



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, the design of the pallets may be adequate, but 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, resulting in bags or cartons projecting 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 form is the shrink wrap 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.

It is a common misconception that this method alone ensures adequate packing, and that the entire load is therefore secured to the pallet. If the load is secured to the pallet by any other means, this is often in the form of weak plastic strapping that may stretch easily.

During the various stages of transportation, as a result of the forces acting upon the ship and its cargo, pallets can break or fall apart. Loads can also become lopsided and unstable, potentially ending up as damaged breakbulk cargo.

The method of handling pallets within dock areas may also cause damage to the pallets and/or goods. Where forklift trucks are used, the forks may be misdirected, penetrating the goods rather than passing beneath the pallet. This is particularly important if the cargo on the pallet consists of a liquid or some form of granular material (in bags) that shifts or runs easily. The stability of the load can be compromised by leaking cargo. When bagged cargo bulges through the gaps of the planks forming the pallet base, or where the planks in the pallet base break in weak pallets, damage can occur when the pallet is picked up.



Figure 48.1: Example of best practice when transporting palletised items by sea. The contents of the heavy duty bag do not overhang the pallet, they are wrapped in plastic to avoid weather damage or items spilling, and the item is secured to the pallet with plastic strapping. The ship's crane can then lift the heavy duty bag/pallet by its lifting strops.

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 the longitudinal timbers from the base
- where it is necessary to load pallets in twos, this should be achieved by utilising special lifting equipment
- 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.

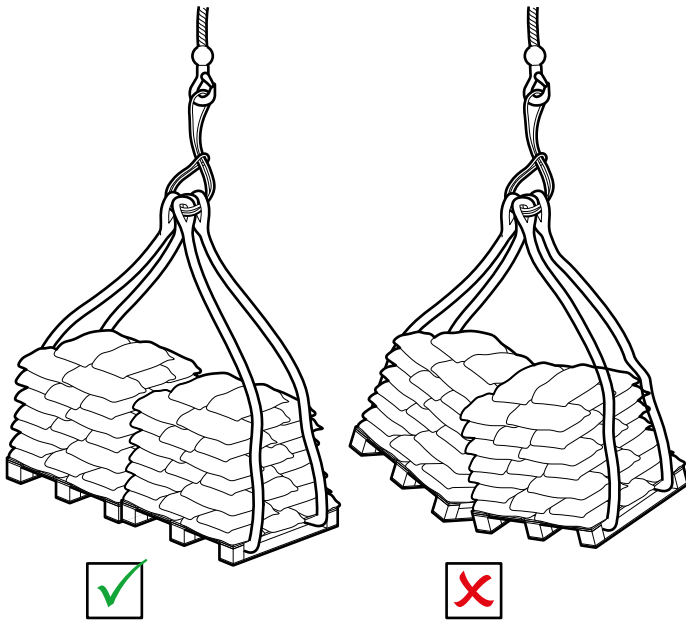


Figure 48.2: Example of best practice for handling palletised cargoes.

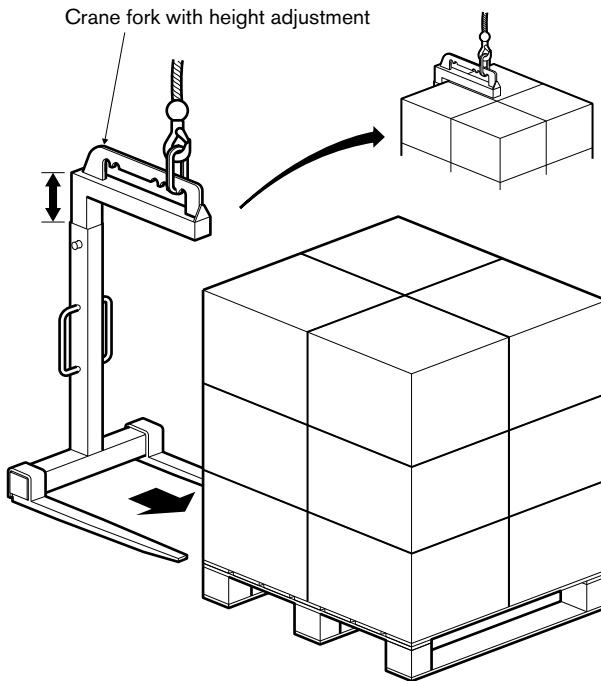


Figure 48.3: A 'C-hook', which is a more stable way of lifting pallets when compared to strops and slings.

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:

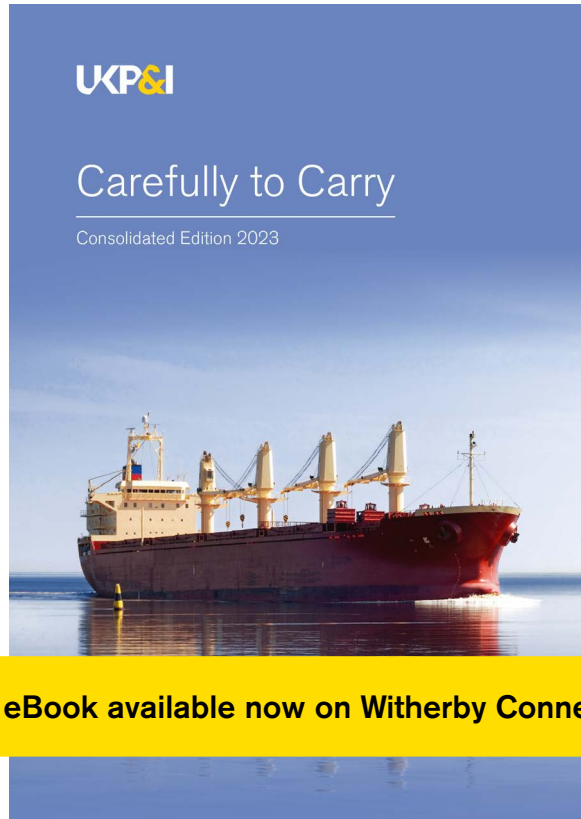
- The platform of the pallet should be covered with a sheet of cardboard to prevent bulging bags or damage by contact with the sharp edges of the timber platform
- to prevent stacks of polypropylene or paper bags sliding, a square of strong kraft paper can be inserted between each horizontal tier to 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.



Figure 48.4: Engine spares and equipment are regularly stored and transported on pallets. These can be hard to rig and lift due to the centre of gravity (CG) of the item being unknown.



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