

# Cargo Handling

Independent merchant ships, often called Far Traders, make most of their money carrying and delivering someone else's cargo. Either the ship's captain or his representative hires local business agents in place on each planet they frequent to find them cargos. If occasionally the agent may not have a cargo arranged and will visit the local spacer's guilds or unions where numerous cargos are listed for trans-shipment. The vast majority of commercial starships operate on a standard route of four planetary destinations per month. By arriving at the same planetary location at a preset date allows the agent to schedule cargo availability.

Once a cargo is found the agent coordinates with a shipping company who for a fee will arrange for the cargo lot to be marked with the ship's ID number, the agent's booking number and the port of discharge and transported to a storage location awaiting the merchant ship's arrival. Depending upon the type of cargo, it will be placed in either a secured warehouse or within a fenced cargo storage location. Often the cargo will be insured (usually .5% of its value). The shipping company will coordinate with the Port Master's representative will check the volume and weight of the cargo and insure that all documentation and export taxes are accounted for.

Every merchant ship has a Cargo Master (CM) assigned who creates a "pre-stow" or "cargo plan" along with a graphic representation of the cargo bay layout, and presents it to the captain. The master of the ship makes his changes and approves the plan. The plan is executed by stevedores while being supervised by the CM. A decision is made as to how many loading gangs will be used, and the loading can begin. The gangs will utilize either Anti-Grav Lifters (AGLs), Hydraulic Exo-Frames (HEFs) or dedicated cargo robots to stow the cargo. One or more AGLs or HEFs are routinely carried aboard commercial vessels.

When planning the stowage of a vessel, the CM takes into consideration the following factors:

**The Capacity of the Vessel in Cubic Measurement.** This is the volume of cargo that can fit into the vessel, including empty space which cannot be filled due to the characteristics of the cargo or bay. The total space occupied by an amount of a commodity is known as the stowage factor in cubic units per ton. The combined stowage factor of all the cargo and the spaces into which it will be loaded is used to calculate the capacity for that voyage.

**The Vessel's Resources to Handle Cargo.** If the ship calls at a port where there's no planet — or orbital cargo handling gear, the ship's own gear must have the capacity to lift the cargo, or there will be no way to discharge it.

**The Vessel's Port Rotation.** The cargo must be loaded in such a way that it may be discharged according to the astrographical rotation of the ship, without having to shift any cargo to subsequent ports. To do this, the CM must know how the ship's hatch covers operate, including the tweendeck covers, and all the idiosyncrasies of the vessel.

**The Turn-Around Time of the Vessel.** Work should be organized in such a manner that as short a time is spent in port as possible. A ship only earns money for the carrier when she is moving. Time spent in port earns no money. The ease of work at discharging ports is also considered. There is no point in gaining time at a load port if a lot of time is lost at the discharge port.

**Securing of the Cargo.** When the ship is using her maneuver drives, she's subject to vector changes causing roll, pitch, yaw or an infinite combination of all three. This motion can sometimes be quite severe. Another point is the trim of the vessel. This is the difference between the weights forward and aft,

as well as port and starboard. Improper trim may affect the handling and behavior of the vessel while in an atmosphere. If the cargo is not properly secured to the vessel's deck, it will move around causing damage to not only itself, by other cargo, and to the vessel. In some cases, the ship could be lost due to unsecured or improperly stowed cargo. Specific types of cargo may also need special handling or storage conditions, i.e., livestock, refrigerated goods, plant seeds, live seafood or explosives.