

# Standard Cargo

The Standard



## A Guide to the Carriage of Oversized Cargo - Yachts

March 2010



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### Oversize cargo

The Standard Club's loss prevention programme focuses on best practice to help avert those claims that are avoidable. In its continuing commitment to safety at sea and the prevention of accidents, casualties and pollution, the club issues a variety of publications on safety-related subjects. This is the second in our series of *Standard Cargo*, which will address issues relating to the stowage and carriage of various types of cargo. The club also produces *Standard Safety* three times a year, which addresses safety and loss prevention issues facing masters and shipowners. The club also produces its *Master's Guide* series, focusing on more in-depth issues such as:

- Container securing
- Ship's piping
- Berthing
- Shipboard accident response
- Hatch cover maintenance

This issue is the first of two *Standard Cargo* publications that deal with items of cargo that are an unconventional shape or size, are difficult to handle or are difficult to secure, and that may require specialist knowledge in order to ensure safe carriage. Such items include yachts, large reels, pieces of machinery, tanks and vehicles. These are often carried on flatrack containers on deck on both container ships and on general purpose ships. In this article, we give general guidance and advice that applies to all 'oversize' cargo and then concentrate on the carriage of yachts. In the next issue of *Standard Cargo*, we will deal with the various other types of unconventional items. This is not a guide into the securing or lifting of heavy lift cargo.

### Yachts as deck cargo

Ship's officers used to be experienced in loading project, heavy lift and unusual cargoes. The art of ensuring that the lift was safely slung, properly stowed and correctly lashed was something learnt through experience. Deck officers and crew knew what was needed to prepare for the lift and stowage. It would appear that much of this basic knowledge has been lost, or possibly it is now considered someone else's responsibility. Nowadays, these cargoes are often carried on container or combination carriers, where the cargo is sometimes already loaded on a flatrack or on its own cradle, or may be presented alongside on a simple skid without any information about lifting the unit or how best it might be secured.

The principles for carrying yachts are often the same as those for the safe carriage of other high-value deck cargo and the examples shown here can be applied to other large high-value out of gauge cargoes.



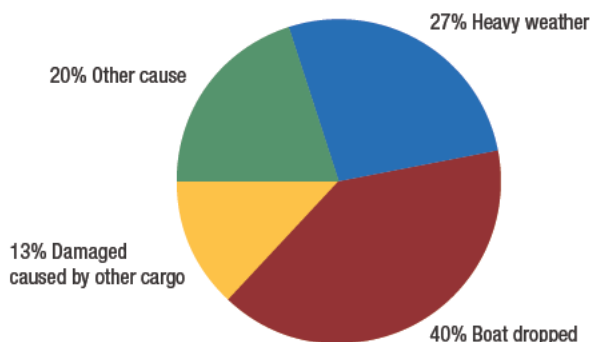
TANDEM LIFT - IN THE WATER

The graph below, produced from an analysis of claims, indicates that in 40% of cases, the yacht was dropped during loading or discharge. In all of these cases, the yacht was lifted in a pair of slings and hoisted by one or two cranes/derricks. Special care is required when using two cranes in tandem, particularly with inexperienced crews and/or stevedores.

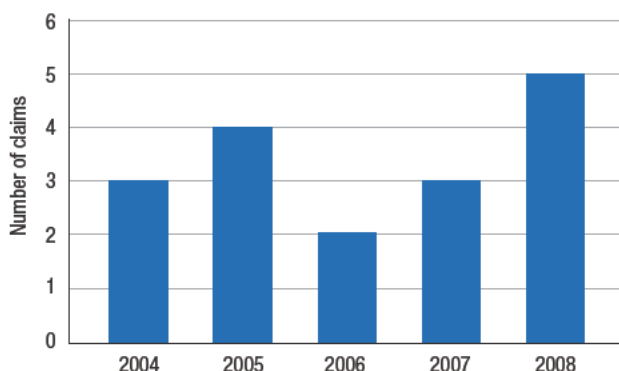
The 20% of incidents illustrated as 'Other cause' were a result of carelessness on the part of stevedores and shore-workers. For example, a yacht lashed on deck was struck by one of the ship's pontoon hatch covers when being lifted by the ship's crane.

The second-largest cause of damage is due to heavy weather, which implicates the stowage position and exposure of yachts on deck, as well as the ability of the lashing arrangement to withstand violent movements of the ship.

**PERCENTAGE OF CLAIMS BY ACCIDENT TYPE**



**NUMBER OF CLAIMS BY YEAR**



## 1. General advice for 'oversize' or 'out of gauge' cargo

The acceleration that acts on a ship in a seaway and on items of cargo stowed on board, caused by the wind and wave conditions being experienced, will be mostly a combination of longitudinal, vertical and transverse motion, with rolling of the ship being the predominant cause. In order that a piece of cargo does not move in stowage, those longitudinal, vertical and transverse forces must be absorbed by the securing arrangements, which might comprise lashings alone or a combination of lashings and shoring/bracings. Those forces can be minimised by placing the cargo item in an appropriate stowage location, and by loading/ballasting the ship appropriately so that the metacentric height is a reasonable value for the cargo, ship and voyage. Planning the voyage is important to consider, particularly for high-value cargoes, heavy cargoes and/or cargoes that are difficult to secure due to their shape or size. The voyage should be planned so that it does not involve the ship entering areas where adverse weather and sea conditions, beyond what is acceptable, are encountered. A prudent voyage plan with the exercise of good navigation and seamanship should ensure that the motions of the ship do not become excessive and overstrain the cargo and securing arrangements.

The transportation of an item of cargo can be divided into the following activities, each of which must be properly planned and executed. These include:

### A. Loading of the cargo

- obtaining information about the cargo
- planning the suitable and appropriate stowage location for the cargo
- calculating worst-case stability during the lift
- planning the lift of the cargo
- managing the lift (personnel/communications/who is in charge)

### B. Securing of the cargo

Ensuring there are:

- adequate lashing points
- appropriate securing arrangements
- necessary lashing materials
- necessary shoring/bracing materials
- measures to check securing/tensioning arrangements

### C. The voyage

- voyage planning
- stability check
- cargo inspection routines by competent personnel
- contingency plans for emergency situations

### D. Off-loading the cargo

- planning the lift
- calculating worst-case stability during the lift
- managing the lift (personnel/communications/who is in charge)

### E. Recording

- properly recording all events for future reference

Guidance should be obtained from the Cargo Securing Manual and from the IMO Code of Safe Practice for Cargo Stowage and Securing. Further information is given in the Nautical Institute's Guide to Lashing and Securing of Deck Cargo.

## 2. The lift

A recent incident involved a motor yacht being loaded on to a ship in South America. The 25 metre GRP yacht was lifted straight from the water on the outboard side using slings, with two cranes working in tandem. During the lift, the yacht slipped out from the slings and re-entered the water, where it capsized, drifted down stream and sank in the port's navigation channel.

When the lift arrived to be loaded, the yacht's weight was found to be twice that originally declared to the master and it was decided that two cranes working in tandem would be required to carry out the lift. The crane drivers were provided by the stevedoring company and the loading of the yacht was monitored by the charterer's port captain, chief officer and crew. The five-man yacht delivery team put the slings in place prior to lifting. On the first attempt to lift the yacht, it was lowered again because the yacht was not balanced level in the slings. Once repositioned, the yacht was lifted out of the water to the ship's deck level. As the yacht was being brought over the ship's rail, it slipped forward out of the slings and fell into the water.

The lack of information supplied to the ship, despite the master's request, meant that the master was unable to agree with, check or formulate procedures for the lifting operation prior to the lift. He relied on the verbal assurances of the charterer's and shipper's representatives.

Confirmation of where slings should be positioned should be sought from the shipper; they should be able to produce a drawing plan and confirmation of the longitudinal centre of gravity of the yacht. In this incident, the aft sling was correctly positioned whilst the forward sling appears to have been placed too far aft.

The master must be satisfied that the lift organisation is managed correctly. It was stated that it would have been confusing for the two crane drivers and signalman because of the large number of personnel on deck.

#### The master must:

- insist on receiving information from the charterers or agents about the deck cargo to be loaded prior to arrival, such as shape/size/dimensions/weight
- insist on information about the yacht's slinging arrangements, centre of gravity and lashing arrangements - pictures are easily faxed or sent by email
- ensure that the loading plan has been agreed, that is, how the lift is to be loaded, with or without the cradle, who is slinging the lift, how is the lift to be slung - talk to the representatives from the yacht builder or charterer's surveyor
- ensure that there is a person nominated to be in charge of the lift, for example, the master should confirm the yacht loading procedure with the charterer's port captain, who may be in control of the cargo operation on behalf of the charterer
- be satisfied that the stevedores operating the ship's cranes are familiar with the controls, particularly when operating two cranes in tandem
- ensure that the ship's gear is in class, fully operational and with sufficient SWL
- be satisfied that the position of the slings is correct, and that the slings are in good order and of suitable safe working load





### 3. Managing the lifting/discharge operation correctly and safely

Problems often arise when yachts are loaded and discharged by stevedoring firms that lack knowledge and experience in handling yachts. Incidents are most likely at ports that allow only their own stevedores to load and discharge ships. It is recognised that a significant number of incidents are the fault of inexperienced and poorly managed stevedores and crane drivers. Additionally, where there is a poor economic climate, general cargo freight forwarders are known to accept cargo such as yachts even if they have little or no experience with this type of cargo.

#### **Masters must have control over what is happening on their deck.**

- an experienced person should conduct a risk assessment and ensure the master is equipped with all the information required prior to the lift being carried out

In a recent incident, damage was caused to a yacht's propellers and shafts after the lift made contact with the ship's hatch cover during discharge. It was found that the declared weight of the yacht was incorrect and the true weight exceeded the safe working limit of the ship's crane. The shipowner was faced with a claim for damage to the yacht.

### 4. Damage caused by other cargo

Statistics indicate that 13% of claims for damage to yachts as deck cargo are caused by other cargo. Where other cargo is carried adjacent to yachts, whether on the hatch cover or in the hold, consideration needs to be given to the effectiveness of the securing and lashing of the adjacent cargo. Poorly lashed and stowed cargo can cause considerable damage should it break loose.

### 5. Heavy weather

Heavy weather is a significant cause of deck cargo damage and responsible for over 27% of incidents involving damage to yachts carried on deck. Where possible, yachts on deck should be stowed fore-aft with the bow pointing forwards. However, larger yachts are often stowed athwartships to allow a better securing arrangement and to reduce the transverse racking of the cradle. Heavy rolling can cause lashings to loosen, cradles to be weakened and the cargo to start to shift.

The image (below) shows yachts stowed on top of containers at the forward part of the ship. One of these yachts was lost overboard during heavy weather encountered in the Atlantic Ocean during the winter. An image (on page 7) shows a yacht correctly secured on deck in a protected location.

#### **Do:**

- position yachts carried on deck where they are protected from boarding seas
- ensure that the cradle is substantial and fit for purpose
- ensure that the yacht and cradle are properly lashed
- check lashings regularly

#### **Do not:**

- position the yacht in an unprotected position at the top of a stow forward during the winter months

### 6. Lifting slings

In a number of reported incidents, the yacht fell or slipped from the lifting slings. On each occasion, the yacht slipped forward and then out of the slings because the slings were incorrectly positioned.

The lifting slings should always be in a good condition and with the appropriate safe working load.



**YACHT POORLY LASHED IN AN EXPOSED LOCATION**

**The yacht should be supported according to the builder's instructions. The positioning of slings should take into account the:**

- location of the centre of gravity of the yacht, which is usually aft of amidships because of the weight of the engines and other equipment
- strength members and strong points inherent in the design of the yacht
- shape of the yacht in its cradle to ensure a safe landing on the deck or ground
- weak areas of the yacht
- location of propulsion and steering gear and other fixings on the hull
- shape of the hull and above-deck obstructions

Responsible shippers/boat builders may mark the slinging points on the hull of the yacht. However, this is not always the case. The image on the right shows slinging marks on the hull (highlighted by red hoops).

## 7. The cradle

It is important to check that the cradle is suitable for sea carriage and not a yard cradle designed for static loads shoreside. A cradle designed for sea carriage should be a solid and fully connected self-supporting structure. They will usually be of steel construction and the parts preferably should be welded. Particular attention must be given to a cradle that consists of parts bolted together. A cradle consisting of separate and unconnected supports should not be accepted.

The cradle can be subjected to considerable forces when on a moving ship. The responsible officer on board should carefully inspect the cradle to be reasonably satisfied that it appears to be suitable for purpose and is in a seaworthy condition. Cradles designed specifically for sea transport may have securing points but most have no arrangements for securing and this fact alone often causes difficulty.

If the yacht is to be lifted and placed on a cradle, the cradle should be carefully observed when the yacht is loaded on it. If the cradle sways or shows signs of not being sturdy under the load then it is not suitable. The master should ensure that his owner and cargo interests are informed. The cradle should be secured according to the shipper's requirements.

A yacht should be placed on its cradle in such a manner that the chocks of the cradle are aligned with the transverse strength members of the yacht.



**YACHT PROPERLY SECURED ON A FLAT RACK FOR SEA TRANSPORT**

## 8. Use an expert

Super-yacht builders in general do not build cradles. For large yachts to be properly and safely loaded and stowed, appoint a suitably experienced surveyor or marine logistics firm.

**If the yacht is to be shipped, a specialised logistics company would normally be employed to ensure/conduct the following:**

- prepare the yacht for lifting
- carry out all handling procedures according to manufacturer's requirements
- supply specialised shipping cradles, often requiring bespoke fabrication
- provide yacht details and technical drawings
- mark lifting points on the hull of the yacht
- review all lifting and lashing equipment to be used, appropriate to the size and weight of the yacht
- appoint an experienced load superintendent and other staff to co-ordinate the whole operation
- direct the lifting of the yacht and/or cradle
- ensure the yacht and cradle are properly loaded onto/off the ship correctly, and check the lashing arrangements are suitable given the characteristics of the carrying ship, intended route and weather conditions, and check there is an appropriate stowage position
- that all equipment used is appropriate given the size and weight of the yacht

Yachts are often delivered alongside on their cradle and loaded as a unit. It is then better to discharge them in the same manner. If a yacht is to be floated on discharge, it is preferable to launch it from its cradle ashore and not separate it on board.

## 9. Lashings

Once loaded, the yacht must be lashed directly to the ship's structure; it is not sufficient to just secure the cradle. This also applies when the cradle and yacht are presented for shipment on a flatrack container.

The lashings must be compatible with the fabric of the yacht and where possible, webbing lashing should be used. The yacht and cradle should be secured according to the shipper's requirements, with particular consideration given to the amount of tension applied to each lashing point. Yachts of a delicate construction can be damaged by simply over-tightening a webbing and ratchet lashing system.

Lashings led over the yacht need to be placed carefully to ensure they do not squeeze or pinch the yacht and cause cracking of the hull or superstructure, or damage the rubbing strake or rails.

Hull coatings should be protected from the lashing arrangement. Slight damage, including scratches on the hull and other surfaces, may result in a claim and can be costly to repair.

Yachts rarely can be found with good securing points designed for the purposes of securing them for sea transport. If strong points can be identified on board the yacht, they should be utilised in the lashing arrangement. Good use should be made of fairleads and other mooring equipment on the yacht. However, cleats and other equipment on smaller boats may easily be ripped off and should not be used.

The picture (below) shows a yacht properly secured on deck.

- heavily constructed cradle of wood and steel
- chocks are welded on the deck to locate the cradle
- cradle secured with heavy chains
- yacht is lashed to the cradle with webbing slings
- yacht is lashed to the deck with both webbing and small chains that lead through the yacht's fairleads

Lashings should be monitored throughout the voyage to ensure they remain taut. Regular inspection is particularly necessary where webbing straps have been used, as woven polyester fabric can stretch and cause the lashings to loosen. At all times, the load on the lashings should remain balanced.



A YACHT SUPPORTED ON A SOLID CRADLE OF STEEL AND WOOD CONSTRUCTION AND ADEQUATE CHAIN AND WEBBING LASHINGS



## Key points

The master should:

- have knowledge and control of the load/discharge operations on his ship
- ensure that all the information is available in respect of the cargo: weight including distribution/centre of gravity, lifting points and required lifting arrangements
- ensure that deck officers are aware when a high-value cargo is being loaded
- load the cargo in a safe position, away from sea or potentially harmful cargo
- confirm that the cradle is fit for purpose
- confirm that the cargo is correctly lashed

- consider using a specialised logistics company or supercargo/surveyor to advise on the loading or discharging of the yacht
- ensure checks on the cargo and lashings take place during the voyage

Masters unfamiliar with the carriage of yachts on deck should refer to the Nautical Institute's Guide to Lashing and Securing Deck Cargoes. (See page 3)

The master is responsible for ensuring that the cargo is properly loaded, stowed and secured. He is also responsible for ensuring that the cargo is looked after during the voyage, making sure that the lashings are tight and that the cargo is protected from the weather.

Any defect in the securing arrangements or cradle, incorrect stowage position or existing damage should be brought to the master's attention.



SLINGS CORRECTLY POSITIONED BY DIVERS BEFORE LIFTING



YACHT PROPERLY SECURED ON A FLAT RACK FOR SEA TRANSPORT



YACHT PLACED IN A SHELTERED LOCATION ON DECK



GOOD LASHING ARRANGEMENT INCORPORATING CHAINS AND WEBBING STRAPS



## Acknowledgements



### Shaun Robinson - Marine Manager

In 1996, Shaun transported his first boat from the UK to the Caribbean. Since 2000, he has worked for Peters & May and was the fifth person to join the Marine Department, which now consists of 24 staff. Shaun currently manages the Marine Department.

### Peters & May

Peters & May has more than 30 year's experience in the provision of marine logistics and offers global boat transportation, freight forwarding and yacht racing logistics via air, road, rail and sea from a global network of 12 offices and numerous exclusive agencies. The company ships 8,000 vessels each year through more than 150 ports in more than 60 countries, and is the preferred shipper to many of the world's leading boat builders, including Sunseeker.



### Peter Barton

Peter Barton is a Hong Kong based independent marine consultant currently working for China Navigation. His career in the shipping industry has spanned 46 years, of which all but the first six at Bank Line have been with companies of the Swire group. He has been closely involved with the group's unitisation,

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He has served as Master in both Swire Pacific Offshore and CNCo and as Commodore in the latter on its multipurpose vessels. As a consultant, he has carried out port and cargo handling studies as well as contributing to CNCo's safety management system and cadet training programmes. He is also closely involved with project development for Swire-CTM Bulk Logistics.



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Nick worked at Lloyd's Claims Office from 1986 until 1999, where he became head of yacht claims in 1998. He formed his own company, Global Claims Management & Company Ltd, in London. In 1999, he subsequently established an office in Fort Lauderdale, and a Caribbean business with specific emphasis on servicing hurricane claims for US domestic and foreign insurers. Nick joined Charles Taylor marine in February 2007 as a Director of the Yacht Practice. Nick is an Accredited Claims Adjuster (All Lines) State of Florida (520), an Affiliate Member of the Society of Accredited Marine Surveyors and an active Member of the International Association of Marine Investigators. He has also lectured at the University of Miami, Fort Lauderdale Mariners Club and International Underwriting Association on matters relating to yacht insurance, fraud and yacht casualties.

### Charles Taylor Marine

Charles Taylor Marine is engaged in risk assessment, marine casualty surveying and loss prevention advice, using desktop insurance adjusting, and legal and technical field capabilities, in the areas of hull, cargo, liability, audit and review, ports and terminals, and claims management services. With global offices, Charles Taylor Marine is able to provide a fast and informative local response to a claim situation wherever it may arise.

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