
Iskenderun	Iskenderun Terminal	3-4	28	1154		3861	29417	16547	23223		1544	7354	6619	5982
Iskenderun	Iskenderun Terminal	7-8	30	1200		4137	29417	8274	23030		1655	7354	3310	5933
Iskenderun	Iskenderun Terminal	9-10	30	1200		4137	29417	8274	23030		1655	7354	3310	5933
Iskenderun	**{PORT TOTAL}**													**26980**
Iwakuni	Iwakuni Terminal	SKP Berth 4	30.2	217										
Iwakuni	Iwakuni Terminal	Wharf 3	13.1	233										
Iwakuni	Iwakuni Terminal	Koa Oil Berth 1	16.4	367										
Iwakuni	Iwakuni Terminal	Shin Minato 5	13.1	371										
Iwakuni	Iwakuni Terminal	Wharf 6	13.1	417										
Iwakuni	Iwakuni Terminal	Koa Oil Berth 2	19.7	420										
Iwakuni	Iwakuni Terminal	Wharf 2	13.1	545										
Iwakuni	Iwakuni Terminal	SKP Berth 1	30.2	597										
Iwakuni	Iwakuni Terminal	Wharf 5	13.1	600										
Iwakuni	Iwakuni Terminal	Wharf 4	13.1	627										
Iwakuni	Iwakuni Terminal	Wharf 1	13.1	722										
Iwakuni	Iwakuni Terminal	Berth 1 North	13.1	728										
Iwakuni	Iwakuni Terminal	SKP Berth 3	30.2	810										
Iwakuni	Iwakuni Terminal	Koa Oil Berth 3	34.4	833										

Note: Worldport database updated December 2010

WORLDWIDE PORT CHARACTERISTICS														
PORT NAME	TERMINAL NAME	BERTH GROUP	DEPTH MLW	BERTH LGTH	BARGE MTON	BB MTON	RORO MTON	CONT MTON	MIXED MTON	BARGE STON	BB STON	RORO STON	CONT STON	MIXED STON
Iwakuni	Iwakuni Terminal	Koa Oil Berth 4	34.4	863										
Iwakuni	Iwakuni Terminal	SKP Berth 2	30.2	889										
Iwakuni	Iwakuni Terminal	Teijin Limited 3	9.2	1033										
Iwakuni	Iwakuni Terminal	Teijin Limited 1	9.2	1115										
Iwakuni	Iwakuni Terminal	Berth 2 North,Berth 3 North	18	1348										
Iwakuni	Iwakuni Terminal	Teijin Limited 2	9.2	1496										
Iwakuni	Iwakuni Terminal	Shin Minato 3,Shin Minato 4	32.8	1743					8532		1113	3770		2154
Iwakuni	Iwakuni Terminal	Shin Minato 1,Shin Minato 2	24.6	1892										
Iwakuni	**{PORT TOTAL}**													**2154**
Izmir	Izmir Terminal	1	26	460			9806		9806			2452		2526
Izmir	Izmir Terminal	2	35	623		1931	9806		7963		772	2452		2051
Izmir	Izmir Terminal	10-12	23	1146		276	29417	8274	22154		110.4	7354	3310	5707
Izmir	Izmir Terminal	20-22	36	1194		3861	19612		15925		1544	4903		4102
Izmir	Izmir Terminal	7-9	35	1221		4137	29417	8274	23030		1655	7354	3310	5933
Izmir	Izmir Terminal	3-5	26	1378		4137	39223	8274	30308		1655	9806	3310	7807
Izmir	Izmir Terminal	17-19	36	1476		3861	39223	14479	30428		1544	9806	5792	7838
Izmir	Izmir Terminal	13-16	36	1968		5792	58835	14479	45433		2316	14709	5792	11704
Izmir	**{PORT TOTAL}**													**47668**
Jacksonville	Blount Island Terminal	Berth 22	38	600										
Jacksonville	Blount Island Terminal	Berth 20	38	750										
Jacksonville	USMC Blount Island	Berth 1	38	1000					6000			1500		1500
Jacksonville	Talleyrand Terminal	Berths 3-8	38	1500					6667			1667		1667
Jacksonville	Talleyrand Terminal	Berths 3-8	38	1600					6667			1667		1667
Jacksonville	Blount Island Terminal	Berths 30-35	40	1600					5000			1250		1250
Jacksonville	Blount Island Terminal	Berths 30-35	40	1600					15000			3750		3750
Jacksonville	Talleyrand Terminal	Berths 3-8	38	1700					6667			1667		1667
Jacksonville	Blount Island Terminal	Berths 30-35	40	3650					5000			1250		1250
Jacksonville	Blount Island Terminal	Berths 30-35	40	3650					15000			3750		3750
Jacksonville	**{PORT TOTAL}**													**11500**
Jebel Ali	Jebel Ali Terminal	Berth 33	37.7	1000		1400	7200		5900		570	1800		1500
Jebel Ali	Jebel Ali Terminal	Berths 27-28	37.7	1200		2800	7200		6200		1100	1800		1600
Jebel Ali	Jebel Ali Terminal	Berths 29-30	37.7	1200		2800	7200		6200		1100	1800		1600
Jebel Ali	Jebel Ali Terminal	Berths 51-54	37.7	1200		2800	14000		12000		1100	3600		3000
Jebel Ali	Jebel Ali Terminal	Berths 18-19	37.7	1400		2800	14000		11000		1100	3600		3000
Jebel Ali	Jebel Ali Terminal	Berths 20-21	37.7	1400		2800	14000		11000		1100	3600		3000
Jebel Ali	Jebel Ali Terminal	Berths 58-59	37.7	1500		2800	14000		12000		1100	3600		3000
Jebel Ali	Jebel Ali Terminal	Berths 44-49	37.7	1800		4300	14000		12000		1700	3600		3100
Jebel Ali	Jebel Ali Terminal	Berths 6-7	45.9	2060		4300	22000		18000		1700	5400		4500
Jebel Ali	Jebel Ali Terminal	Berths 12-13	45.9	2100		4900	22000		18000		1900	5400		4600
Jebel Ali	Jebel Ali Terminal	Berths 10-11	45.9	2100		4900	29000		23000		1900	7200		6000
Jebel Ali	Jebel Ali Terminal	Berths 22-26	37.7	2400		5700	22000		18000		2300	5400		4700
Jebel Ali	Jebel Ali Terminal	Berths 62-66	37.7	3000		7100	29000		24000		2800	7200		6200
Jebel Ali	Jebel Ali Terminal	Berths 35-42	37.7	3000		7100	36000		29000		2800	9000		7600
Jebel Ali	Jebel Ali Terminal	Berths 14-17	45	4000		8500	43000	79000	37000		3400	11000	31000	9800
Jebel Ali	**{PORT TOTAL}**													**63200**
Jeddah	Jeddah Terminal	11	39.5	601	1290	1161			1176	516	464			470
Jeddah	Jeddah Terminal	9	39.5	601	1935	2128	12902	78380	12167	774	851	3225	31352	3473

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WORLDWIDE PORT CHARACTERISTICS														
PORT NAME	TERMINAL NAME	BERTH GROUP	DEPTH MLW	BERTH LGTH	BARGE MTON	BB MTON	RORO MTON	CONT MTON	MIXED MTON	BARGE STON	BB STON	RORO STON	CONT STON	MIXED STON
Jeddah	Jeddah Terminal	15-19	46	1360	3225	387	12902		9764	1290	154	3225		2468
Jeddah	Jeddah Terminal	14	39.5	601	3870	2709			2848	1548	1083			1138
Jeddah	Jeddah Terminal	6	46	1091	3870	2709	12902		10310	1548	1083	3225		2687
Jeddah	Jeddah Terminal	12-13	39.5	1202	5806	3870			4102	2322	1548			1640
Jeddah	Jeddah Terminal	26-28	39.5	1830	5806	6193	25804		20737	2322	2477	6451		5421
Jeddah	Jeddah Terminal	7-8	46	1640	9676	6773	38707		30566	3870	2709	9676		7916
Jeddah	Jeddah Terminal	Berth 48	39.5	590										
Jeddah	Jeddah Terminal	Berth 49	39.5	590										
Jeddah	Jeddah Terminal	10	39.5	601		2128		45720	7359		851		18288	2943
Jeddah	Jeddah Terminal	Berth 39	39.5	632										
Jeddah	Jeddah Terminal	Berth 40	39.5	632										
Jeddah	Jeddah Terminal	Berth 41	39.5	632										
Jeddah	Jeddah Terminal	Berth 42	39.5	632										
Jeddah	Jeddah Terminal	Berth 43	39.5	632										
Jeddah	Jeddah Terminal	Berth 44	39.5	632										
Jeddah	Jeddah Terminal	Berth 45	39.5	632										
Jeddah	Jeddah Terminal	Berth 46	39.5	632										
Jeddah	Jeddah Terminal	Berth 47	39.5	632										
Jeddah	Jeddah Terminal	Berth 50	39.5	723										
Jeddah	Jeddah Terminal	Berth 57	37.5	820										
Jeddah	Jeddah Terminal	Berth 58	37.5	820										
Jeddah	Jeddah Terminal	Berth 51	46	820										
Jeddah	Jeddah Terminal	Berth 52	46	820										
Jeddah	Jeddah Terminal	Berth 53	46	820										
Jeddah	Jeddah Terminal	Berth 54	46	820										
Jeddah	Jeddah Terminal	Berth 55	46	820										
Jeddah	Jeddah Terminal	Berth 56	46	820										
Jeddah	Jeddah Terminal	29-31	39.5	1830		6193	25804		21214		2477	6451		5520
Jeddah	Jeddah Terminal	20-25	39.5	3290		12289	64511	17400	51209		4915	16127	6960	13300
Jeddah	Jeddah Terminal	1-5	23	3792		14321	77414		62647		5728	19353		16164
Jeddah	Jeddah Terminal	32-38	39.5	4690		15773	90316		72869		6309	22579		18771
Jeddah	**{PORT TOTAL}**													**81911**
Jubail	Jubail Terminal	Berths 1-8	39	5560	4520	18390	103220	4340	78630	1810	7350	25800	1740	20300
Jubail	Jubail Terminal	Berths 15-16	46	1730		5320	38710	15240	30410		2130	9680	6100	7850
Jubail	Jubail Terminal	Berths 9-10	46	1968		6190	25800		21210		2480	6450		5520
Jubail	Jubail Terminal	Berths 11-14	46	3280		10550	51610		42000		4220	12900		10870
Jubail	**{PORT TOTAL}**													**44540**
Karachi	East Wharf	Berth 4	29	459		3476	12911		10700		1390	3230		2790
Karachi	West Wharf	Berth 22	24	627										
Karachi	West Wharf	Berth 23	24	627										
Karachi	West Wharf	Berths 18-19	29	1007		1750	12911		10290		700	3230		2633
Karachi	West Wharf	Berths 20-21	29	1066		3476	12911		10700		1390	3230		2790
Karachi	East Wharf	Berths 1-3	29	1548		5226	25782	16130	20020		2090	6450	2320	5220
Karachi	West Wharf	Berths 28-30	34	1936		6101	25782	22858	21240		2440	6450	9140	5624
Karachi	West Wharf	Berths 24-27	34	2386		8127	38693		31550		3250	9680		8172
Karachi	East Wharf	Berths 5-17	34	6698		19354	103128		79900		7740	25800		20650
Karachi	**{PORT TOTAL}**													**95758**

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WORLDWIDE PORT CHARACTERISTICS														
PORT NAME	TERMINAL NAME	BERTH GROUP	DEPTH MLW	BERTH LGTH	BARGE MTON	BB MTON	RORO MTON	CONT MTON	MIXED MTON	BARGE STON	BB STON	RORO STON	CONT STON	MIXED STON
Khor Al Zubair	**{PORT TOTAL}**													**11254**
Khorramshahr	Khorramshahr Terminal	11	25	590	1658	497			636	663	198.8			254
Khorramshahr	Khorramshahr Terminal	12	26	590	1658	497			636	663	198.8			254
Khorramshahr	Khorramshahr Terminal	temp	26	600	2488	497		5580	1254	995	198.8		2232	502
Khorramshahr	Khorramshahr Terminal	1-4	27	1968	2488	497			735	995	198.8			294
Khorramshahr	Khorramshahr Terminal	8	27	492		497			497		198.8			199
Khorramshahr	Khorramshahr Terminal	9	30	492		497			497		198.8			199
Khorramshahr	**{PORT TOTAL}**													**1702**
Kismayu	Kismayu Terminal	1	27	1115	398				398	159				159
Kismayu	Kismayu Terminal	2	27	918										
Kismayu	**{PORT TOTAL}**													**159**
Kompong Som	Kompong Som Terminal	Main 2	24	951	1327	398			1327	531	159			530
Kompong Som	Kompong Som Terminal	Main 1	31	951		398					159			
Kompong Som	**{PORT TOTAL}**													**530**
Koper	Koper	RORO Ramps	30											
Koper	Koper	RORO Med. Moor												
Koper	Koper	Berth 13,Berth 14	59	1318			25800		25800			6400		6400
Koper	Koper	Berth 1A,Berth 1,Berth 2	20	1374										
Koper	Koper	Berth 11,Berth 12	39	1447										
Koper	Koper	Container Berth	30.5	1600		5200	33500	13100	26400		2100	8400	5200	6800
Koper	Koper	Berth 8,Berth 9,Berth 10	20	1700										
Koper	Koper	General Purpose	28	2620			12900		12900			3200		3200
Koper	**{PORT TOTAL}**													**16400**
Kotor	Kotor Terminal	Riva III	22	820	1658		33177		31916	663		8294		7988
Kotor	Kotor Terminal	Riva II	32	328			16588		16588			4147		4147
Kotor	Kotor Terminal	Riva I	41	492		2239	16588		13229		895	4147		3385
Kotor	**{PORT TOTAL}**													**15520**
Kuwait Naval Base	Kuwait Naval Base Terminal	F7	33	227										
Kuwait Naval Base	Kuwait Naval Base Terminal	F8	32	228										
Kuwait Naval Base	Kuwait Naval Base Terminal	R5	33	291										
Kuwait Naval Base	Kuwait Naval Base Terminal	R6	32	311										
Kuwait Naval Base	Kuwait Naval Base Terminal	M2	34	391										
Kuwait Naval Base	Kuwait Naval Base Terminal	East Quay	29	395										
Kuwait Naval Base	Kuwait Naval Base Terminal	Repair Quay	34	458										
Kuwait Naval Base	Kuwait Naval Base Terminal	M1	33	516										
Kuwait Naval Base	Kuwait Naval Base Terminal	R2-R4	33	589										
Kuwait Naval Base	Kuwait Naval Base Terminal	R1-R3	32	605										
Kuwait Naval Base	Kuwait Naval Base Terminal	N1-N2	33	657		2322	14746		11129		929	3686		2793
Kuwait Naval Base	Kuwait Naval Base Terminal	F1-F5 Odd	33	709		2322	14746	3185	11129		929	3686	1274	2793
Kuwait Naval Base	Kuwait Naval Base Terminal	F2-F6 Even	34	709		2322	14746		11129		929	3686		2793
Kuwait Naval Base	**{PORT TOTAL}**													**8379**
Kwangyang	Import/Export Terminal	Export 3	23	2427	4400				35300		200	20126		8900
Kwangyang	Import/Export Terminal	Export 2	36	787				3300	9600		1000	4945		2500
Kwangyang	Import/Export Terminal	Management Wharf		885										
Kwangyang	Import/Export Terminal	Export 4	46	1244				3300	9600		1000	4945		2500
Kwangyang	Import/Export Terminal	Export 1	39	2829				13300	38000		3200	20126		9700

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Kwangyang	Container Terminal	Container Wharf	19.6	13776				28600	57100		6500	30189		15000
Kwangyang	**{PORT TOTAL}**													**38600**
La Goulette	La Goulette Terminal	Berths 4-7	29.5	950	2654	11147	53084		42012	1062	4459	13271		10893
La Goulette	**{PORT TOTAL}**				**7962**									**32679**
La Goulette	La Goulette Terminal		29.5	450										
La Goulette	Rades Terminal	Berth 1-3	29.5	492										
La Goulette	Rades Terminal	Berth 4-5	29.5	492										
La Goulette	Rades Terminal	Berth 4-5	29.5	492										
La Goulette	La Goulette Terminal		29.5	900										
La Goulette	Rades Terminal	Berth 1-3	29.5	1968										
La Goulette	La Goulette Terminal	North	29	3598										
La Goulette	Tunis Terminal			3707										
La Guaira	La Guaira Terminal	Berth 15-20	27	3070	331				331	132				132
La Guaira	La Guaira Terminal	Berth 4	28	577		895			895		358			358
La Guaira	La Guaira Terminal	Berth 5	28	577		895			895		358			358
La Guaira	La Guaira Terminal	Berth 1	35	577		895	6636		5291		358	1658		1353
La Guaira	La Guaira Terminal	Berth 2-3	31	1154		1791	6636	7820	5573		716	1658	3128	1489
La Guaira	**{PORT TOTAL}**													**3690**
La Maddalena	La Maddalena	Cagliari ICT	45	4986	4645	19508	92897	22295	77755	1858	7803	23224	8918	19954
La Maddalena	**{PORT TOTAL}**													**19954**
Lagos	APAPA	7-12	27	498	663				663	265				265
Lagos	APAPA	3-5	27	498	1327				1327	531				530
Lagos	APAPA	6	27	600	1990				1990	796				796
Lagos	APAPA	13	29	498		1791			1791		716			716
Lagos	APAPA	1	31	515		1791			1791		716			716
Lagos	APAPA	14	29	721		1791	10616	10820	8620		716	2654	4328	2266
Lagos	APAPA	19	34	820		1791	10616		8550		716	2654		2200
Lagos	APAPA	20	34	820		1791	10616		8550		716	2654		2200
Lagos	APAPA	15-18	34	820		1791	10616	10820	8620		716	2654	4328	2266
Lagos	TIN CAN ISLAND	1-8	29.5	6571		21001	95551			1858				
Lagos	**{PORT TOTAL}**													**15669**
Lake Charles	City Docks Terminal	7	35	577		2130								
Lake Charles	City Docks Terminal	15	35	597		2130	12900							
Lake Charles	City Docks Terminal	8-9	35	962		2130	20640		10000			2500		2500
Lake Charles	City Docks Terminal	1-3	35	1528		6190	25800			2060				
Lake Charles	City Docks Terminal	4-6	35	1601		5320	25800							
Lake Charles	**{PORT TOTAL}**													**2500**
Las Minas	Las Minas Terminal	Las Minas Berth	23	300										
Las Minas	**{PORT TOTAL}**													
Latakia	Latakia Terminal	Main Quay	30	2069	3870	6967	38707		30430	1548	2786	9676		7861
Latakia	Latakia Terminal	Quay 7	43	432										
Latakia	Latakia Terminal	Pass. Quay	30	780		1741	12902		10289		696	3225		2633
Latakia	Latakia Terminal	Container	43	1469		4064	25804	2900	20164		1625	6451	1160	5192
Latakia	Latakia Terminal	Quay 5	35	1787		5225	38707		30870		2090	9676		7900
Latakia	Latakia Terminal	Quay 6	38	2437		8128	38707		31550		3251	9676		8172
Latakia	**{PORT TOTAL}**													**31758**

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Limassol	Limassol Terminal	East Container Berth	36.1	1575	3225	5225	61931	13420	46239	1290	2090	15482	5368	11806
Limassol	Limassol Terminal	West Container Berth 2	46	994		2032	20643	15240	16254		812	5160	6096	4202
Limassol	Limassol Terminal	West Container Berth 1	46	1050		3483	20643	15240	16583		1393	5160	6096	4334
Limassol	Limassol Terminal	North Quay	36.1	1217		4064	20643		16762		1625	5160		4332
Limassol	Limassol Terminal	West Quay	36.1	1444		4064	41287		32575		1625	10321		8285
Limassol	Limassol Terminal	Berth 1thru Berth 5	34.5	3648										
Limassol	**{PORT TOTAL}**													**32959**
Limetree Bay	Limetree Bay Terminal	Limetree Bay	35	997						300	900	2900	435	2450
Limetree Bay	**{PORT TOTAL}**													**2450**
Livorno	Livorno Terminal	Berth 12	35	255										
Livorno	Livorno Terminal	New Petroleum Berth 11	35	265										
Livorno	Livorno Terminal	Berth 29	28	288										
Livorno	Livorno Terminal	Berth 66	25	333										
Livorno	Livorno Terminal	New Petroleum Berth 10	35	345										
Livorno	Livorno Terminal	Berth 48	33	350										
Livorno	Livorno Terminal	Berth 65	22	442										
Livorno	Livorno Terminal	Berth 38	18	460										
Livorno	Livorno Terminal	Leon. Da Vinci Berth 35	28	510										
Livorno	Livorno Terminal	Berth 52	25	530										
Livorno	Livorno Terminal	Berth 64	25	547										
Livorno	Livorno Terminal	Terminal No. 1 Berth 21	29	575										
Livorno	Livorno Terminal	Berth 36	28	610										
Livorno	Livorno Terminal	Ferry Berth 55	25	622										
Livorno	Livorno Terminal	Terminal No. 1 Berth 19	29	656										
Livorno	Livorno Terminal	Terminal No. 1 Berth 16	35	660							800	2600		2200
Livorno	Livorno Terminal	Cruise Berth 61-62	25	730										
Livorno	Livorno Terminal	Berth 22	28	732										
Livorno	Livorno Terminal	Berth 56-57	25	860										
Livorno	Livorno Terminal	Terminal No. 1 Berth 20	29	875							800	2600		2100
Livorno	Livorno Terminal	Berth 41-42	23	884										
Livorno	Livorno Terminal	Cruise Berth 58-60	25	909										
Livorno	Livorno Terminal	Tuscany Docks Berth 15	37	985										
Livorno	Livorno Terminal	Pisa Berth 53-54	25	994							300	2600		2000
Livorno	Livorno Terminal	Terminal No. 1 Berth 17-18	29	1260							1400	5150		4300
Livorno	Livorno Terminal	Dow Berth 25-28	28	1455										
Livorno	Livorno Terminal	Orlando Quay Berth 49-51	30	1560							1400	5200		4300
Livorno	Livorno Terminal	Berth 40	23	1715										
Livorno	Livorno Terminal	Sintermar Berth 24	31	1740							1400	5200	10300	4500
Livorno	Livorno Terminal	Tuscany Docks Berth 15	37	1794										
Livorno	Livorno Terminal	Dow Berth 30-34	28	1900										
Livorno	Livorno Terminal	Berth 39	23	2460										
Livorno	Livorno Terminal	D. Sounding Quay Berth 43-47	35	2475							3600	10300	6100	8500
Livorno	Livorno Terminal	Tuscany Docks Berth 14	35	4598							4160	15500	18300	13000
Livorno	**{PORT TOTAL}**													**40900**
Lome	Lome		52.5	656										
Lome	Lome		36.1	1179										
Lome	Lome		41	2657										

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Lome	**{PORT TOTAL}**													
Long Beach	Pier E	E24	35	240										
Long Beach	Pier F	F209	40	350										
Long Beach	Pier F	F201	32	600										
Long Beach	Pier D	D34	45	927										
Long Beach	Pier J	J243-J244	42	1200					857			214		214
Long Beach	Pier E	E12-E13	40	1260										
Long Beach	Pier B	B82-B83	38	1300					6000			1500		1500
Long Beach	Pier T West	Berths 123-124		1310										
Long Beach	Pier T West	Berths 126-128	50	1385										
Long Beach	Pier C	C60-C62	42	1804					6000			1500		1500
Long Beach	Pier D	D28-D31	45	1970					6000			1500		1500
Long Beach	Pier J	J245-J247	48	2100					1714			429		429
Long Beach	Pier E	E25-E26	35	2108					6000			1500		1500
Long Beach	Navy Mole	NA	40	2140										
Long Beach	Pier J	J232-J234	36	2298					1714			429		429
Long Beach	Pier F	F204-F207	35	2464					4000			1000		1000
Long Beach	Pier G	G227-G230	42	2600					6000			1500		1500
Long Beach	Pier J	J266-J270	45	2700					1714			429		429
Long Beach	Pier F	F6-F10	50	2754					4000			1000		1000
Long Beach	Pier A	A90-A94	50	3564					12000			3000		3000
Long Beach	Hanjin Terminal	Berths 132-140	55	3690					6000			1500		1500
Long Beach	Navy Mole	NA	38	3740										
Long Beach	**{PORT TOTAL}**													**18500**
Los Angeles	Distribution Auto Service	Berths 195-199	36	607										
Los Angeles	Pasha/Honda Terminal	Berths 87-90	35	801		4900	18900							
Los Angeles	Yang Ming Terminal	Berths 121-125	45	900		1900	9400							
Los Angeles	Yusen Terminal	Berths 212-213	45	1080		3700	9400							
Los Angeles	Pier 400	Berths 405-406	50	1144										
Los Angeles	Stevedoring Services Terminal	Berths 54-55	35	1340		4000	3000							
Los Angeles	Distribution Auto Service	Berths 195-199	32	1660										
Los Angeles	Evergreen Container Terminal	Berths 233-236	38	1720		3700	18900							
Los Angeles	TraPac Terminal	Berths 136-139	45	2060		5600	18900							
Los Angeles	TraPac Terminal	Berths 142-146	35	2170		9300	37700							
Los Angeles	Matson Terminal	Berths 206-209	40	2180		5600	28300							
Los Angeles	Pier 400	Berths 401-404	50	2284										
Los Angeles	Yang Ming Terminal	Berths 126-131	35	2700		1900	9400							
Los Angeles	Evergreen Container Terminal	Berths 226-232	45	2980		7400	28300							
Los Angeles	APL Terminal	Berths 302-305	50	4012		1900	9400							
Los Angeles	Yusen Terminal	Berths 214-225	35	4720		1900	9400							
Los Angeles	**{PORT TOTAL}**													
Manta	Manta Terminal	Dock 2A	28	655	663	1791	10616		8306	265	716	2654		2140
Manta	Manta Terminal	Quay	25	655	1990				1990	796				796
Manta	Manta Terminal	Dock 2B	28	655		1791	10616		8550		716	2654		2200
Manta	Manta Terminal	Dock 1A	32	655		2090	10616		8620		836	2654		2228
Manta	Manta Terminal	Dock 1B	32	655		2090	10616		8620		836	2654		2228
Manta	**{PORT TOTAL}**													**9592**

Note: Worldport database updated December 2010

WORLDWIDE PORT CHARACTERISTICS														
PORT NAME	TERMINAL NAME	BERTH GROUP	DEPTH MLW	BERTH LGTH	BARGE MTON	BB MTON	RORO MTON	CONT MTON	MIXED MTON	BARGE STON	BB STON	RORO STON	CONT STON	MIXED STON
Manzanillo	Manzanillo Terminal	Berth 2	46	70										
Manzanillo	Manzanillo Terminal	Berth 1	46	110							300			300
Manzanillo	Manzanillo Terminal	Berth 3	46	738							1500	3000		2400
Manzanillo	Manzanillo Terminal	Berth 4	46	1968							2800	5900	23500	5800
Manzanillo	**{PORT TOTAL}**													**8500**
Masan	Masan Terminal	Pier 3	30	1377	5000				21000		1900	11252		5400
Masan	Masan Terminal	Pier 4	33	3444	5000			7700	51200		5600	28319		13300
Masan	Masan Terminal	Pier 5	36	1377					21600		2200	11252		5600
Masan	**{PORT TOTAL}**													**48600**
Massawa	Massawa Terminal	Berth 2	20	492	1658				1658	663				663
Massawa	Massawa Terminal	Berth 3-5	26	1347	1658	4478	33177	5580	26166	663	1791	8294	2232	6733
Massawa	Massawa Terminal	Berth 6	29.5	558		1791			1791		716			716
Massawa	Massawa Terminal	Berth 1	14.5	578										
Massawa	**{PORT TOTAL}**													**8112**
Mersin	Mersin Terminal	Berth 8,Berth 9,Berth 10,Berth 11	31.2	131										
Mersin	Mersin Terminal	4	30.5	492		2022	9806	2758	7823		809	2452	1103	2015
Mersin	Mersin Terminal	20-21	32.8	830		1931	19612		15474		772	4903		3986
Mersin	Mersin Terminal	2-3	29.5	902		2298	19612	11032	15420		919	4903	4413	3972
Mersin	Mersin Terminal	5-6	32.8	902		2482	19612	16547	15632		993	4903	6619	4027
Mersin	Mersin Terminal	12-13	34.4	1016		1931	29417	14479	22721		772	7354	5792	5853
Mersin	Mersin Terminal	8-10	31.2	2181		4045	39223	27234	30874		1618	9806	10894	7953
Mersin	**{PORT TOTAL}**													**55612**
Mesaieed	Mesaieed Terminal	Berths 4-6	32	1000		1600	8200		6700		650	2100		1700
Mesaieed	Mesaieed Terminal	Berths 9-10	32	1300		3200	8200		7100		1300	2100		1900
Mesaieed	Mesaieed Terminal	Berths 1-3	32	2400		6700	25000	2300	19000		2700	6200	930	5100
Mesaieed	**{PORT TOTAL}**													**8700**
Mina Saqr	Mina Saqr	B4	37	656		2616	13271							
Mina Saqr	Mina Saqr	Quay No 3	40	656										
Mina Saqr	Mina Saqr	Quay No 1A	40	717										
Mina Saqr	Mina Saqr	B5-6	37	1312		5225	26542							
Mina Saqr	Mina Saqr	B1-3	37	1968		7838	39813			995				
Mina Saqr	Mina Saqr	Quay No 1	40	1968										
Mina Saqr	Mina Saqr	Quay No 2	40	2624										
Mina Saqr	**{PORT TOTAL}**													
Mina Sulman	Mina Sulman Terminal	Berth 2	23	532										
Mina Sulman	Mina Sulman Terminal	Berth 1	25	532										
Mina Sulman	Mina Sulman Terminal	Berth 4	26	541										
Mina Sulman	Mina Sulman Terminal	Berth 6	28	541										
Mina Sulman	Mina Sulman Terminal	Berth 3	29	541										
Mina Sulman	Mina Sulman Terminal	Berth 5	29	541										
Mina Sulman	Mina Sulman Terminal	Berths 8 & 10	30	998		1991	14746		11119		796	3686		2789
Mina Sulman	Mina Sulman Terminal	Berths 7 & 9	31	998		2101	14746		11137		840	3686		2796
Mina Sulman	Mina Sulman Terminal	Berths 15-16	36	1964		7410	29491	39813	30392		2964	7373	15925	8839
Mina Sulman	Mina Sulman Terminal	Berths 11-14	36	1973		7299	29491		22382		2920	7373		5635
Mina Sulman	**{PORT TOTAL}**													**20059**
Mina Zayed	Mina Zayed	NA		584										

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WORLDWIDE PORT CHARACTERISTICS														
PORT NAME	TERMINAL NAME	BERTH GROUP	DEPTH MLW	BERTH LGTH	BARGE MTON	BB MTON	RORO MTON	CONT MTON	MIXED MTON	BARGE STON	BB STON	RORO STON	CONT STON	MIXED STON
Mina Zayed	Mina Zayed	NA		611										
Mina Zayed	Mina Zayed	B20	34	656		2612	13271							
Mina Zayed	Mina Zayed	B14-15	37	1148		4478	13271							
Mina Zayed	Mina Zayed	B1-2	34	1508		5225	26542							
Mina Zayed	Mina Zayed	B3-4	42	1508		5225	26542			1659				
Mina Zayed	Mina Zayed	B16-18	37	1902		7838	26542							
Mina Zayed	Mina Zayed	B5-9	31	3050		13063	53084							
Mina Zayed	Mina Zayed	Container Berths		3051										
Mina Zayed	Mina Zayed	NA		9935										
Mina Zayed	**{PORT TOTAL}**													
Mindi Dock	Mindi Dock Terminal	Mindi Dock Berth	26	200										
Mindi Dock	**{PORT TOTAL}**													
Misurata	Misurata Terminal	3-5	36	2361	1327	7265	31850		25330	531	2906	7963		6585
Misurata	Misurata Terminal	1	36	656	1990	2189	10616		8437	796	876	2654		2193
Misurata	**{PORT TOTAL}**													**8778**
Mobile	Alabama State Docks	Berth A South	40	570		1858								
Mobile	Alabama State Docks	Berth 8	40	584		1858	9437							
Mobile	Alabama State Docks	Blakely	33	650										
Mobile	Alabama State Docks	Berth B Face	40	650		1593	9437			472				
Mobile	Alabama State Docks	Berth C Face	40	820		1858	9437							
Mobile	Alabama State Docks	Berth C1-C3 North	40	1411		88				236				
Mobile	Alabama State Docks	Berths A1-A3 North	40	1502						708				
Mobile	Alabama State Docks	Berths B1-B3 South	40	1532		1858	9437							
Mobile	Alabama State Docks	Berth C South	40	1532		3981	18874							
Mobile	Alabama State Docks	Berth B North	40	1610		4778								
Mobile	Alabama State Docks	Berths 2-7	40	3583		3185								
Mobile	**{PORT TOTAL}**													
Mokpo	Samhak Terminal	Berth 12-13	39.3	1607	700				18900		2400	10063		4900
Mokpo	Samhak Terminal	Berth 14	22.9	442	1500				1500					600
Mokpo	Samhak Terminal	Berth 11	26.2	551	1500				1900		800			800
Mokpo	New Terminal	Berth 4	49.2	787										
Mokpo	Daebul Terminal	Berth 1-3	39.3	2064										
Mokpo	New Terminal	Berth 1-3	49.2	2460										
Mokpo	**{PORT TOTAL}**													**6300**
Mombasa	Mombasa Terminal	Berths 1-2	32	1100	645	3580	12902		12245	258	1432	3225		3083
Mombasa	Mombasa Terminal	Berths 4-5	32	1100	645	3580	12902		12245	258	1432	3225		3083
Mombasa	Mombasa Terminal	Berth 11	30	550	1290	1741			1560	516	696			624
Mombasa	Mombasa Terminal	Berths 12-13	30	1100	1935	3850	12902		12278	774	1432	3225		3096
Mombasa	Mombasa Terminal	Berth 14	30	550		1741			1741		696			696
Mombasa	Mombasa Terminal	Berth 8	31	550		1741			1741		696			696
Mombasa	Mombasa Terminal	Berth 3	32	550		1741			1741		696			696
Mombasa	Mombasa Terminal	Berth 7	32	550		1741			1741		696			696
Mombasa	Mombasa Terminal	Berth 10	31	1099		3483	12902		12539		1393	3225		3154
Mombasa	Mombasa Terminal	Berths 16-18	36	1650		5225	25804	5440	21018		2090	6451	2176	5445
Mombasa	**{PORT TOTAL}**													**21269**
Morehead City	Morehead City Terminal	Berth 1	45	500					1600		640			640

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WORLDWIDE PORT CHARACTERISTICS														
PORT NAME	TERMINAL NAME	BERTH GROUP	DEPTH MLW	BERTH LGTH	BARGE MTON	BB MTON	RORO MTON	CONT MTON	MIXED MTON	BARGE STON	BB STON	RORO STON	CONT STON	MIXED STON
Morehead City	Morehead City Terminal	Berths 8-9	35	675			19000	2700	10000		1520	4750	1080	4000
Morehead City	Morehead City Terminal	Berths 2-3	45	1000					1900		760			760
Morehead City	Morehead City Terminal	Berths 4-7	35	2600				2700	6000		3200		1080	2400
Morehead City	**{PORT TOTAL}**													**7800**
MOTSU	Sunny Point Terminal	South Wharf Berth 1	38	858										
MOTSU	Sunny Point Terminal	South Wharf Berth 3	38	1004										
MOTSU	Sunny Point Terminal	North Wharf	34	1862						1600				
MOTSU	Sunny Point Terminal	Central Wharf	38	1862										
MOTSU	Sunny Point Terminal													
MOTSU	Sunny Point Terminal													
MOTSU	Sunny Point Terminal													
MOTSU	**{PORT TOTAL}**													
Muhammad Bin Qasim	Muhammad Bin Qasim Terminal	Berth 6-7	36	1350		6100	25545							
Muhammad Bin Qasim	Muhammad Bin Qasim Terminal	Berth 1-5	36	3250		8800	51865							
Muhammad Bin Qasim	**{PORT TOTAL}**													**15920**
Mukho	Mukho Terminal	Central Berth	27	394	1900				1900					600
Mukho	Mukho Terminal	Berth 4	26	463	2400				7600		880	4089		2000
Mukho	Mukho Terminal	Berth 3	30	1083	2900			2700	7900		1400	4089		2100
Mukho	**{PORT TOTAL}**													**4700**
Mumbai	Mumbai Terminal	Ind 9	34	498	790				790	315				315
Mumbai	Mumbai Terminal	Ind 12	34	498	1575				11940	630				3010
Mumbai	Mumbai Terminal	Ballard Ex	34	761	2360	2950	12600	10210	11510	945	1180	3150	4085	3280
Mumbai	Mumbai Terminal	Ind 10-11	34	997	3150	2600	12600		11950	1260	1040	3150		3015
Mumbai	Mumbai Terminal	Ind 7-8	34	997	3150	2720	12600		11950	1260	1090	3150		3015
Mumbai	Mumbai Terminal	Ind 14-15	34	1037	3940	4850	12600	3400	9900	1575	1940	3150	1360	2635
Mumbai	Mumbai Terminal	Ind 16-17	34	1037	3940	4850	12600		12050	1575	1940	3150		3060
Mumbai	Mumbai Terminal	Ind 12a, b	34	1181	3940	4850	25200		23800	1575	1940	6300		6000
Mumbai	Mumbai Terminal	Ind 19-21	24	1653	5510		25200		24640	2200		6300		6180
Mumbai	Mumbai Terminal	Ind 13,a,b	34	1699	6300	7800	37800		35750	2520	3120	9450		9010
Mumbai	Mumbai Terminal	PD G	24	335										
Mumbai	Mumbai Terminal	VD 5	26	367										
Mumbai	Mumbai Terminal	VD 6	26	367										
Mumbai	Mumbai Terminal	VD 4	26	371										
Mumbai	Mumbai Terminal	VD 3	26	374										
Mumbai	Mumbai Terminal	Ind1	34	590		2125	12600		12160		850	3150		3050
Mumbai	Mumbai Terminal	ID 1	30	591										
Mumbai	Mumbai Terminal	PD P_Q	24	659										
Mumbai	Mumbai Terminal	PD N_O	24	686										
Mumbai	Mumbai Terminal	VD 8	26	755										
Mumbai	Mumbai Terminal	VD 1-2	26	820										
Mumbai	Mumbai Terminal	PD A-B	24	880										
Mumbai	Mumbai Terminal	VD 12-14	26	987										
Mumbai	Mumbai Terminal	VD 9-11	26	990										
Mumbai	Mumbai Terminal	PD C-F	24	1395										
Mumbai	Mumbai Terminal	ID 7-9	30	1487										
Mumbai	Mumbai Terminal	Ballard Pier & Ext.	34	1562										
Mumbai	Mumbai Terminal	ID 2-6	30	2587										

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WORLDWIDE PORT CHARACTERISTICS														
PORT NAME	TERMINAL NAME	BERTH GROUP	DEPTH MLW	BERTH LGTH	BARGE MTON	BB MTON	RORO MTON	CONT MTON	MIXED MTON	BARGE STON	BB STON	RORO STON	CONT STON	MIXED STON
Mumbai	Mumbai Terminal	Ind 2-6	34	2592		10630	50400		48720		4250	12600		12245
Mumbai	Mumbai Terminal	ID 10-12B	30	2672										
Mumbai	Mumbai Terminal	ID 18-22	24	3054										
Mumbai	Mumbai Terminal	ID 13-17	30	3759										
Mumbai	**{PORT TOTAL}**													**164445**
Naha	Naha Terminal	Berth 5	34	600	406				406					162
Naha	Naha Terminal	Berth 4B	34	501					6567		750	3408		1708
Naha	Naha Terminal	Berth 4A	34	505					6830		1200	3408		1813
Naha	Naha Terminal	Berth 3	34	690				2419	10214		1800	5119		2722
Naha	Naha Terminal	Berth 1	34	750					19786		2400	10237		5158
Naha	Naha Terminal	Berth 2	34	776				2419	10214		1800	5119		2722
Naha	Naha Terminal	Tengan Pier		800				1232			300			
Naha	Naha Terminal	LST												
Naha	Naha Terminal	Rail												
Naha	**{PORT TOTAL}**													**14285**
Nampo	Nampo Terminal	Berth 3	36.1	722	1070	1605	8560			428	642	8560		
Nampo	Nampo Terminal	Berth 6	37.7	367		1444	8560				578	8560		
Nampo	Nampo Terminal	Berth 7-8	36.1	377										
Nampo	Nampo Terminal	Berth 4	18.6	410										
Nampo	Nampo Terminal	Berth 9	39.4	591		1444	8560				578	8560		
Nampo	Nampo Terminal	Berth 7-8	19.7	699										
Nampo	Nampo Terminal	Berth 5	18.6	715										
Nampo	Nampo Terminal	Berth 1	31.7	1033		2889	17120				1156	17120		
Nampo	Nampo Terminal	Berth 2	31.7	1060		2889	4280				1156	17120		
Nampo	**{PORT TOTAL}**													
Naples	Naples Terminal	Berth 54, 55	38	1500		4060	25800	8700	20340		1625	6450	3480	5260
Naples	**{PORT TOTAL}**													**5260**
Naval Magazine Indian Island	Naval Magazine Indian Island	Weapons	55	1660										
Naval Magazine Indian Island	**{PORT TOTAL}**													
Naval Station Panama	Naval Station Terminal	Pier 3	25	704							200			200
Naval Station Panama	Naval Station Terminal	Pier 2	35	704							1200	2800		2300
Naval Station Panama	Naval Station Terminal	Pier 1	40	704							1200	2800		2300
Naval Station Panama	**{PORT TOTAL}**													**4800**
New Orleans	River Terminal	Milan B	35	543										
New Orleans	River Terminal	Napoleon A	35	759										
New Orleans	France Terminal	Berth 1	30	830		1946								
New Orleans	River Terminal	Henry Clay	35	842		2035				943				
New Orleans	France Terminal	Berth 4-6	32	850		7520								
New Orleans	River Terminal	Seventh	35	1196					2857			714		714
New Orleans	River Terminal	Harmony	35	1231					2857			714		714
New Orleans	River Terminal	First	35	1275										
New Orleans	Jourdan Terminal	Jourdan Berth	36	1400		3981								
New Orleans	River Terminal	Louisianna	35	1590					2857			714		714
New Orleans	River Terminal	Napoleon B-C-Milan A	35	2861					5714			1429		1429
New Orleans	River Terminal	Nashville B-C	35	2973					5714			1429		1429
New Orleans	River Terminal	Nashville A	35	3225		8140								

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WORLDWIDE PORT CHARACTERISTICS														
PORT NAME	TERMINAL NAME	BERTH GROUP	DEPTH MLW	BERTH LGTH	BARGE MTON	BB MTON	RORO MTON	CONT MTON	MIXED MTON	BARGE STON	BB STON	RORO STON	CONT STON	MIXED STON
New Orleans	**{PORT TOTAL}**													**11500**
New York/New Jersey	Auto Marine Terminal		35	900										
New York/New Jersey	Global Marine Terminal		35	1800										
New York/New Jersey	Howland Hook Marine Terminal		37	2500										
New York/New Jersey	Red Hook Container Terminal		35	5480										
New York/New Jersey	Elizabeth Terminal		35	16108										
New York/New Jersey	Port Newark Terminal		35	22647										
New York/New Jersey	**{PORT TOTAL}**													**17900**
Nhava Sheva	Nhava Sheva Terminal	CB 4-5	44	1968	3150	7915	50400	42540	46215	1260	3165	12600	17015	13190
Nhava Sheva	Nhava Sheva Terminal	CB 1-3	44	2230	4725	9215	50400	63810	51600	1890	3685	12600	25524	15350
Nhava Sheva	Nhava Sheva Terminal	BB 4	39	525		2125			2125		850			850
Nhava Sheva	Nhava Sheva Terminal	BB 3	39	696		2480	12600		12175		992	3150		3060
Nhava Sheva	Nhava Sheva Terminal	BB 1-2	39	1640		6380	25200		24400		2550	6300		6140
Nhava Sheva	**{PORT TOTAL}**													**38590**
Nikolayev	Nikolayev Terminal	Berth 6	32.8	846	265	876	5308		4304	106	350	1327		1085
Nikolayev	Nikolayev Terminal	Berth 8	31.2	180										
Nikolayev	Nikolayev Terminal	West Berth 5	15	387										
Nikolayev	Nikolayev Terminal	Berth 7	31.2	518										
Nikolayev	Nikolayev Terminal	Berth 3,Berth 4	24.6	666										
Nikolayev	Nikolayev Terminal	Berth 1,Berth 2	24.6	670										
Nikolayev	Nikolayev Terminal	Berth 3,Berth 4	32.8	682										
Nikolayev	Nikolayev Terminal	Berth 9,Berth 10,Berth 11	34.4	682										
Nikolayev	Nikolayev Terminal	Berth 9,Berth 10,Berth 11	34.4	686										
Nikolayev	Nikolayev Terminal	Berth 9,Berth 10,Berth 11	34.4	689										
Nikolayev	Nikolayev Terminal	Central Berth 1	23	735										
Nikolayev	Nikolayev Terminal	Berth 5	32.8	846										
Nikolayev	Nikolayev Terminal	Central Berth 3	23	974										
Nikolayev	Nikolayev Terminal	Central Berth 2	23	1086										
Nikolayev	Nikolayev Terminal	West Berth 6, West Berth 7	15	1200										
Nikolayev	Nikolayev Terminal	Central Berth 4	23	1217										
Nikolayev	Nikolayev Terminal	West Berth 1 - West Berth 4	15	1628										
Nikolayev	Nikolayev Terminal	Berth 12,Berth 13,Berth 14	34.4	2165										
Nikolayev	**{PORT TOTAL}**													**7595**
Nordenham	Nordenham Terminal	North Pier	44	1165		2000	6400	2875	5825		1500	1600	1150	1540
Nordenham	Nordenham Terminal	South Pier	44	1165		2000	6400	2875	5825		1500	1600	1150	1540
Nordenham	**{PORT TOTAL}**													**3080**
NWS, Charleston	Wharf Alpha	Wharf Alpha	38	1100					6000			1500		1500
NWS, Charleston	TC Dock	TC Dock	40	1480					6000			1500		1500
NWS, Charleston	**{PORT TOTAL}**													**3000**
Oakland	Outer Harbor Terminal	Berth 34	37	720										
Oakland	Nutter Marine Container Terminal	Berth 38		862										
Oakland	Transbay Container Terminal	Berths 25-26	50	1050					3000			750		750
Oakland	TraPac Terminal	Berth 30	50	1075					3000			750		750
Oakland	Transbay Container Terminal	Berths 22-24	50	1327					3000			750		750
Oakland	TraPac Terminal	Berths 32-33	50	1536					3000			750		750
Oakland	Howard Terminal	Berths 67-68	42	1946					6000			1500		1500

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WORLDWIDE PORT CHARACTERISTICS														
PORT NAME	TERMINAL NAME	BERTH GROUP	DEPTH MLW	BERTH LGTH	BARGE MTON	BB MTON	RORO MTON	CONT MTON	MIXED MTON	BARGE STON	BB STON	RORO STON	CONT STON	MIXED STON
Oakland	Nutter Marine Container Terminal	Berths 35-37	50	2159					12000			3000		3000
Oakland	Hanjin Terminal	Berths 55-56	50	2400					6000			1500		1500
Oakland	APL Terminal	Berths 60-63	42	2742					12000			3000		3000
Oakland	Oakland Intl. Container Terminal	Berths 57 - 59	50	3600					30000			7500		7500
Oakland	**{PORT TOTAL}**													**22500**
Okkye	Okkye Terminal	Okkye Emergent Wharf	52	614										
Okkye	Okkye Terminal	Okkye Berth 2-3	42	1367										
Okkye	Okkye Terminal	Okkye Berth 1	52	1495										
Okkye	**{PORT TOTAL}**													
Olympia	Olympia Terminal	Berths 1-3	40	1740										
Olympia	**{PORT TOTAL}**													
Panama City	Panama City Terminal	Berths S1-3	36	1750										
Panama City	Panama City Terminal	Berths W1-3	30	2400										
Panama City	**{PORT TOTAL}**													
Pasir Panjang	Pasir Panjang Terminal	P3 - 4B	33	1935	1290	6289	20643		16788	516	2515	5161		4416
Pasir Panjang	Pasir Panjang Terminal	P1 - 2D	23	2397	1290				1290	516				516
Pasir Panjang	Pasir Panjang Terminal	P5B/C	23	656			10321		10321			2580		2580
Pasir Panjang	**{PORT TOTAL}**													**7512**
Patras	Patras Terminal	Gounari 3-4	27	1148	2654				2654	1062				1061
Patras	Patras Terminal	Astingos 1	27	524			10616		10616			2654		2654
Patras	Patras Terminal	Astinges 3	37	590		2090			2090		836			836
Patras	Patras Terminal	Agiou Nik 5-6	27	656			10616		10616			2654		2654
Patras	Patras Terminal	Agiou Nik 7-8	27	656			10616		10616			2654		2654
Patras	Patras Terminal	Quay Glyfadas	34	800		2090	10616	2980	8446		836	2654	1192	2196
Patras	Patras Terminal	N. Jetty	39	984		2090	10616		8620		836	2654		2228
Patras	**{PORT TOTAL}**													**14283**
Pearl Harbor	FISC Area Terminal	Berth K8	40	667		2750	15200							
Pearl Harbor	FISC Area Terminal	Berths K10-11	40	1016		2750	15200							
Pearl Harbor	FISC Area Terminal	Berths H1-2	40	1320		5500	28800							
Pearl Harbor	FISC Area Terminal	Berths H3-4	40	1334		5500	28800							
Pearl Harbor	**{PORT TOTAL}**													**2500**
Philadelphia	Tioga Marine Terminal	Berth 6	40	610										
Philadelphia	Packer Avenue Marine Terminal	Berth 6	40	817										
Philadelphia	Piers 78/80	Berth 78S	35	854										
Philadelphia	Pier 82	Berth 82S	32	855										
Philadelphia	Pier 84	Berth 84N	32	855										
Philadelphia	Pier 84	Berth 84S	32	855										
Philadelphia	Piers 78/80	Berth 78N	35	900										
Philadelphia	Piers 78/80	Berth 80N	35	994										
Philadelphia	Pier 82	Berth 82N	32	1139										
Philadelphia	Piers 78/80	Berth 80S	35	1144										
Philadelphia	Pier 98	Berth 98	32	1500										
Philadelphia	Piers 38/40	Berth 38/40	32	1721										
Philadelphia	Pier 96	Berth 96N	32	2640										
Philadelphia	Packer Avenue Marine Terminal	Berths 1-5	40	3015					16000			4000		4000
Philadelphia	Tioga Marine Terminal	Berths 1-5	40	3212					12000			3000		3000

Note: Worldport database updated December 2010

WORLDWIDE PORT CHARACTERISTICS														
PORT NAME	TERMINAL NAME	BERTH GROUP	DEPTH MLW	BERTH LGTH	BARGE MTON	BB MTON	RORO MTON	CONT MTON	MIXED MTON	BARGE STON	BB STON	RORO STON	CONT STON	MIXED STON
Philadelphia	**{PORT TOTAL}**													**8500**
Piraeus	Piraeus Terminal	Cent Con	39	1476	1327	4379	21233	7820	16525	531	1752	5308	3128	4316
Piraeus	Piraeus Terminal	Hercul Gen	32	3280	1327	10749	42467		34000	531	4300	10617		8871
Piraeus	Piraeus Terminal	Central	36	3280	3317	11247	42467		34175	1327	4499	10617		8941
Piraeus	Piraeus Terminal	Drapetsona	27	1640	5308				5308	2123				2123
Piraeus	Piraeus Terminal	Hercul RORO	34	1148		3583	21233		17102		1433	5308		4401
Piraeus	Piraeus Terminal	Hercul Con3	46	2296		7166	31850	7820	25508		2866	7963	3128	6656
Piraeus	Piraeus Terminal	Hercul Con2	46	3116		10749	42467	7820	34201		4300	10617	3128	8951
Piraeus	Piraeus Terminal	Hercul Con1	46	3116		10749	42467	13800	34386		4300	10617	5520	9025
Piraeus	**{PORT TOTAL}**													**53284**
Plymouth	Plymouth	Plymouth	27	656			8835		8835			2209		2209
Plymouth	**{PORT TOTAL}**													**2209**
Pohang	Pohang Terminal	Berth 5H	31	557	1200			4600	1700		710			680
Pohang	Pohang Terminal	Berth 4E	36	639	1200			4600	7500		810	4089		1900
Pohang	Pohang Terminal	Berth 4W	33	738	1200			4600	7500		810	4089		1900
Pohang	Pohang Terminal	Berth 5W	36	984	1200			4600	7500		810	4089		1900
Pohang	Pohang Terminal	Berth 8W	36	1640	1200			4600	15000		2000	8019		4000
Pohang	Pohang Terminal	Berth 3	24	1787	4700			9300	1800		570			700
Pohang	Pohang Terminal	Berth 8H	36	656					7700		740	4089		2000
Pohang	Pohang Terminal	Berth 7H	39	780					7700		740	4089		2000
Pohang	Pohang Terminal	Berth 7W	39	1056					8000		1300	4089		2100
Pohang	Pohang Terminal	Berth 5E	24	1262										
Pohang	Pohang Terminal	Berth 8E	36	1543					23000		3000	12108		6100
Pohang	Pohang Terminal	Berth 7E	39	1640					23000		3000	11948		6100
Pohang	**{PORT TOTAL}**													**29380**
Ponce	Ponce Terminal	Berth 1	30	450										
Ponce	Ponce Terminal	Berth 7	35	605										
Ponce	Ponce Terminal	Berth 8	33	610										
Ponce	Ponce Terminal	Berths 2-3	35	1062										
Ponce	Ponce Terminal	Berths 4-6	30	1200										
Ponce	**{PORT TOTAL}**													
Ponta Delgada	Ponta Delgada		12.8	4370										
Ponta Delgada	**{PORT TOTAL}**													
Port Arthur	Port Arthur Terminal	Berths 1-2	40	1390		5300	26500			700				
Port Arthur	Port Arthur Terminal	New Wharf	40	1500										
Port Arthur	**{PORT TOTAL}**													
Port au Prince	Port au Prince Terminal	Cargo Berth	30	1247										
Port au Prince	Port au Prince Terminal	Container Berth	32	1395										
Port au Prince	Port au Prince Terminal	RoRo Berth	30											
Port au Prince	**{PORT TOTAL}**													
Port Hueneme	NBVC Port Hueneme	Wharf C	21	246										
Port Hueneme	NBVC Port Hueneme	Wharf A	16	305										
Port Hueneme	NBVC Port Hueneme	Wharf B	18	350										
Port Hueneme	NBVC Port Hueneme	Wharf 5	35	600										
Port Hueneme	NBVC Port Hueneme	Wharf 6	35	784										
Port Hueneme	NBVC Port Hueneme	Wharf 3	35	1025					4500			1125		1125

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WORLDWIDE PORT CHARACTERISTICS														
PORT NAME	TERMINAL NAME	BERTH GROUP	DEPTH MLW	BERTH LGTH	BARGE MTON	BB MTON	RORO MTON	CONT MTON	MIXED MTON	BARGE STON	BB STON	RORO STON	CONT STON	MIXED STON
Port Hueneme	NBVC Port Hueneme	Wharf 4	32	1302					4500			1125		1125
Port Hueneme	Port of Hueneme / OHD	Wharf 2	35	1440										
Port Hueneme	Port of Hueneme / OHD	Wharf 1	35	1800										
Port Hueneme	**{PORT TOTAL}**													**2250**
Port of Tampa	Tampa		24	8447										
Port of Tampa	**{PORT TOTAL}**													
Port Said	Said Terminal	Sherrif	27	1672	737				737	294				294
Port Said	Said Terminal	Container Quay	45	1148		3981	14745	17400	12385		1592	3686	6960	3312
Port Said	Said Terminal	Abbas	27	2361			58982		58982			14745		14745
Port Said	**{PORT TOTAL}**													**18351**
Port Sudan	Port Sudan Terminal	15	36	673	612	2572	12250		11458	245	1029	3062		2887
Port Sudan	Port Sudan Terminal	17-18	40	912	1225	2572	12250	10586	11412	490	1029	3062	4234	3003
Port Sudan	Port Sudan Terminal	6-7	34	1198	1225	5145	24500		22917	490	2058	6125		5775
Port Sudan	Port Sudan Terminal	16	36	354	1838				1838	735				735
Port Sudan	Port Sudan Terminal	8-9	36	1230	2450	5145	24500		22943	980	2058	6125		5785
Port Sudan	Port Sudan Terminal	1-5	30	2707	6125	11025	61250		57258	2450	4410	15312		14423
Port Sudan	**{PORT TOTAL}**													**32608**
Portland	Terminal 2	Berth 203	20	400		100								
Portland	Terminal 6	Berth 601 RORO	35	400										
Portland	Terminal 6	Berth 607 RORO	35	449			9400							
Portland	Terminal 4	Berths 414-415	40	940		1900								
Portland	Terminal 2	Berths 204 Low/High	40	1036					16000			4000		4000
Portland	Terminal 4	Berths 410-411	40	1140		3200								
Portland	Terminal 4	Berths 406-408 RORO	35	1499		3700								
Portland	Terminal 4	Berths 403-405	30	1500		3700								
Portland	Terminal 2	Berths 205-206	40	2520		6400								
Portland	Terminal 6	Berths 603-605	40	2850		8000								
Portland	**{PORT TOTAL}**													**11500**
Portsmouth	Portsmouth	Portsmouth	54	1052			17670		17670			4417		4417
Portsmouth	**{PORT TOTAL}**													**4417**
Providence	Providence Terminal	Berth 4_5_6	40	1725										
Providence	Providence Terminal	Berth 1_2_3	35	1740										
Providence	**{PORT TOTAL}**										**800**			
Puerto Cabello	Puerto Cabello Terminal	Berth 8-9	30	574	663	895			867	265	358			346
Puerto Cabello	Puerto Cabello Terminal	Berth 1-2	31	557		895			895		358			358
Puerto Cabello	Puerto Cabello Terminal	Berth 41-42	32	590		1045			1045		418			418
Puerto Cabello	Puerto Cabello Terminal	Berth 29	30	656		895	6635		5291		358	1658		1353
Puerto Cabello	Puerto Cabello Terminal	Berth 30	31	656		1045	6635		5326		418	1658		1367
Puerto Cabello	Puerto Cabello Terminal	Berth 31	32	656		1045	6635		5326		418	1658		1367
Puerto Cabello	Puerto Cabello Terminal	Berth 27	33	675		1045	6635	1784	5299		418	1658	1784	1380
Puerto Cabello	**{PORT TOTAL}**													**6589**
Puerto Cortes	Puerto Cortes Terminal	General Cargo and RORO	30	1370	5810	8800	25800	15240	22780	2320	3520	6450	6100	6280
Puerto Cortes	**{PORT TOTAL}**													**6280**
Pulau Seraya	Pulau Seraya Terminal	Berth 1-2	40	1640		5225	20643		17034		2090	5161		4441
Pulau Seraya	**{PORT TOTAL}**													**4441**
Pyongtaek	Container Terminal	Berth 1	36	1000				24000				4089		

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WORLDWIDE PORT CHARACTERISTICS														
PORT NAME	TERMINAL NAME	BERTH GROUP	DEPTH MLW	BERTH LGTH	BARGE MTON	BB MTON	RORO MTON	CONT MTON	MIXED MTON	BARGE STON	BB STON	RORO STON	CONT STON	MIXED STON
Pyongtaek	**{PORT TOTAL}**													
Ras Al Mishab	Ras Al Mishab Terminal	Pierside 2	36	900										
Ras Al Mishab	Ras Al Mishab Terminal	Pierside 1	36	1200										
Ras Al Mishab	**{PORT TOTAL}**													
Rashid	Rashid Terminal	Berths 26-27	37.7	1004		1500	7200	2000	5700		600	1800	810	1500
Rashid	Rashid Terminal	Berths 9-10	35.4	1177		2500	7200	2000	6000		1000	1800	810	1600
Rashid	Rashid Terminal	Berths 31-32	37.7	1510		2800	14000	21000	12000		1100	3600	8500	3200
Rashid	Rashid Terminal	Berths 28-30	37.7	1773		3700	14000		12000		1500	3600		3100
Rashid	Rashid Terminal	Berths 6-8	30.5	1881		3700	14000		12000		1500	3600		3100
Rashid	Rashid Terminal	Berths 22-24	37.7	1998		4200	22000		18000		1700	5400		4400
Rashid	Rashid Terminal	Berths 1-4	30	2302		4900	22000		17000		1900	5400		4500
Rashid	Rashid Terminal	Berths 11-15	30.5	2820		6100	36000		29000		2400	9000		7500
Rashid	Rashid Terminal	Berths 17-21	37.7	2880		6100	36000	2000	28000		2400	9000	810	7500
Rashid	Rashid Terminal	Berths 33-35	42.6	3009		7000	29000	27000	24000		2800	7200	11000	6300
Rashid	**{PORT TOTAL}**													**42700**
Ravenna	Ravenna Terminal	Sap 3	30	328								2400		2350
Ravenna	Ravenna Terminal	Sap 7	30	328								2400		2400
Ravenna	Ravenna Terminal	Sap 5	30	548							700	2400		1950
Ravenna	Ravenna Terminal	Sap 6	30	548							700	2400	2100	2000
Ravenna	Ravenna Terminal	Sap 4	30	600							700	2400		1950
Ravenna	Ravenna Terminal	Sap 8	30	656							700	4700	2100	3800
Ravenna	Ravenna Terminal	New	30	984							650	7100	2800	5500
Ravenna	Ravenna Terminal	Nadep	23	1312							150	9500	3900	7200
Ravenna	Ravenna Terminal	S2&F	30	1860							2100	14200	4300	11100
Ravenna	Ravenna Terminal	SETRA	30	2017							2000	14200	8800	11200
Ravenna	Ravenna Terminal	Sap 1	30	2188							2600	16500	8400	13100
Ravenna	**{PORT TOTAL}**													**62550**
Richmond	Terminal 3	Wharf 3	39.1	1009										
Richmond	Terminal 7	Wharf 7	39.1	1615										
Richmond	**{PORT TOTAL}**													
Riga	Riga Terminal	KS 32-34		492										
Riga	Riga Terminal	DG1		689										
Riga	Riga Terminal	EO-15		705										
Riga	Riga Terminal	KRS 1-2												
Riga	Riga Terminal	ZO 1-2												
Riga	Riga Terminal	ZO 3-6												
Riga	**{PORT TOTAL}**													
Rijeka	Rijeka Terminal	De Fran E	24	492	2000	2000	11800		8800	800	800	2950		2200
Rijeka	Rijeka Terminal	Kostrena West	32.8	535	2000	2000	11800	7000	9800	800	800	2950	2800	2450
Rijeka	Rijeka Terminal	Wien Quay	31.5	807	2375	2375	11800		10000	950	950	2950		2500
Rijeka	Rijeka Terminal	Adamich Head Pier	19.7	164										
Rijeka	Rijeka Terminal	Adamich East Pier	19.7	240										
Rijeka	Rijeka Terminal	Adamich West Pier	19.7	246										
Rijeka	Rijeka Terminal	De Franceschi Head Pier	19.7	262										
Rijeka	Rijeka Terminal	Visin Head Pier	23.6	262										
Rijeka	Rijeka Terminal	Orlando Head Pier	24.6	276										

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WORLDWIDE PORT CHARACTERISTICS															
PORT NAME	TERMINAL NAME	BERTH GROUP	DEPTH MLW	BERTH LGTH	BARGE MTON	BB MTON	RORO MTON	CONT MTON	MIXED MTON	BARGE STON	BB STON	RORO STON	CONT STON	MIXED STON
Rijeka	Rijeka Terminal	Ruzic South Pier	22	349										
Rijeka	Rijeka Terminal	Ruzic North Pier	26.2	350										
Rijeka	Rijeka Terminal	Budapest East Quay	25.6	361										
Rijeka	Rijeka Terminal	Visin West Pier	24	390										
Rijeka	Rijeka Terminal	Visin East Pier	24	394										
Rijeka	Rijeka Terminal	Vinodol Quay	24.6	433										
Rijeka	Rijeka Terminal	DeFran W	20.7	443			11800		9800			2950		2450
Rijeka	Rijeka Terminal	Zagreb Quay	20.5	518										
Rijeka	Rijeka Terminal	Praha East Quay	24	525										
Rijeka	Rijeka Terminal	Bratislava Quay	25.9	525										
Rijeka	Rijeka Terminal	Boduli Quay	21.3	539										
Rijeka	Rijeka Terminal	Orlando West Pier	26.2	554										
Rijeka	Rijeka Terminal	Orlando East Pier	27.9	640										
Rijeka	Rijeka Terminal	Praha West Quay	24.6	656										
Rijeka	Rijeka Terminal	Senj Quay	21.3	778										
Rijeka	Rijeka Terminal	Budapest West Quay	42.5	823										
Rijeka	Rijeka Terminal	Kostrena South	39.4	965			35400	7000	27600			8850	2800	6900
Rijeka	Rijeka Terminal	Susak Breakwater	21.3	1050										
Rijeka	Rijeka Terminal	Rijeka Breakwater West	22.9	1725										
Rijeka	Rijeka Terminal	Rijeka Breakwater East	19.7	1978										
Rijeka	**{PORT TOTAL}**													**16500**
Rotterdam	Waalhaven Terminal	GEB	21.3	663										
Rotterdam	Amazonehaven Terminal	SP8050	44	833										
Rotterdam	Botlek Terminal	SP4575 Kade 2	27.4	1070			12900		3225			3230		3230
Rotterdam	Waalhaven Terminal	SP2160	29.5	1099										
Rotterdam	Waalhaven Terminal	SP2565	36	1178										
Rotterdam	Waalhaven Terminal	SP2570	36	1243										
Rotterdam	Waalhaven Terminal	SP2180	29.5	1263		1740	12900	30480	10910		700	3230	12190	2930
Rotterdam	Botlek Terminal	SP4570 Kade 1	36	1450		4060	12900	24660	3070		1630	3230	9860	3070
Rotterdam	Botlek Terminal	SP4590 Kade 3	42.7	1542		5230	25800	17400	5477		2090	6450	6960	5480
Rotterdam	Amazonehaven Terminal	SP7150	18	1591										
Rotterdam	Waalhaven Terminal	SP2185	29.6	1614		5230	25800	39180	21550		2090	6450	15670	5750
Rotterdam	Eemhaven Terminal	SP2700	10	1647										
Rotterdam	Eemhaven Terminal	SP2780	33	1693										
Rotterdam	Waalhaven Terminal	SP2165	29.5	1755										
Rotterdam	Waalhaven Terminal	SP2530	15	2028										
Rotterdam	Eemhaven Terminal	SP2790	32	2530										
Rotterdam	Waalhaven Terminal	SP2550	46	2582										
Rotterdam	Waalhaven Terminal	SP2540	39	2654										
Rotterdam	Waalhaven Terminal	Heyplaat	19.5	2667										
Rotterdam	Waalhaven Terminal	SP2170	32.8	2805		10450	64510	30480	51200		4180	16130	12190	13300
Rotterdam	Waalhaven Terminal	SP2200	32.8	2835										
Rotterdam	Amazonehaven Terminal	SP8030	69	2916										
Rotterdam	Eemhaven Terminal	SP2800	39	2963		14220	90320	26120	71070		5700	22580	10450	18370
Rotterdam	Europahaven Terminal	SP8180 Sealand	42.5	3235		10450	51610	34820	41750		4180	12900	13930	11000
Rotterdam	Eemhaven Terminal	SP2760	36	3297										
Rotterdam	Amazonehaven Terminal	SP8150	69	3415										

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WORLDWIDE PORT CHARACTERISTICS														
PORT NAME	TERMINAL NAME	BERTH GROUP	DEPTH MLW	BERTH LGTH	BARGE MTON	BB MTON	RORO MTON	CONT MTON	MIXED MTON	BARGE STON	BB STON	RORO STON	CONT STON	MIXED STON
Rotterdam	Amazonehaven Terminal	SP8160	69	3415										
Rotterdam	Eemhaven Terminal	SP2740	32.8	4225		4060	25880	17400	20610		1630	6450	6960	5370
Rotterdam	Eemhaven Terminal	SP2720	32.8	4396		6100	38710	17400	30650		2440	9700	6960	7950
Rotterdam	Waalhaven Terminal	Waalhaven NZ	29.5	5041										
Rotterdam	Europahaven Terminal	SP8200 Delta	42.5	5400		18300	103220	26120	81570		7320	25800	10450	21140
Rotterdam	**{PORT TOTAL}**													**292770**
Safaga	Oil Jetty		39	187										
Safaga	Oil Jetty		45.6	860										
Safaga	**{PORT TOTAL}**													
Saipan	Saipan	Berth 2-3	35	1404	2070	4950	27500		6140	830	1860	6880		1800
Saipan	**{PORT TOTAL}**													**1800**
Salalah	Salalah Terminal	Berth 8	13	377										
Salalah	Salalah Terminal	Berth 4	26	656										
Salalah	Salalah Terminal	Berth 9	10	853										
Salalah	Salalah Terminal	Berths 5-7	13	1131										
Salalah	Salalah Terminal	Berths 21-23	31	1701		5806	25805		19605		2322	6451		4939
Salalah	Salalah Terminal	Berths 30-31	52	1968		6096	25805		19536		2439	6451		4912
Salalah	Salalah Terminal	Berths 1-4	52	4028		15386	77414	87788	76235		6154	19354	35115	35115
Salalah	**{PORT TOTAL}**													**44966**
Samchok	Samchok Terminal	Samchok Berth 3	23	889	2200				9300		900	4945		2400
Samchok	Samchok Terminal	Samchok Berth 2	21	1000	2900				9000		400	4945		2300
Samchok	Samchok Terminal	Samchok Berth 1	18	492										
Samchok	**{PORT TOTAL}**													**4700**
Samsun	Samsun Terminal	9	21	1312	1226	184	39223	5516	28483		73.6	9806	2206	7337
Samsun	Samsun Terminal	3	34	492	1839	1931	9806	8274	7788		772	2452	3310	2006
Samsun	Samsun Terminal	10	20	590	1839	276	9806	8274	7424		110	2452	3310	1912
Samsun	Samsun Terminal	6-7	39	1312	1839	4137	39223	8274	29091		1655	9806	3310	7493
Samsun	Samsun Terminal	4-5	34	984	2451	2298	29417	11032	22091		919	7354	4413	5691
Samsun	Samsun Terminal	1-2	34	1069	2451	3677	29417	11032	22394		1471	7354	4413	5769
Samsun	Samsun Terminal	Berth 3	34	492										
Samsun	Samsun Terminal	Berth 10	20	590										
Samsun	Samsun Terminal	Berth 6,-7	39	656										
Samsun	Samsun Terminal	Berth 6-7	39	656										
Samsun	Samsun Terminal	Berth 4-5	34	984										
Samsun	Samsun Terminal	Berth 1-2	34	1070										
Samsun	Samsun Terminal	Berth 9	21	1312										
Samsun	**{PORT TOTAL}**													**30208**
San Diego	National City Terminal		21	670										
San Diego	National City Terminal	Berth 2	35	720										
San Diego	10th Avenue Terminal	Berth 7	42	720										
San Diego	National City Terminal	Berths 3-4	35	1000					7500			1875		1875
San Diego	National City Terminal		35	1030										
San Diego	10th Avenue Terminal	Berths 1-2	32	1110										
San Diego	National City Terminal	Berths 10-11	35	1500					7500			1875		1875
San Diego	10th Avenue Terminal	Berths 3-6	41	2580										
San Diego	**{PORT TOTAL}**													**6750**

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WORLDWIDE PORT CHARACTERISTICS														
PORT NAME	TERMINAL NAME	BERTH GROUP	DEPTH MLW	BERTH LGTH	BARGE MTON	BB MTON	RORO MTON	CONT MTON	MIXED MTON	BARGE STON	BB STON	RORO STON	CONT STON	MIXED STON
San Fernando	San Fernando Terminal		32.8	3639										
San Fernando	**{PORT TOTAL}**													
San Lorenzo	T-Berth Terminal	T-Berth	32.8	972	1290	1740	12900	8700	9970	520	700	3230	3480	2590
San Lorenzo	**{PORT TOTAL}**													**2590**
Santa Marta	Santa Marta Terminal	Berth 2	33	476										
Santa Marta	Santa Marta Terminal	Berth 1	38	592										
Santa Marta	Santa Marta Terminal	Berth 3	45	761										
Santa Marta	Santa Marta Terminal	Berths 4-5	60	1010										
Santa Marta	**{PORT TOTAL}**													
Sao Tome	Sao Tome Terminal		13	656										
Sao Tome	**{PORT TOTAL}**													
Sasebo	Hario Ammo Terminal	Hario Dock	20	130	250			122	190					170
Sasebo	Maebata Ammo Terminal	Maebata Wharf	27	200	250			120	190					168
Sasebo	Hario Ammo Terminal	Hario Wharf	20	248	250			122	190					170
Sasebo	**{PORT TOTAL}**				**750**									**15608**
Sasebo	Motofune POL Terminal	Berth 2	32	262										
Sasebo	Motofune POL Terminal	Berth 1	30	263										
Sasebo	Yokose POL Terminal	Yokose Pier	38	264										
Sasebo	Iorizaki POL Terminal	Iorizaki Pier	36	266										
Sasebo	Fleet Activities, Sasebo	Berth 9	35	499					4500		1800			1800
Sasebo	Fleet Activities, Sasebo	Berth 1	35	833					9120		2000	4945		2400
Sasebo	Fleet Activities, Sasebo	Berths 7-8	35	1182					11020		2900	4945		2900
Sasebo	Fleet Activities, Sasebo	Berths 2-3	35	1194					11020		2900	4945		2900
Sasebo	Akasaki POL Terminal	Berths 1-3	37	1699										
Sasebo	Fleet Activities, Sasebo	Berths 4-6	35	1888				9250	19380		4000	10063		5100
Savannah	Ocean Terminal	Berths 14-15	20	564										
Savannah	Ocean Terminal	Berths 14-15	20	564										
Savannah	Garden City Terminal	Berth 1	42	842										
Savannah	Ocean Terminal	Berths 16-17	20	1041										
Savannah	Ocean Terminal	Berths 1-2	42	1178										
Savannah	Garden City Terminal	Berth 7	42	1200					3333			833		833
Savannah	Garden City Terminal	Berths 2-3	42	1636					3333			833		833
Savannah	Ocean Terminal	Berths 18-20	38	1666										
Savannah	Ocean Terminal	Berths 12-13	42	1675					24000			6000		6000
Savannah	Garden City Terminal	Berths 4-6	42	4048					13333			3333		3333
Savannah	**{PORT TOTAL}**	**See Berth Information**												**11000**
Scarborough	Scarborough Terminal	Berth 1	15	1197	663				663	265				265
Scarborough	**{PORT TOTAL}**													**265**
Seattle	Terminal 91	T90-2	35	644										
Seattle	Terminal 37-46	Pier 46	36	667		1593								
Seattle	Terminal 91	T91-2	35	748										
Seattle	Terminal 25	T25	50	785		5574	28312							
Seattle	Terminal 115	T115	40	945		3804	9437							
Seattle	Terminal 30	T30-2	50	1200										
Seattle	Terminal 30	T30-1	45	1852										
Seattle	Terminal 5	T5	45	2868		7963	37749							

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WORLDWIDE PORT CHARACTERISTICS														
PORT NAME	TERMINAL NAME	BERTH GROUP	DEPTH MLW	BERTH LGTH	BARGE MTON	BB MTON	RORO MTON	CONT MTON	MIXED MTON	BARGE STON	BB STON	RORO STON	CONT STON	MIXED STON
Seattle	Terminal 37-46	Berths 37-46.1	29	2910		7963	37749							
Seattle	Terminal 91	T90-1	35	3746		26011	113246		7500			1875		1875
Seattle	Terminal 91	T90-1	35	3746										
Seattle	Terminal 91	T91-3	35	3760										
Seattle	Terminal 91	T90-3	35	4442										
Seattle	Terminal 91	T91-1	35	5006					12500			3125		3125
Seattle	Terminal 91	T91-1	35	5006										
Seattle	Terminal 18	T18	51	6046		17000	75000							
Seattle	**{PORT TOTAL}**													**7500**
Seward	**{PORT TOTAL}**													**4780**
SFAX	SFAX		34.45	371										
SFAX	SFAX		34.45	1685										
SFAX	SFAX		34.45	1703										
SFAX	SFAX		34.45	1926										
SFAX	SFAX		34.45	2869										
SFAX	**{PORT TOTAL}**													
Shaid Rejaie	Shaid Rejaie Terminal	Gen Cargo	36	665	2488	2737	13271		10548	995	1095	3318		2740
Shaid Rejaie	Shaid Rejaie Terminal	Container	36	3329		13561	66355	26120	53136		5424	16589	10448	13866
Shaid Rejaie	**{PORT TOTAL}**													**16606**
Shengjin	Shengjin Terminal	Pier A	18	350	829	497			536	331	199			214
Shengjin	**{PORT TOTAL}**													**214**
Shuaiba	Shuaiba Terminal	Berth 6	34.5	846		2032	12902		9738		813	3226		2444
Shuaiba	Shuaiba Terminal	Berths 7-8	41	1312		4064	12902		9799		1626	3226		2468
Shuaiba	Shuaiba Terminal	Berths 19-20	45.9	1312		2800	14400		12000		1100	3600		3000
Shuaiba	Shuaiba Terminal	Berths 9-11	45.9	1968		6096	25805		19536		2439	6451		4912
Shuaiba	Shuaiba Terminal	Berths 12-14	45.9	1968		6290	38707		29258		2516	9677		7349
Shuaiba	Shuaiba Terminal	Berths 15-18	45.9	2884		10548	51610	21947	43465		4219	12902	8779	11580
Shuaiba	**{PORT TOTAL}**													**31753**
Shuwaikh	Shuwaikh Terminal	Berth 16	22	508										
Shuwaikh	Shuwaikh Terminal	Berth 15	22	590										
Shuwaikh	Shuwaikh Terminal	Berth 18	28	590										
Shuwaikh	Shuwaikh Terminal	Berth 19	28	656										
Shuwaikh	Shuwaikh Terminal	Berth 20	28	656										
Shuwaikh	Shuwaikh Terminal	Berth 21	28	656										
Shuwaikh	Shuwaikh Terminal	Berth 14	32	656		1742	12902		12161		697	3226		3050
Shuwaikh	Shuwaikh Terminal	Berth 9	32	656		1742	12902		12177		697	3226		3057
Shuwaikh	Shuwaikh Terminal	Berth 10	32	656		1839	12902		12181		735	3226		3058
Shuwaikh	Shuwaikh Terminal	Berth 11	32	656		1839	12902		12181		735	3226		3058
Shuwaikh	Shuwaikh Terminal	Berth 17	22	660										
Shuwaikh	Shuwaikh Terminal	Berth 8	32	695										
Shuwaikh	Shuwaikh Terminal	Berths 6-7	32	1216		3484	12902		9781		1393	3226		2461
Shuwaikh	Shuwaikh Terminal	Berths 12-13	32	1246		3677	25805	14631	22416		1471	6451	5853	6063
Shuwaikh	Shuwaikh Terminal	Berths 2-5	32	2473		6967	38707	2787	29239		2787	9677	1115	7341
Shuwaikh	**{PORT TOTAL}**													**28088**
Singapore	Container Terminal	M6	24.3	148										
Singapore	Container Terminal	M5	18	279										

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WORLDWIDE PORT CHARACTERISTICS														
PORT NAME	TERMINAL NAME	BERTH GROUP	DEPTH MLW	BERTH LGTH	BARGE MTON	BB MTON	RORO MTON	CONT MTON	MIXED MTON	BARGE STON	BB STON	RORO STON	CONT STON	MIXED STON
Singapore	Sembawang Terminal	S11	32.8	361										
Singapore	Container Terminal	M1	18	394										
Singapore	Container Terminal	M2	18.4	394										
Singapore	Container Terminal	M3	18.4	394										
Singapore	Container Terminal	M4	18.4	394										
Singapore	Sembawang Terminal	S4	30.5	400										
Singapore	Container Terminal	K11	49.5	443										
Singapore	Sembawang Terminal	S10	32.8	466										
Singapore	Container Terminal	K23	31.5	492										
Singapore	Container Terminal	T8	30.2	696		2032	10321		8381		813	2580		2166
Singapore	Sembawang Terminal	S16	31.5	722										
Singapore	Container Terminal	K9	34.4	728										
Singapore	Container Terminal	K10	38.1	728										
Singapore	Sembawang Terminal	S17	34.1	755										
Singapore	Sembawang Terminal	S18	34.8	755										
Singapore	Sembawang Terminal	S19	41.7	755										
Singapore	Container Terminal	T4	36	764		2032	10321		8381		813	2580		2166
Singapore	Sembawang Terminal	S9	33.5	787										
Singapore	Sembawang Terminal	S12A	33.5	820										
Singapore	Sembawang Terminal	S14	35.8	820										
Singapore	Sembawang Terminal	S20	38.1	951										
Singapore	Sembawang Terminal	S12	31.5	1102										
Singapore	Sembawang Terminal	S8	29.5	1148										
Singapore	Sembawang Terminal	S1-3	30.5	1749		5225	20643	7620	16743		2090	5161	3048	4398
Singapore	Sembawang Terminal	S5-7	30.2	1752		17418	82575		67325		6967	20644		17442
Singapore	Container Terminal	K15-18	34.4	2624		5397	28312	4247	21926		2158	7078	1699	5713
Singapore	Container Terminal	K19-22	31.5	2625		354	28312	4247	21423		142	7078	1699	5417
Singapore	Container Terminal	T5-7	40.7	2981		10160	41287	53340	34600		4064	10322	21336	9242
Singapore	Container Terminal	T1-T3	40.7	3100		10160	51609	53340	42261		4064	12902	21336	11158
Singapore	Container Terminal	K12-14	41	3248		8709	41287	92520	35482		3484	10322	37008	9595
Singapore	Container Terminal	Brani Berth	36.1	8618		20901	92897	45720	75108		8360	23224	18288	19700
Singapore	**{PORT TOTAL}**													**102399**
Sokcho	Sokcho Outer Harbor	New Wharf	24	1646	2200				1000		400			400
Sokcho	**{PORT TOTAL}**													**400**
Souda Bay	Souda Bay Terminal	Berth 09 - 10	32	656		836	5308		4819		334	1327		1211
Souda Bay	Souda Bay Terminal	Berth 11 - 12	32	1312		1672	10617		8577		669	2654		2421
Souda Bay	**{PORT TOTAL}**													**3632**
Southampton	Southampton	Eastern Docks	44	1587		2783	35340		28411		1113	8835		7124
Southampton	Southampton	Western Docks	48	3851		8348	97185		78164		3340	24296		19603
Southampton	**{PORT TOTAL}**													**26727**
Spezia	Spezia Terminal	Tdel Golfo H	26	196										
Spezia	Spezia Terminal	Tem Mess	36	328								1500	700	1200
Spezia	Spezia Terminal	Tdel Golfo W	26	492								1500		1500
Spezia	Spezia Terminal	Tdel Golfo E	32	524							400	1500	1800	1300
Spezia	Spezia Terminal	16 M Fom	32	528							400	1500		1300
Spezia	Spezia Terminal	4 Cal Mal	16	656							200		700	100
Spezia	Spezia Terminal	1 M Gari	25	679							200	3100	700	2400

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WORLDWIDE PORT CHARACTERISTICS														
PORT NAME	TERMINAL NAME	BERTH GROUP	DEPTH MLW	BERTH LGTH	BARGE MTON	BB MTON	RORO MTON	CONT MTON	MIXED MTON	BARGE STON	BB STON	RORO STON	CONT STON	MIXED STON
Spezia	Spezia Terminal	2-3 M Gari	21	984							200	4400	700	3500
Spezia	Spezia Terminal	11-12 Cal Art	30	1003							500	3100	2800	3500
Spezia	Spezia Terminal	9 M Gari	36	1148							900	3100	1400	2500
Spezia	Spezia Terminal	17-18 M Fom	46	1531							1000	4600	5500	3800
Spezia	Spezia Terminal	13-15 M Fom	42	1705							1300	7700	7300	6300
Spezia	Spezia Terminal	5-7 Cal Pai	36	1755							1300	7700	1400	6100
Spezia	**{PORT TOTAL}**	**See Berth Information**												**33500**
St. Thomas	St. Thomas Terminal	W. Ind.- West End	30	1000							800	2900		2450
St. Thomas	St. Thomas Terminal	W. Ind.- East End	27	1234						300		5900		5700
St. Thomas	**{PORT TOTAL}**													**8150**
Sydney	Sydney	Darling 3	36	751	664	2190	13271	3185	11078	265	876	3318	1274	2839
Sydney	Sydney	Darling 4 - 5	34	2050	1327	6470	39813	6370	32877	531	2588	9953	2548	8373
Sydney	Sydney	White Bay 5 - 6	36	1334		4180	26542		24098		1672	6636		6056
Sydney	**{PORT TOTAL}**													**17268**
Tacoma	Terminal 4	(T4) Berth A	51	940										
Tacoma	Blair Terminal	Blair A-B	51	1200					24000			6000		6000
Tacoma	Terminal 7	Berths A-D	51	1310					24000			6000		6000
Tacoma	Olympic Container Terminal	Berths A-D	51	1390					24000			6000		6000
Tacoma	Terminal 4	(T3) Berths A-B	51	1880					6000			1500		1500
Tacoma	Pierce County Terminal	Berths A-B	51	1990					6000			1500		1500
Tacoma	Washington United Terminals	Hyundai A-B	51	2000					24000			6000		6000
Tacoma	APM Terminals	Berths A-C	51	2187					6000			1500		1500
Tacoma	**{PORT TOTAL}**													**28500**
Talara	Talara Terminal	Quay	18	385	1200				1200	500				500
Talara	**{PORT TOTAL}**													**500**
Tartus	Tartus Terminal	14	34	2624	6451	8805	38707		30927	2580	3522	9676		8060
Tartus	Tartus Terminal	13	35	557		1383			1838		735			735
Tartus	Tartus Terminal	10A	39	754		2128	12902		10380		851	3225		2669
Tartus	Tartus Terminal	4-5	42	1312		4161	25804		20738		1664	6451		5330
Tartus	Tartus Terminal	6-7	42	2099		7064	51609	2900	39999		2825	12902	1160	10253
Tartus	Tartus Terminal	9-10	39	2132		7064	51609		41183		2825	12902		10543
Tartus	Tartus Terminal	12	39	2509		8225	38707		31572		3290	9676		8181
Tartus	**{PORT TOTAL}**													**45771**
Tasucu	Tasucu	General Cargo	32	656	398	1314	7963		7252	159	526	1991		1826
Tasucu	**{PORT TOTAL}**				**398**									**1826**
Tekirdaq	Tekirdaq Terminal	4	18	226										
Tekirdaq	Tekirdaq Terminal	3	22.3	246										
Tekirdaq	Tekirdaq Terminal	2	23	318			9806		9806			2452		2452
Tekirdaq	Tekirdaq Terminal	1	16.4	341			9806		9806			2452		2452
Tekirdaq	Tekirdaq Terminal	5	30	900		1655			1655		662			426
Tekirdaq	Tekirdaq Terminal	6	30	900		1655			1655		662			426
Tekirdaq	**{PORT TOTAL}**													**5756**
Tengan Pier	Tengan Pier	Tengan Pier	37	806				1832	1700		660			900
Tengan Pier	**{PORT TOTAL}**													**900**
Thessaloniki	Thessaloniki Terminal	Pier 4a		1353	663	4279	21233		16751	265	1712	5308		4336
Thessaloniki	Thessaloniki Terminal	Pier 4c		1353	663	4279	21233		16751	265	1712	5308		4336

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WORLDWIDE PORT CHARACTERISTICS														
PORT NAME	TERMINAL NAME	BERTH GROUP	DEPTH MLW	BERTH LGTH	BARGE MTON	BB MTON	RORO MTON	CONT MTON	MIXED MTON	BARGE STON	BB STON	RORO STON	CONT STON	MIXED STON
Thessaloniki	Thessaloniki Terminal	Pier 5a		1517	663	4279	21233		16751	265	1712	5308		4336
Thessaloniki	Thessaloniki Terminal	Pier 5c		1517	663	4279	21233		16751	265	1712	5308		4336
Thessaloniki	Thessaloniki Terminal	Pier 1		2919	3981		53084		5119	1592		13271		12803
Thessaloniki	Thessaloniki Terminal	Quay 4	26.2	262										
Thessaloniki	Thessaloniki Terminal	Quay 5	26.2	262										
Thessaloniki	Thessaloniki Terminal	Quay 6	26.2	262										
Thessaloniki	Thessaloniki Terminal	Quay 7	26.2	262										
Thessaloniki	Thessaloniki Terminal	Quay 8	26.2	262										
Thessaloniki	Thessaloniki Terminal	Quay 2	26.2	296										
Thessaloniki	Thessaloniki Terminal	Quay 1A	26.2	398										
Thessaloniki	Thessaloniki Terminal	Quay 13	32.8	447										
Thessaloniki	Thessaloniki Terminal	Quay 19	32.8	535										
Thessaloniki	Thessaloniki Terminal	Quay 15	32.8	579										
Thessaloniki	Thessaloniki Terminal	Quay 23	32.8	598										
Thessaloniki	Thessaloniki Terminal	Quay 21	39.4	612										
Thessaloniki	Thessaloniki Terminal	Pier 5b		623		2090			2090		836			836
Thessaloniki	Thessaloniki Terminal	Pier 4b		639		2090	10616		8620		836	2654		2228
Thessaloniki	Thessaloniki Terminal	Quay 1	26.2	656										
Thessaloniki	Thessaloniki Terminal	Quay 3	26.2	658										
Thessaloniki	Thessaloniki Terminal	Quay 17	32.8	658										
Thessaloniki	Thessaloniki Terminal	Quay 11	32.8	739										
Thessaloniki	Thessaloniki Terminal	Quay 9	26.2	753										
Thessaloniki	Thessaloniki Terminal	Pier 2a		754										
Thessaloniki	Thessaloniki Terminal	Quay 14	32.8	765										
Thessaloniki	Thessaloniki Terminal	Quay 12	32.8	784										
Thessaloniki	Thessaloniki Terminal	Quay 10	26.2	914										
Thessaloniki	Thessaloniki Terminal	Quay 18	32.8	1057										
Thessaloniki	Thessaloniki Terminal	Quay 16	32.8	1064										
Thessaloniki	Thessaloniki Terminal	Quay 20	32.8	1149										
Thessaloniki	Thessaloniki Terminal	Quay 22	32.8	1239										
Thessaloniki	Thessaloniki Terminal	Pier 6		1640		5374	31850	15660	25344		2149	7963	6264	6591
Thessaloniki	Thessaloniki Terminal	Quay 26	49.2	1739										
Thessaloniki	Thessaloniki Terminal	Pier 2b		1869		6270	21233		17731		2508	5308		4652
Thessaloniki	Thessaloniki Terminal	Quay 24	39.4	1968										
Thessaloniki	Thessaloniki Terminal	Pier 3		2771		8957	42467		34624		3583	10617		8969
Thessaloniki	**{PORT TOTAL}**													**53423**
Tortola	Tortola Terminal	Purcell	21	800										300
Tortola	**{PORT TOTAL}**													**300**
Trabzon	Trabzon Terminal	3	30	918		1839	29417	5516	22423		736	7354	2206	5776
Trabzon	Trabzon Terminal	4	36	951		1931	29417		22984		772	7354		5921
Trabzon	Trabzon Terminal	2	30	984		1839	29417	5516	22423		736	7354	2206	5776
Trabzon	Trabzon Terminal	1	30	1278		3585	39223	8274	30183		1434	9806	3310	7775
Trabzon	**{PORT TOTAL}**													**25248**
Tripoli	Tripoli	NA	39.4	415										
Tripoli	Tripoli	Pier 1	39.4	984										
Tripoli	Tripoli	Pier 2	39.4	2824										
Tripoli	Tripoli	Pier 3	32.8	3280										

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WORLDWIDE PORT CHARACTERISTICS														
PORT NAME	TERMINAL NAME	BERTH GROUP	DEPTH MLW	BERTH LGTH	BARGE MTON	BB MTON	RORO MTON	CONT MTON	MIXED MTON	BARGE STON	BB STON	RORO STON	CONT STON	MIXED STON
Tripoli	**{PORT TOTAL}**													
Trondheim	Trondheim	NA	14.7	229										
Trondheim	Trondheim	Quay 22,Quay 23	12.4	492										
Trondheim	Trondheim	Quay 41,Quay 42,Quay 43	26.2	663										
Trondheim	Trondheim	Quay 45,Quay 46	4.9	739										
Trondheim	Trondheim	Quay 55,Quay 56	19.6	765										
Trondheim	Trondheim	Quay 19,Quay 20,Quay 21	16.7	787										
Trondheim	Trondheim	Quay 16,Quay 17	19.6	787										
Trondheim	Trondheim	Quay 26,Quay 27	27.5	787										
Trondheim	Trondheim	Quay 53,Quay 54	19.6	866										
Trondheim	Trondheim	Berth 10 - 13	30	916										
Trondheim	Trondheim	Quay 10-13	30.1	919		1433	10617		9626		573	2654		2417
Trondheim	Trondheim	Quay 28,Quay 29,Quay 30	27.5	949										
Trondheim	Trondheim	Quay 4-9	18	1607										
Trondheim	Trondheim	NA	9.8	4823										
Trondheim	**{PORT TOTAL}**													**2417**
Ulsan	Ulsan	Berth 6-7	42	5167	2070				14080		7930	37584		6320
Ulsan	Ulsan	Yeajeon	39	1509					3250		1740	9396		1470
Ulsan	Ulsan	Automotive	37	2723					7264		4340	18792		3250
Ulsan	**{PORT TOTAL}**													**11040**
Umm Qasr	Umm Qasr Terminal	Berth 6-8	32.8	1800	903	4402	18063		14433	361	1761	4515		3761
Umm Qasr	Umm Qasr Terminal	Berth 5	32.8	820	1354	1557	9031	10660	7205	541	623	2257	4264	1906
Umm Qasr	Umm Qasr Terminal	Berth 1-2	36	1319	2709	2980	18063	4060	13864	1083	1192	4515	1624	3594
Umm Qasr	Umm Qasr Terminal	Berth 9	32.8	564										
Umm Qasr	Umm Qasr Terminal	Berth 9A	32.8	564										
Umm Qasr	Umm Qasr Terminal	Berth 18	32.8	656										
Umm Qasr	Umm Qasr Terminal	Berth 3	36	656										
Umm Qasr	Umm Qasr Terminal	Berth 4	36	656										
Umm Qasr	Umm Qasr Terminal	Berth 10	36	938										
Umm Qasr	Umm Qasr Terminal	Berth 16-17	32.8	1459		2844	9031		7582		1137	2257		1994
Umm Qasr	Umm Qasr Terminal	Berth 19-21	32.8	1977		4877	36126		28812		1950	9031		7373
Umm Qasr	Umm Qasr Terminal	Berth 11-15	32.8	3280		7315	45158		36301		2926	11289		9331
Umm Qasr	**{PORT TOTAL}**													**27959**
Vacamonte	Vacamonte Terminal	Shrimp Pier East	13	197										
Vacamonte	Vacamonte Terminal	Shrimp Pier West	13	197										
Vacamonte	Vacamonte Terminal	Service Pier West	13	200										
Vacamonte	Vacamonte Terminal	Intl East	26	200							200			200
Vacamonte	Vacamonte Terminal	Intl West	26	200							200			200
Vacamonte	Vacamonte Terminal	Fish Wharf	13	300										
Vacamonte	Vacamonte Terminal	Service Pier East	13	360										
Vacamonte	Vacamonte Terminal	Intl South	29	459							300			300
Vacamonte	**{PORT TOTAL}**													**700**
Valdez	Valdez Terminal	Valdez Container Berth	55	1200					10000			2500		2500
Valdez	**{PORT TOTAL}**													**2500**
Varna East	Varna East Terminal	Berths 3-4	21	1109	2064		10321		9990	825		2580		2509
Varna East	Varna East Terminal	Berth 8	35	479										

Note: Worldport database updated December 2010

WORLDWIDE PORT CHARACTERISTICS														
PORT NAME	TERMINAL NAME	BERTH GROUP	DEPTH MLW	BERTH LGTH	BARGE MTON	BB MTON	RORO MTON	CONT MTON	MIXED MTON	BARGE STON	BB STON	RORO STON	CONT STON	MIXED STON
Varna East	Varna East Terminal	Berth 1	23	580										
Varna East	Varna East Terminal	Berth 7	35	587		1625		6080	2159		650		2432	863
Varna East	Varna East Terminal	Berth 9	29	669		1393	10321		8231		557	2580		2106
Varna East	Varna East Terminal	Berth 13	21	721										
Varna East	Varna East Terminal	Berth 12	23	787			10321		10321			2580		2580
Varna East	**{PORT TOTAL}**													**8058**
Varna West	Varna West Terminal	Berths 1-2	29	1250	2257	2438	9031		7326	903	975	2257		1924
Varna West	Varna West Terminal	Berth 0	29	623		1219			1219		487			487
Varna West	Varna West Terminal	Berth 11	29	623		1219			1219		487			487
Varna West	Varna West Terminal	Berth 16	29	623		1219			1219		487			487
Varna West	Varna West Terminal	Berth 17	29	623		1219			1219		487			487
Varna West	Varna West Terminal	Berth 6	29	623		1219			1219		487			487
Varna West	Varna West Terminal	Berths 3-5	32	1876		3657	18063		14691		1463	4515		3800
Varna West	Varna West Terminal	Berths 12-15	29	2502		4877	27095		21895		1950	6773		5644
Varna West	Varna West Terminal	Berths 7-10	32	2502		4877	27095	2020	21280		1950	6773	808	5494
Varna West	**{PORT TOTAL}**													**19297**
Vlissingen	Vlissingen Terminal	Quarles (Sloehaven)	43.6	2895	4520	10550	64510	29020	49770	1810	4220	16130	11610	12940
Vlissingen	Vlissingen Terminal	Floating 3 MEDMORE	43	35			10320		10320			2580		2580
Vlissingen	Vlissingen Terminal	Floating 2	43	82			10320		10320			2580		2580
Vlissingen	Vlissingen Terminal	Floating 1	43	94			10320		10320			2580		2580
Vlissingen	**{PORT TOTAL}**													**20680**
Vlore	Vlore Terminal	East Pier	19	328	829	497	16588		12449	331	199	4147		3133
Vlore	**{PORT TOTAL}**													**3133**
White Beach	White Beach Terminal	Berth 1	35	1584										
White Beach	White Beach Terminal	Berth 2	35	1584										
White Beach	**{PORT TOTAL}**													
Whittier	Whittier Terminal	Delong Pier	33	675										
Whittier	Whittier Terminal	ARRC Marginal Wharf	23	1000										
Whittier	**{PORT TOTAL}**													**1250**
Wilmington DE	Wilmington DE Terminal		34.8	1381										
Wilmington DE	Wilmington DE Terminal		34.8	1408										
Wilmington DE	Wilmington DE Terminal		34.8	2044										
Wilmington DE	**{PORT TOTAL}**													
Wilmington NC	Wilmington NC Terminal	Berths 1-2	38	1212					4000			1000		1000
Wilmington NC	Wilmington NC Terminal	Berths 7-9	42	2650					8000			2000		2000
Wilmington NC	Wilmington NC Terminal	Berths 3-6	42	2899					8000			2000		2000
Wilmington NC	**{PORT TOTAL}**													**5000**
Wonsan	Wonsan	Customs	19	898						212				
Wonsan	**{PORT TOTAL}**													
Yanbu	Yanbu Terminal	B5-7	39	2624	645	8805	51609		40324	258	3522	12902		10383
Yanbu	Yanbu Terminal	B1	34	557	1290	1741			1686	516	696			674
Yanbu	Yanbu Terminal	B2	34	721	1290	2128	10321		8183	516	851	2580		2124
Yanbu	Yanbu Terminal	GenCarCon	45	5851		19160	82575	28660	66524		7664	20644	11464	17415
Yanbu	**{PORT TOTAL}**													**30596**
Yokohama	Northdock Terminal	Berths G-H	32	940					9120		1600	4771		2400
Yokohama	Honmoku Pier	Berth D5	42	984				19500	9500		900	4771		2500

Note: Worldport database updated December 2010

WORLDWIDE PORT CHARACTERISTICS														
PORT NAME	TERMINAL NAME	BERTH GROUP	DEPTH MLW	BERTH LGTH	BARGE MTON	BB MTON	RORO MTON	CONT MTON	MIXED MTON	BARGE STON	BB STON	RORO STON	CONT STON	MIXED STON
Yokohama	Honmoku Pier	Berth D4	42	984				51300	10260		900	4771		2700
Yokohama	Northdock Terminal	Berths A-B	24	1000					6250		600			600
Yokohama	Northdock Terminal	Berths C-D	24	1100					9120		1600	4771		2400
Yokohama	Northdock Terminal	Berths E-F	32	1100				9250	10260		1600	4771		2700
Yokohama	Honmoku Pier	Berth A4	26	1148										
Yokohama	Honmoku Pier	Berths A7-A8	39	1640				29350	26600		2200	14152		7000
Yokohama	Honmoku Pier	Berths A1-A3	33	1968					18240		2700	9382		4800
Yokohama	Honmoku Pier	Berths A5-A6	39	1968				48500	25440		2600	9382		5300
Yokohama	Honmoku Pier	Berths D1-D3	36	2034				38750	27360		2600	14152		7200
Yokohama	**{PORT TOTAL}**													**37600**
Yokosuka	Nagaura Pier Terminal	Nagaura1	32.8	328	1290				1290	516				516
Yokosuka	Nagaura Pier Terminal	Nagaura2	32.8	328	1935	1741	10321		8115	774	696	2580		2096
Yokosuka	Kurihama Pier Terminal	Wharf 2	16.4	269										
Yokosuka	Shinko Pier Terminal	Wharf 4	14.7	315										
Yokosuka	Nagaura Pier Terminal	Nagaura Futo Wharf	29.5	502										
Yokosuka	Nagaura Pier Terminal	Nagaura Futo Jetty Inside	16.4	656										
Yokosuka	Shinko Pier Terminal	ShinkoWf1	32.8	656		2032	10321		8381		813	2580		2166
Yokosuka	Shinko Pier Terminal	ShinkoWf2	32.8	656		2032	10321		8381		813	2580		2166
Yokosuka	Kurihama Pier Terminal	Kurihama Wharf	21.3	755										
Yokosuka	Kurihama Pier Terminal	Negase Wharf	14.7	781										
Yokosuka	Shinko Pier Terminal	Wharf 3	14.7	817										
Yokosuka	Kurihama Pier Terminal	Wharf 1	24.6	837										
Yokosuka	Shinko Pier Terminal	Pier 1,Pier 2,Pier 3	18	1000										
Yokosuka	**{PORT TOTAL}**													**20832**
Yosu	Yosu	Container 1	46	1148	5510			15600	11920		2070	9396		4250
Yosu	Yosu	Container 2	46	1148		4340	22000		4970		1740	5510		1470
Yosu	Yosu	Container 3	46	1148		4340	22000		4970		1740	5510		1470
Yosu	Yosu	Container 4	46	1148		4340	22000		4970		1740	5510		1470
Yosu	**{PORT TOTAL}**													**8660**

Note: Worldport database updated December 2010

APPENDIX D

Mathematical Conversion Factors for Units of Measure

TO CONVERT	TO	MULTIPLY BY
1. Weight Measure		
a. Short Tons	Pounds	2,000.00
	Long Tons	0.893
	Metric Tons	0.907
	Kilograms	907.2
	Measurement Tons	*
b. Long Tons	Pounds	2,240.00
	Short Tons	1.12
	Metric Tons	1.016
	Kilograms	1,016.05
c. Metric Tons	Pounds	2,204.50
	Short Tons	1.102
	Long Tons	0.984
	Kilograms	1,000.00

TO CONVERT	TO	MULTIPLY BY
2. Volumetric Measure		
a. Measurement Tons	Cubic Feet	40
	Board Feet	600
	Short Tons	*
b. Displacement Tons	Cubic Feet	35
c. Register Tons	Cubic Feet	100
d. Cubic Feet	Cubic Inches	1,728.00
	US Gallons	7.481
	Imperial Gallons	6.229
	US Barrels	0.178
	Liters	28.316
	Cubic Meters	0.028
	Measurement Tons	0.025
e. Cubic Feet of Lumber	Board Feet	12

TO CONVERT	TO	MULTIPLY BY
2. Volumetric Measure		
f. US Gallons	Cubic Inches	231
	Cubic Feet	0.134
	Imperial Gallons	0.833
	Liters	3.785
	Cubic Meters	0.004
g. US Barrels (Liquid)	US Gallons	31.5
	Cubic Inches	7,276.00
	Cubic Feet	4.211
	Imperial Gallons	26.228
	Liters	119.23
	Cubic Meters	0.119
h. US Bushels	Cubic Feet	1.245
i. Imperial Bushels	Cubic Feet	1.284

TO CONVERT	TO	MULTIPLY BY
3. Area Measure		
a. Square Feet	Square Yards	0.111
	Square Meters	0.093
b. Acres	Square Feet	43,560.00
	Square Yards	4,840.00
	Square Meters	4,047.00
	Hectares	0.405
c. Square Miles	Acres	640
	Hectares	259
	Square Kilometers	2.59
d. Square Meters	Square Feet	10.764
	Square Yards	1.196
e. Hectares	Square Yards	11,960.00
	Acres	2.471
	Square Meters	10,000.00

TO CONVERT	TO	MULTIPLY BY
4. Linear Measure		
a. Feet	Inches	12
	Yards	0.333
	Centimeters	30.48
	Meters	0.305
b. Yards	Feet	3
	Meters	0.914
c. Rods	Feet	16.5
d. Statute Miles	Feet	5,280.00
	Yards	1,760.00
	Nautical Miles	0.869
	Meters	1,609.35
	Kilometers	1.609

TO CONVERT	TO	MULTIPLY BY
5. Miscellaneous		
a. Miles per Hour	Feet per Minute	88
b. Barrels (Oil)	Gallons	42
c. Tons (Seawater)	Cubic Feet	35
d. Tons (Freshwater)	Cubic Feet	36
e. Cubic Feet (Seawater)	Pounds	65
f. Cubic Feet (Freshwater)	Pounds	62
g. Passenger Tons	Short Tons	9 Pax to 1 STON