Chapter 48

Palletised Cargoes

Wooden pallets are used extensively for the transportation of cargo, both in containers and in conventional breakbulk seagoing ships. Palletising of cargo helps to speed up cargo handling operations by consolidating merchandise into units that can be easily and rapidly handled. Both the efficiency and the reliability of the system depend upon the quality of the construction of the pallet and on the measures taken to protect the goods and to secure them in place.

Care should be taken not to stow pallets of inadequate construction as this is likely to lead to widespread collapse of the stow and damage to the cargo.

When pallets were first introduced into the trade, they were generally of robust construction. As experience was gained, it was found necessary to secure the goods adequately to the pallet by means of metal strapping bands and to protect them by providing a covering.

Nearly all palletised cargoes are received directly from the producers/manufacturers of the goods, and shippers and shipowners should appreciate that, while pallets may appear to be adequate when stacked ashore in a warehouse, they must be strong enough to be transported to the docks, unloaded, picked up by forklift trucks, carried over uneven surfaces and finally loaded on board ship.
There are formal recommendations covering the design, construction and strength of pallets. These are set out in ISO 6780:2003 (Reference 79). Some freight conferences specify the standards they require to ensure that a pallet will be capable of handling its proper load adequately and supporting four tiers of similar pallets.

Flimsy pallets, constructed from soft wood and designed for storage of lightweight cargo in warehouses, are sometimes presented for loading onto ships. They may be dangerously overloaded and unable to withstand the rigours of an ocean voyage or stevedoring operations. In some cases, where the design is adequate, the materials used and the standards of workmanship are poor.

Experience shows that little consideration is given to whether the strength of the pallet matches the weight of the goods it is to carry. Often, the dimensions do not match, with the result that bags or cartons project beyond the edges of the platform. Frequently, the merchandise is badly stacked or badly secured and is in danger of shifting.

Other inadequacies relate to the methods of securing goods to the pallets. One mechanism is the shrink plastic cover, which is applied by placing a large piece of plastic over the stack of cartons or bags on the pallet and then applying heat at the folds to shrink the plastic onto the load. Many shippers mistakenly consider that this affords adequate packing and protection and frequently, when a shrink plastic cover has been applied and extended downwards to embrace the pallet, a load of substantial weight may be mistakenly considered to be secured. If the load is secured to the pallet by any other means, this is often in the form of weak, flimsy plastic strapping that stretches easily. Subsequently, during the various stages of transportation and as a result of the jolts, jars and tilting that are experienced, pallets quite commonly break or even fall to pieces, or loads become lopsided and unstable and sometimes fall off, ending as damaged breakbulk cargo.

The method of handling pallets within dock areas may also leave something to be desired. Where forklift trucks are utilised, the forks may be misdirected, penetrating the goods rather than passing beneath the platform. If the cargo is in bags or containers and consists of a liquid or some form of granular material that sifts or runs easily, the entire stability of the load then becomes endangered to such an extent that it may in due course disintegrate. When bagged cargo bulges through the gaps of the planks forming the platform, or where in weak pallets the planks in the platform break, damage can occur when the pallet is picked up. If the forks pierce the bulging part of the sack, the contents will pour out and the stack or load is rendered unstable.

### 48.1 Handling of Pallets

- Where slings are utilised, particularly wire slings, they should be of adequate strength. At the very least, wide nylon belts and spreaders should be utilised
where forklift trucks are utilised in handling pallets, care should be taken to ensure that the forks are not pointing parallel to the base boards of the pallets, otherwise there is a danger of tearing from below.

where it is necessary to load pallets in twos, this should be by utilising special lifting equipment.

Photos 1 and 2: Note the platforms that have to be used in order to load damaged pallets on board the ship.

In Photo 1, it can be seen that the pallet is already breaking up. The stack, even though cross-tier stowed, consists of polypropylene woven sacks that slide easily upon each other, with the result that the stack becomes unstable and leans over.

Photos 3 and 4: This shows goods in stow, with leaning stacks and pallets that are broken, bending or bulging.

Photo 4 shows a method of slinging that causes extensive damage to such pallets.

where pallets are handled singly, perhaps because of the low safe working load (SWL) of the crane, they should be handled on solid pallets with suitable pallet-lifting gear attached.

the use of C-hooks, originally developed for the handling of fruit cargoes, is now widespread on palletised goods and has proved very successful.

where holds are completely filled with pallets, the incorporation of ‘key pallets’ in the stowage will assist at the time of discharge. This may be achieved by pre-slinging the pallets with strops or other similar suitable appliances to gain access to the remainder of the stow.

48.2 Stacking of Pallets

When stacking goods on pallets, a number of steps can be taken to prevent or reduce some of the more obvious problems:

- The platform of the pallet should be covered with a sheet of cardboard to prevent bulging bags or damage by contact with the sharp edges of the timber platform.
- to prevent stacks of polypropylene or paper bags sliding, a square of strong kraft paper can be inserted between each horizontal tier to bind the layers of bags together
- where multiple paper bags are concerned, the bags can be attached to each other by a patch of glue on the centre surface of each bag
- to prevent the secure strapping from damaging the bags when tightened, a thin square plywood sheet or a sheet of strong cardboard should be placed on the outer perimeter edge of the pallet platform and inserted between the securing bands and the bags. This will also provide protection against the fork ends of the lifting trucks.