

Maritime English

A Comprehensive & Updated Maritime English C.L.I.L. (Content and Language Integrated Learning) Handbook for Deck and Engine Officers in conformity with I.M.O International Convention on Standards of Training, Certification and Watch Keeping for Seafarers (S.T.C.W.) and I.M.O. Model Course 3.17



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UNIT 1 TYPES OF VESSELS

Merchant ships may be broadly classified as :

- 1) **Liners;**
- 2) **Tramps;**
- 3) **Specialized vessels.**

Liners are vessels which operate on a regular schedule service in a prearranged route irrespective of whether they are full or not. They have advertised dates of departure and arrival, and can carry **cargo** or **passengers** or both.

Passenger liner are designed to carry people from one place to another at a high speed and in great **comfort**. Most of them carry mails and a small amount of cargo. Their arrival and departures follow a strict schedule.

Cargo liner or **freighter** carry a cargo on a fixed route and has a fixed schedule, although a few of them have **accommodation** for up to 12 passengers. The sizes and types of cargo liners vary according to the **routes** they follow and the cargo they deal with. Most of them carry **general cargo**, although **bulk cargoes** are sometimes carried, and some are designed to transport **perishable cargoes**, in **refrigerated holds** and **compartments**.

Tramps, or **general trader**, on the contrary, do not sail on a fixed route as a rule. They are usually cargo vessels whose ports of **call** are governed by the necessity of carrying certain cargoes from place to place. Most of all they carry bulk cargo such as coal, timber, grain, sugar, ores, fertilizers, copra etc, which are carried in complete shiploads, while they do not usually carry passengers. The port of calls of tramps will differ according to the time of the year and commercial demands, so that tramps might roam from ocean to ocean for a considerable time before returning to their home port. These vessels must satisfy a number of conditions to be commercially worthwhile; they must be of sufficient size to carry a profitable cargo and must be able to cope with bad weather in any ocean.

They must not be too large to enter the smaller ports of the world; speed is necessary but increases **running costs**, so a compromise between **fuel** consumption and speed, or "**dispatch**", is desirable.

Bulk carriers

Bulk carriers are vessels designed to carry loose cargo **in bulk**. These ships are usually discharged by **grabs** or by **suction pipes**. The loading is carried out by feeding the cargo through a **shooter** or by mean of a **conveyor belt**. Bulk carriers have large upper and lower ballast tanks to facilitate automatic grain stowage and to provide the empty ship enough draught and a better behaviour when it is empty in transit. Ships carrying **ore** have a special design and since ore is very heavy (its **stowage factor** is about 0.5 m³/t) vessels need only small holds to be fully loaded. Holds should not be located too low or too close to the sides of the vessel. Some bulk carriers can also operate as tankers. This combination carrier is often called an Ore Bulk Oil (**OBO**) carrier, a multi- purpose bulk carrier designed for **switching** between bulk shipments of oil, bulk grain, fertilizer and ore trades. This type of vessels with engine **aft** are growing in popularity.



OBO carrier

Crude Oil Tankers

Crude oil tankers are vessels which are used to carry crude oil from a loading port near an **oil field** or from the end of a **pipeline** to a **refinery**. Usually these ships are very large. Their carrying capacity is up to 500,000 tons and usually have a limited number of tanks (18-21), and two or three **slop tanks**. Ballast tanks are located besides or below the cargo tanks. New tankers are compulsorily **double-hull**.

The large crude oil tankers are subdivided into the following classes:

- Ultra Large Crude Carriers (**ULCC**) with over 300,000 dwt
- Very Large Crude Carrier (**VLCC**) with 200,000- 300,00 dwt
- Suez max (old max Suez draught) ca. 150,000-160,000dwt
- Aframax (Standard size tanker of ca. 105,000dwt).



VLCC



AFRAMAX

Crude oil tankers receive their cargoes from shore facilities through a **hose** or via a flexible pipeline arm mounted on the **jetty** in port. The hoses are temporarily connected, at mid height, to transverse pipes on deck (**manifolds**). Oil is pumped on board by shore pumps. From the transverse lines, oils goes to drop lines, vertically down into the ship, to the bottom lines. Three or four longitudinal pipelines with **branches** deliver oil to each tank. A **valve** is installed at the end of each branch. To discharge oil, the vessel' pumps in the **pump room** draw oil from the cargo tanks, and press it upwards to the deck lines, from aft to the manifolds located midships. There are various valves to isolate pumps, tanks and separate pipelines from each other. Loading and discharging takes 24-36 hours per operation.

In addition to the cargo pipeline system, the following cargo related pipeline systems can be found on deck and in the tanks:

- **Inert gas system** to fill up the empty spaces created while discharging with inert gas (a gas with no oxygen) to prevent explosions. Oil will not burn as long as the percentage of oxygen is below 5%. Inert gas is also used to slow down corrosion of ballast tanks. During the loading inert gas is discharged into the atmosphere.
- **Tank-wash system** used to eliminate deposits from the inside wall before repairs, docking or reloading. During discharging, the tanks are washed with cargo, to reduce sediments. Before dry-docking or repairs, tanks are washed with water, through the same system.
- **Heating coil system** in at least the slop tanks. Usually crude does not need to be heated during the voyage.
- **Ballast system**, to fill and empty the ballast tanks, which is fully separated from the cargo system.

Product tankers

Unlike crude oil, the term "products" refers to the products of refineries and petrochemical industries. Product tankers have a large number of tanks with a total carrying capacity of about 50,000 tons. The piping systems on a product tanker are different from those used for crude oil tankers. Usually each tank is provided with its own filling and discharge line to the manifold and its own cargo pump. Possible cargo are oil product such as gasoline, kerosene, naphtha, diesel oil, **lubricating oil**, bitumen, but also vegetable oil, wine, drinking water and orange juice.