

April 2007

The International Journal of The Nautical Institute

Ship vetting inspections

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Loss prevention



Loss prevention

Why, how – and should we be doing more?

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Risk is part and parcel of the shipping industry. Some hazards can be anticipated and controlled but others can be unexpected and may result in losses too heavy for a company to bear on its own, which is where insurance comes in.

Insurance companies, naturally, want to keep claims to a minimum and so have devised a variety of loss prevention initiatives and systems. This article discusses practical aspects of cargo loss prevention and suggests measures seafarers can take to reduce risks.

People deal with risks on a daily basis: loss prevention exists to reduce or eliminate them. At one level this is straightforward and deals with problems that can be anticipated: keeping the floors of an engine room clear of oil will reduce the risk of slip and fall or the ship's constructive loss from fire. However some risks, such as the breaking of a towing line which causes a collision while berthing, are still beyond our control. Losses such as these would be a burden too heavy to bear and therefore the risks are insured.

Commercial coverage includes both first and third party property and bodily injury losses. Marine insurance coverage for personal losses is provided through the mutual associations which indemnify shipowners for seafarers' accidents, illnesses, repatriations and so on. With respect to property, hull and machinery underwriters provide indemnification for damages to the ship's structures while cargo insurers indemnify the cargo interests (cargo owners) for damages to the cargoes carried. Since shipowners can be held liable for personal losses (excluding stevedores' accidents on board) or property losses (cargo damages during transit) to third parties, the clubs will provide much needed protection against

such claims, when covered.

Loss prevention has always been a major interest for insurance companies. By keeping losses to a minimum, they can operate profitably and innovatively. For non-profit mutual associations, uncontrolled increases of paid claims would lead to higher premiums and operational costs, making the costs impossible for ship operators to bear. Nevertheless, extensive losses do occur and they must be paid. Most insurance companies achieve a certain profit margin but this derives mostly from investing premiums and not from keeping a low loss ratio: for example, it is reported that last year, the Lloyd's market in Canada paid out \$US 6m in claim payments every day.

Companies attempt to prevent losses in different ways. Some offer coverage if certain warranties are met, such as keeping the vessel's class; others perform risk assessments and ensure the recommendations are fulfilled; others lower premiums under certain conditions, like risk reductions; and most of them by sending information to members.

One of the particularities of marine insurance is that the subject matter will be in the hands of many parties during the transit, some of whom are not privy to the

insurance conditions or even have extensive knowledge of handling and securing cargoes for marine transit. Equally, organisations involved in marine transportation, from shippers, inland carriers, ocean carriers and consignees, may have different structures; from big corporations with risk management or claims departments to small companies with little or limited knowledge regarding marine losses and claims.

In the last years we have seen an intensive campaign of loss prevention by some organisations focusing on newsletters and 'right and wrong' posters. The Nautical Institute has published a number of books and articles in *Seaways* related to perils at sea, navigational hazards, personal injury, collection of evidence, cargo stowage and securing etc. These contribute to safer working environments and operational procedures and preventing damages and accidents by enhancing the knowledge of a ship's staff about marine losses and claims. While these have all been valiant efforts, there is still much to do in terms of educating the ship's staff in the consequences arising from claims reported to their managers and operators. In this regard, information continues to be a good tool.

Why prevent cargo losses?

Marine cargo claims that arise from the damages to cargo in transit by sea will involve several parties, particularly shippers, ocean carriers, inland carriers, consignees and freight forwarders.

When losses occur, they will have a negative impact on all parties involved, not only from a financial perspective, but also from commercial, organisational and operational standpoints. When damages to a shipment occur, the affected party presents the claim to its insurer, who will eventually seek recovery from the liable party. In this process, the claimant will dispatch notices of the claim and will present evidence against other parties involved, sometimes including its own commercial partners. The damages will probably prevent commercial



▲ Container with aluminum extrusions, loaded on wheeled racks tied up with thin ropes, with no securing

commitments which will create discomfort among the parties involved. Some claims end commercial relationships after months of disputes about the handling of the case and payments. There have been cases where the brokers paid the merchandise to the suppliers but the consignees refused to pay the brokers because of the damages, creating a financial dispute during the claim process which took sometimes from months to over a year to resolve.

Many organisations involved in marine claims do not have claims departments as part of their structure. When claims are filed either by them or against them, it will necessitate a search for documentation and communications as well as finding personnel to deal with the surveyors or adjusters, coordinating transshipments, hiring extra transportation and/or equipment, destuffing, repairs, salvage, and sorting and segregation. Sometimes the merchandise will also have to be kept in a warehouse to await inspection, repairs or salvage, and this affects the normal flow of cargo. The financial consequences are substantial. Most marine policies do not cover the loss of profit. The affected party will be indemnified to the extent of its losses based on the principle that the insured will be placed in the same financial situation it was before sustaining the losses. Still, the purpose of any commercial entity is to make money and a project, which probably took many months of communications, agreements, contracts and arrangements, will end up, in the best scenario, without any profit.

Losses not covered by the insurance contract will have even more dire

outcomes as consignees will not be compensated or, if the fault is on the shipper's side, they will have to withstand the loss. Some claims will end up in a recovery process against the ocean and inland carriers, who will pay the claim in full if it falls under the deductible or to the extent of the deductible – which has been increasingly higher in the last few years – risking a premium increase in the next policy year and affecting the voyage performance.

With the substantial increase of the vessel's cargo capacity, vessel's insurers and operators are sometimes exposed to massive claims arising from damages to one or several consignees. Reports from clubs' brokers indicate last year's gross premiums collected in the amount of \$US 2.3m and gross claims were paid in the amount of \$US 1.759m, with a positive balance for some and a negative for others. The combined ratio – claims and operating costs against premiums collected – of the group in 2006 revealed out of the 13 clubs, 10 had negative underwriting profitability.

For all the parties involved, the claims process will entail the appointment and involvement of surveyors and eventually lawyers and recovery agencies, whose fees are sometimes considerable and are not recoverable. (In a cargo contamination case in Canada, the survey fees submitted by the surveyors representing the parties were between \$Can 50,000 and \$Can 100,000).

Today the use of multimodal transportation for unitarised cargoes is common. Buyers or sellers will arrange transportation with ocean carriers from

the seller's or the supplier's warehouse / factory to the buyer's or consignee's premises. The ocean carriers will arrange the inland transportation including road and rail transit. Claims occurring during this mode of transportation can become extremely complicated as there are different laws every step of the way. In Canada, marine federal law will apply to the ocean transit (Marine Liability Act); other federal statutes will apply to the rail transit (Canada Transportation Act) and provincial statutes to the road transit, with a number of contractual documents also applying. While cargo insurers will recover in full from the ocean carriers, the latter will probably recover partially from inland carriers based on a limitation of liability they have, or their liability in excess of the limitation can be recoverable from the ocean carriers, creating legal conflicts.

How damage occurs

We can define physical damage as the total or partial loss of the integrity of a commodity or its packing, under the effect of external forces or phenomenon (impact, vibration, extreme motion, ingress of water, condensation etc). Sometimes damages can occur without the influence of external effects, if it is the inherent 'vice' or nature of the goods, or damages due to the inferior quality of the commodity, but since they are excluded in most of the policies, they will not be reviewed here.

In general, damages are related to insufficient stowage, securing, packing or the acting of extreme external forces. The commodities transported by sea are packed, stowed and secured so as to withstand severe forces normal during ocean and inland transit and handling. When the packing, stowage and/or securing are not adequate, the cargo will sustain damages (unsecured marble slabs inside a container will crack under the effect of slamming shocks). Likewise, when the packing, stowage and securing is adequate but the cargo is exposed to extreme conditions, damages will happen (same marble slabs well secured and stowed may crack if the container impacts another container resulting from careless handling).

While we cannot predict or control the appearance of extreme conditions or phenomena, adequate packing, stowage and securing procedures will minimise the losses sometimes even prevent them. In my daily work I have seen many cases where losses have arisen from improper packing, or stowage or securing or the combination

of these, which could have been easily prevented with more care. It is impossible to describe them all, but a few examples will illustrate my point.

● **Physical and mechanical damage (breakages, cracks, distortion etc)**

Typical to general cargo packed in boxes, pallets or crates. Losses arise from impact during the transportation and handling, either due to improper securing or rough handling or from compression in the stowage (heavier cargo loaded on top). Very common in containers, where quite often the securing afforded to the cargo loaded inside is not sufficient for the normal rigour of the ocean transit, in consolidated containers where cargoes for different consignees are loaded together, sometimes mixing cargoes with fragile and rigid packing, or in general cargo.

With respect to the loading of cargo in containers and its securing performed by the shippers or carriers (depending on the transportation terms) a compact stowage, well secured against crosswise and lengthwise shifting is necessary. Special care should be taken with respect to the crosswise shifting for the ocean transit, given that the rolling angle is greater than a pitching angle and securing should be also reinforced against lengthwise shifting, especially for rail transit where the effects of rough coupling and shunting can be considerable.

General cargoes, such as steel cargoes (coils, beams, channels, pipes) can sustain damage from compression due to stowage high in excess or overweight. The ship's staff should exercise due care not only in calculating the maximum amount of cargo



▲ Container with doors bulging, resulting from longitudinal shifting of cargo. Cause: insufficient securing

in each compartment as per weight and tank top maximum stress, but also the maximum weight the cargo itself can resist.

Damages in the stowage may also occur to container and oversize cargoes, specially those on deck. Causes of such damages are mostly related to inadequate stowage or securing, or their combination.

● **Water damage.** Water damage can be caused either by direct contact with the cargo (ingress) or condensation. Ingress of water is a common cause of loss in containerised cargo. The water can gain access through holes on the containers, the floor panels and, less likely, the door gaskets. Sources can be rain water, sea

water or others (water from broken pipes, pooling of water at ports, yards and warehouses etc).

The increasing size of container ships, now up to 11000 TEU, and the interest in reducing the operation time at port led to the use of automatic twistlocks (ATLs). The ATL is fitted on the lower corner castings of the container stowed on top, inserting in the upper corner casting of the container below. Mariners know that the lowering motion of cranes is not smooth. When the crane operator misses the corner castings, the ATL fitted to the container on top will puncture the roof of the container below, allowing the potential ingress of water. These damages quite often go unnoticed to the ship's staff.

Another source of water damage for containers on board ships is the accumulation of water in the cargo holds, which is eventually contaminated with oil, mud or debris. This event can lead to massive losses.

For cargoes inside cargo holds, water damage can be related to non-watertight hatch covers or structural damage: the passing of water through tank plating (hopper and top side tanks, lower stools, cofferdams, etc), holes on vent pipes and sounding pipes, which will leak when the tank to which they are connected is filled. Water damage to grain and bulk cargoes can be extremely significant.

Water damage can be sustained due to the careless handling of cargo, which might be loaded and unloaded from vessels and containers during rainy periods.

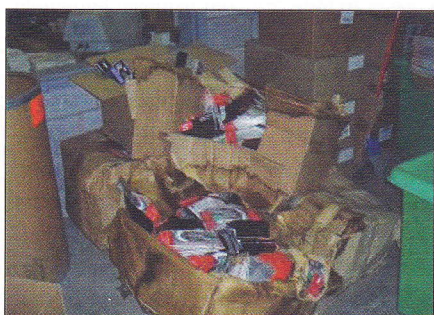
Water damage to cargo inside containers or cargo holds can also be



▲ Pipes damaged from compression on the stowage



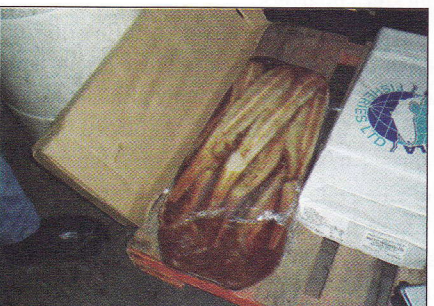
▲ Vessel arrived with containers collapsed on the stowage. More than 20 went overboard, due to improper stowage and securing



▲ Top, a hole on a container, probably from an ATL, and the consequences, bottom, wet damaged cargo



▲ Container of spirits from flooded and oil contaminated cargo hold



▲ Reefer cargo (fish) damaged due to wrong setting of the temperature

caused by condensation. The effects of condensation on cargo can be extensive, and is often related to improper ventilation. Bagged cargo such as rice and beans demand controlled ventilation and any mistake can cause an entire shipment to spoil. With respect to the containers, often the ingress of water or loading of already wet cargo can trigger condensation and eventually substantial losses, either by rust, mould, smell etc.

● **Damage to temperature-controlled cargo.** Because of its intrinsic nature, some cargo needs to be temperature controlled during transit, to prevent the growth of either bacteria or mould that would alter its quality or chemical alteration due to changes in temperature.

The most common case applies to perishable cargo, especially fresh fruit, vegetable and meats. While meat is usually carried at freezing temperatures to avoid the growing of bacteria, fresh fruits and vegetables are carried at temperatures usually above the freezing point to avoid the ripening and the deterioration of the produce. Specifications about the temperature for transit (set temperature) and ventilation regime are indicated in the bills of lading.

Damage to produce for human consumption usually leads to total losses when bacteria growth and decay is involved. Changes in colour, texture and quality also lead to substantial depreciation. Losses are related to the wrong setting of reefer units (often confusing temperatures in degrees Fahrenheit with degrees Celsius), the failure of the generator set (power supply), the reefer unit itself, or simply human failure (forgetting to plug the reefer unit to the power supply).

● **Use of substandard vessels / feeder vessels.** The use of feeder vessels is not uncommon for certain cargo moving from small ports of loading to larger ports of discharge, or connecting to hub container ports. The cargo will be moved from the ports of origin, close to the supplier's premises in feeder vessels, to larger ports in the same country, or in the area, where they will be transferred to vessels with regular lines to the discharging ports. This is typical of containerised cargo.

While container carriers with regular lines usually operate first-class vessels, some feeder vessels used for transferring the cargo to the hub ports might be substandard. Some of these vessels operate between ports of the same country or area where safety and operational requirement and inspections are not strict. Damages

during transit on these vessels can be related not only to structural deficiencies of the vessel – non watertight hatch covers – but to insufficient operational procedures such as inadequate cargo watch.

Improving loss prevention

We have seen several examples of damaged cargo which are quite familiar to seafarers. Prevention of such losses is to be observed before transit and at every stage of shipment and it demands all parties involved to understand the dire consequences of such losses and what every person can do at their level to prevent them. Some large companies keep their shipboard staffs informed about claims reported from damages on board their vessels and follow up corrective actions with them.

Even before the goods are loaded on to the vessel, cargo interests and carriers should ensure the proper stowage and securing of the cargo and the use of contractors with the proper qualifications. Shippers must issue clear transit procedures to the carriers, as they are the ones who know the characteristics of the commodities. The more detailed the specifications given to the carriers, the better position they will be in to protect the cargo while it is in their custody. They must also ensure proper packing, which is the first barrier against damage.

Here are a few more aspects to keep in mind:

■ **Pre-shipment surveys:** Even when a correspondent is not appointed to carry out the pre-shipment survey, it is wise to inspect the cargo at the yard or warehouse before it is loaded in order to assess its condition. This will not only enable the master / operators to contact the shippers in case of problems, but also to ensure sizes / shapes are in accordance with given specifications used for stowage purposes.

■ **Proper stowage:** Not only must the total weight and volume of the whole cargo and the tank top stress and resulting trim/drafts be checked, but they must also verify the weight, volume, resistance and compatibility of each commodity to be loaded. Quite often the first available cargo to arrive at the ship is the first to be loaded; the rest, even if it is heavier, is loaded on top. Letters to the shippers in advance specifying the order would help.

■ **Proper securing:** As this is a familiar subject to seafarers, I will only advise here never to take chances, regardless of the season and area of navigation. Whenever possible, a compact stowage must be ensured and proper lashing appliances

must be used, especially on the non-specialised vessels. Following the guidelines of the ship's securing manual, the IMO Code of Safe Practice for Cargo Stowage and Securing and good seamanship practices are essential.

■ **Proper ventilation:** It is necessary to perform regular checks of temperature and relative humidity as well as to periodically calculate dew points in/out of the cargo compartment. The correct application, periodic checks and accurate record keeping are all essential. Keep in mind there are two different types of condensation on board ships: ship's sweat and cargo condensation, which require two different approaches.

■ **Proper cargo watch:** While a pre-shipment survey would help you notice damages before the cargo is loaded, some

damages are sustained during the operations. Timely awareness will save further losses and will enable corrective actions (rejecting or repairing). Checks to the lashing from the beginning are essential. After the whole cargo is loaded and secured, there is not much to do.

■ **Periodic cargo checks:** During transit, regular checks to the cargo for shifting in the stowage, loosening of the lashing, water ingress / condensation, etc are advisable. The lashing usually breaks and snaps after it loosens, so timely correction can prevent further damages.

Conclusion

We can see that a lot has been achieved over the past several years and that ship staffs have played a significant role. There

is no question that the loss prevention campaigns by cargo insurers and clubs, and the implementation of safer operational procedures by the ISM Code, have had a positive impact on the handling of cargo and the responses to damages on board vessels. However, the industry is ever-changing and demanding: larger vessels are built to carry massive amounts of cargo; the port terminals have built up their handling capacities and sped up their operations. All of this will pose a challenge to the prevention of losses in the years to come. Improving the information relative to cargo damages and claims and their impact to each party involved will enable a better understanding of each person's role in this task.