

Carriage of steel cargoes - Index

Guidelines for Members, Masters and Surveyors

CONTENTS

INTRODUCTION

PART 1 TYPES OF STEEL CARGOES

- Category A - Packed or wrapped
- Category B - Not packed or wrapped

PART 2 CARGO CARE

Section 1 - Loading and stowage

- Planning
- Loading wet cargo
- Rain during loading
- Incompatible cargoes
- Strength of tank tops
- Stowage and lashing of different types of products
 - Steel coils
 - Steel slabs
 - Hot and cold rolled steel in packages and bundles
 - Single plates
 - Structural steel
 - Sheet pilings
 - Pipes
 - Wire rods
 - Stowage certificates
- The golden rules of stowage

Section 2 - On the voyage

- Supervision of loading, stowing and discharging
- Maintenance of the vessel
- Watertightness Ventilation Ventilation Ventilation
- Ventilation

PART 3 SURVEYS

Section 1 - Pre-shipment survey - cargo

- Information for the Surveyor
- When to instruct the Surveyor
- The Surveyor's duties
- Preliminary report
- Final report

Section 2 - Pre-shipment survey - the vessel

- Cargo holds
- Steel hatch covers and other deck openings
- Checklist
 - General
 - Panels
 - Rubber packing (gaskets)
 - Retaining channels
 - Compression bars
 - (a) Transverse guttering and (b) Hatch rims
 - Steel to steel contact points
 - Snugs
 - Crutches
 - Quick-Acting cleats, rods, nuts and washers/Other cleating arrangements
 - Cross wedges (cross joint cleats)
 - Inboard drainage system
 - Wheel tracks (guide rails)
 - Wheels
 - (a) Panel side chains (b) Hinges (c) Hydraulics
 - Access hatches
 - Access doors
 - Bilge sounding caps
 - Sealing tape
- Testing for watertightness
 - Ultrasonic test
 - Hose test
 - Chalk test
- The survey report
 - Preliminary report
 - Final report

Section 3 - Discharge survey

- Instructions to Surveyor
- The survey
 - Copy documents which should be obtained
- Contents of the Surveyor's report - Relative to the cause of any damage
 - Non-return valves on Bilge Lines
 - Tank tops
- The survey report
 - Preliminary
 - Final
- Stevedores' outturn report
- Who should be authorised to board the vessel and examine the cargo?

Section 4 - Cargo/commodity survey

- The survey
- The survey report
 - Preliminary
 - Final
- Silver nitrate testing and sampling

PART 4 THE BILL OF LADING

Section 1 - The legal position

- A "clean" Bill of Lading
- Letters of Indemnity
- Claused Bills of Lading

Section 2 - Cargo condition clauses

- "Rust stained"
- "Partly rust stained"
- "Rusty"
- "Partly rusty"
- "Rust spots apparent"
- "Rust spotted"
- "Wet before shipment"
- "Rust with pitting"
- "Covered with snow"
- "Areas of steel surfaces reacting to silver nitrate solution tests"
- "Stained by an Unidentifiable Powder"
- streaks"

- Mechanical (handling) damages
 - Unwrapped material
 - Hot rolled steel sheeting in coils
 - Hot rolled steel plates in bundles
 - Single steel plates
 - Large steel beams
 - Merchant iron
 - Pipes and tubes
- Wire rods
 - Unwrapped goods
 - Wrapped goods
 - Sheet pilings
- Wrapped material
 - Steel coils
 - Packages

General "Rust streaked" "Evidence of contact with free moisture - drip down rust

PART 5 RESPONSIBILITIES UNDER CHARTERPARTIES

- Types of contracts
- The owner's obligations under the Hague or Hague-Visby Rules
- Loading, stowage and discharging operations
 - Time Charterparties
 - The NYPE Inter-Club Agreement
 - Voyage Charterparties

Conclusion

Introduction

Guidelines for Members, Masters and Surveyors

As part of the service offered to Members of Skuld, the Club operates a loss prevention programme. The purpose of this programme is to help Members reduce claims and to offer advice aimed at improving safety and efficiency of vessels entered with the Club. Most importantly, the Club works together with Members to help safeguard the lives of those working for and alongside them. It is in this spirit that the Club offers the guidance in this booklet.

This booklet is not a scientific study of the physics and chemistry of steel, nor is it a legal textbook. It has been prepared with one aim in mind: to be a useful, handy reference guide for members, their Masters and Officers, and for Surveyors appointed on their behalf. It is intended to be a practical guide for use on the quayside, or on the bridge, or on the deck, or in the Member's office.

This booklet has a number of objectives. The first is to reduce the risk of actual damage to cargo whilst in the Member's custody. Damage is not bound to happen. It can and will be avoided in the vast majority of cases if the cargo is handled, stowed and carried in the right way. This is good for the Member concerned and for all the Club's Members.

A second objective is to help Members protect themselves from financial penalties resulting from circumstances outside their control, but for which they may be legally liable. The classic example is pre-shipment damage to cargo. A Master may oversee loading and stowage in an exemplary fashion on board a perfect ship, carry and discharge the cargo in accordance with best practice, without incident, and yet still find his Owners unable to defend a substantial cargo damage claim. The cargo was not in good condition when loaded, but the Bills of Lading were not claused. It is not enough for the Master to do his job - he has to find ways to protect himself from those who do not. Often this involves getting the paperwork right. It is a chore, and there are no doubt many other pressures competing for the Master's time and energy, but it is essential.

The good news is that the Master is not on his own. The Club, its Correspondents, Surveyors and lawyers are all there to assist - this booklet is also intended to help.

As well as the prevention of cargo claims and cargo damage on board (not always the same thing, as members may know to their cost), these guidelines are intended to help Masters and Members improve safety and efficiency on board. Correct handling of steel products, based on an awareness of the particular characteristics and possible hazards of

different types of products, makes life safer for stevedores and crew. Accidents equal claims, so correct handling methods make sense all round. Correct stowage not only reduces the risk of cargo damage by protecting the cargo, it also protects the vessel from the cargo, which in the case of steel should be a major concern. This booklet contains guidelines on these subjects which ought to be followed not only in order to reduce the chance of cargo damage claims, but by all those who value their vessel and their own safety.

This booklet also offers guidance to the Surveyors who may be called upon to survey cargo and/or ship at one or other stage in the adventure. The Club and its Members value Surveyors not as passive recorders of information, but as a vital part of the Member's loss prevention team. They are encouraged to see their role in this way and the advice and assistance they can offer to Masters is an essential part of their work. Many are experts in this field. The Club hopes that even for experts, this booklet will prove to be useful as a source of advice, as an aide memoire and as a back-up when differences of opinion arise, as they often do.

For ease of reference, the booklet is divided into sections, some of which may appear to be of more or less interest, depending on the user's role. But the issues involved are inter-connected. They cannot be read in splendid isolation - the guidelines for surveys, for example, should be useful for Surveyors, but the information they contain is of direct interest to Masters.

The Club hopes that the guidelines in this booklet prove to be of practical use to all those involved with the carriage of steel cargoes on members' vessels.

We express our thanks to Arthur Sparks, of Sparks & Company Ltd., London, who has contributed in respect of the technical issues, and to Glenn Winter and Duncan Rudkin, Holmes Hardingham, solicitors, London, who have contributed in respect of the legal aspects in this publication.

All previous steel circulars are superseded by this publication.

Oslo - January 1998

Hans Jørgensen

PART 1 TYPES OF STEEL CARGOES

Steel cargoes can be split into two categories: products that are packed or wrapped and those that are not.

Category A - Packed or wrapped

- Special quality wire rods in coil form; for example, pre-stressing wire, tyre cord, high tensile wire rods. This type of wire rod is usually wrapped in strong waterproofed reinforced material.
- Cold rolled steel sheeting in coils and packages.
- Coated steel in coils and packages; for example galvanised, aluminised and paint-coated.
- Tin plate in steel boxes - also shipped in coils on wooden skids. These products are usually wrapped in plastic coated kraft paper, with an outer layer of steel sheet wrapper. The bundles are then secured with flat metal strapping bands.

Packing is designed to protect the products from handling damage and from the atmosphere and to keep bundles together. It is not airtight or watertight.

Category B - Not packed or wrapped

- Structural steels; for example beams, angles, flats, channels, reinforcing bars, squares, rounds. Usually shipped in 20 or 40 feet (6 metre and 12 metre) bundles, secured by wire bands or strapping bands.
- Single flat steel plates and bundles of steel plates secured with strapping bands.
- Hot rolled steel sheeting in coils and bundles, secured with metal strapping bands.
- Steel slabs, billets, blooms, mild steel hot rolled wire rods.
 - Scrap: ferrous metal, borings, shavings, turnings, cuttings, iron swarf, steel swarf. Scrap metal can heat spontaneously leading to fire. This is because it has a high surface area for its mass, making oxidation easy. Vibrations and working of the vessel causes friction and therefore heating. Masters are advised to familiarise themselves with the special dangers presented by scrap metal, before carrying it. If in doubt the local Skuld Correspondents should be consulted.

A few guidelines:

- Care should be taken over ventilation.
- Cargo which was wet before loading is more likely to heat in transit.
- Scrap metal must not be allowed to come into contact with sea water.
- Check the temperature of the bulk ashore, before loading: if it is increasing, consider rejecting the cargo.
- If the surface temperature of the bulk reaches 80°C at sea and shows no sign of cooling, there is a real risk of fire. Consider diverting to a suitable port of refuge.
- Cargo should be loaded, segregated, stowed and carried in accordance with the latest edition of the IMO Code of Safe Practice for Solid Bulk Cargoes (BC Code).

Carriage of steel cargoes - Part 2 Cargo Care

Guidelines for Members, Masters and Surveyors

SECTION 1 - LOADING AND STOWAGE

Planning

It is important not to allow loading to begin before a stowage plan is agreed. Stevedores may be in a hurry to start. They might have to wait, but by approving the stowage plan before the beginning of loading, the Master can avoid worse delays later and prevent damage to cargo, his ship and the lives of those on board.

If a Surveyor is attending, he should assist and advise the Master in checking the stowage plan.

Loading wet cargo

Wet cargo in a ship's holds increases humidity in the air and vapour pressure. The presence of wet cargo in the holds will therefore lead to moisture damage to cargo that was sound and dry on shipment.

Rain during loading

Category A packed or wrapped products must not be left uncovered on the quay or loaded during rain.

Category B non-packed or non-wrapped products will often be stored on the open quay and loaded during light rain. This is usually acceptable provided they are not going into the same hold as dry products.

A suitable descriptive clause (for example "Wet before Shipment") should be prepared for insertion on Mate's Receipts and Bills of Lading for any wet cargo. Watch out for coils that appear to be dry on the outside but which drip water from the windings when lifted.

Hatch covers and all other deck openings should be closed in good time to stop rain getting to cargo in the holds.

A careful note of the timing of any rain and of the opening and closing of hatch covers should be made so that the Master can check that the timings in the Statement of Facts presented to him for signature match the timings in the ship's log.

Incompatible cargoes

Care should be taken not to load incompatible cargoes (such as chemicals, fertilisers, sulphur-bearing materials and, in many instances, hygroscopic cargoes) in the same compartment as steel cargo.

Strength of tank tops

Bundles of reinforcing bars and bundles of small scantling materials can be stowed in tween decks. Unpalletised steel coils must never be stowed in tween decks. The ideal stowage position for steel products is in the bottom of the vessel, on the tank tops.

Steel is a high density, deadweight cargo. The danger of tank top overload must be considered and avoided. The Master should calculate the permissible tonnage and this figure should never be exceeded.

The permissible tonnage is calculated as follows:

Area of tank top (M2) x Tonnes per M2 tank top strength limitation.

The tank top strength limitation figure is supplied by the shipbuilder and approved by the Classification Society. The figure usually remains unchanged throughout a ship's life. The strength of the scantlings of the component parts of a ship reduces over the years. The older the ship, the more caution should be exercised in calculating the permissible tonnage - a greater safety margin should be left for older vessels.

If the permissible tonnage is exceeded, the tank top plating may be deformed. In order to spread the pressure evenly over the tank top and thereby reduce structural deformation, dunnage should be adequately spread, this to avoid spot overloading

Stowage and lashing of different types of products

Steel coils

In coils of up to 15 tons, the tank top should be dunnaged with two double lines of 6"x1" (15cm x 2.5cm) dunnage wood boards. For coils of over 15 tons, three lines of such dunnage should be used. In order to achieve tight stowage and prevent movement, wooden chocks must be inserted on top of the lines of dunnage in the lower tier.

For handling steel coils, chains and wire rope slings should never be used. The safest lifting gear is a round steel pole through the centre of the coil, or a "C" hook.

The correct method of stowing hot and cold rolled steel coils (except for palletised coils) is usually with their centre cores fore and aft. If they are stowed any other way, they are more likely to shift. Steel coils must never be stowed in tween decks, except for palletised coils in special circumstances.

If it can be avoided, coils should not be stowed in a single tier, unless they are overstowed with other cargo. If there are only enough coils for a single tier and nothing can be placed on top, an ideal stowage would be to stow the coils in two tiers at the after end of the compartment. If single tier stowage cannot be avoided, each athwartship tier must be secured with a locking coil.

As a general guide, the following weight/height ratio should be applied -

10 ton coils: 3 high
 15 ton coils: 2 high
 15+ ton coils: 1 high

The age of the vessel and strength of the tank tops should be considered, and a lower ratio applied if appropriate to a particular vessel.



No. 1 Hot rolled steel coil provided with steel channels to prevent edge damage.



No. 2 Cold rolled steel coil

Begin stowage against the end bulkhead in the centre and the wings, with the gap between the wing and centre stowage closing to leave a space for the insertion of locking coils. The stow should be arranged so that the second tier locking coils do not protrude down into the cantlines of the lower tier by more than one-third of the diameter of the locking coil.

Ideally, the athwartships lines of cargo should extend out to the extremities of the cargo hold. If stevedores are not equipped with the necessary gear to do this in the upper tiers, a mobile crane can be used to put the outer coils in place.

Drawings "A" and "B" (see next page) and photographs "3" and "4" show the recommended method of securing with strapping bands. Passing bands through the cores of adjacent coils prevents fore and aft movement. Crossing bands over the top of coils prevent up and down movements, when the ship is pitching. This method also stops individual coils from turning in stow.

When you have a single tier, the locking coil should be secured as shown in drawing "C".

Steel strapping bands should always be tightened with pneumatic tools **never** by hand operated tools. The ends of the securing bands should always be joined with two crimp seals.

Metal strapping bands should ideally be used to secure steel coils, for the following reasons:

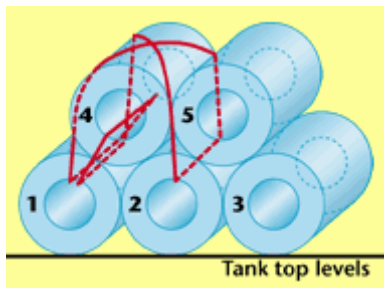
- Each coil can be efficiently secured through its core to the two coils beneath - costly perhaps, but the safest method.
- Using a pneumatic tightening tool, bands are tensioned up to 2,000 kgs.

- Bands are applied singly, making it easier to handle them and pass them through awkward gaps.
- Tension is uniform throughout the stow. (Do not use securing timbers, which defeat this purpose.)

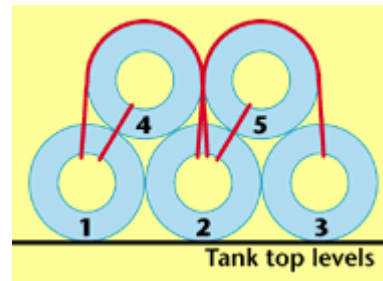
If wire rope is to be used to secure steel coils, the following precautions should be taken:-

- All bulldog grips should be properly fitted and adequately tightened.
- Three bulldog grips should be fitted either side of the spanscrew.
- The turnbuckles should be extended to the maximum of thread before application of the wires in order to ensure that after tightening not more than 1/3 of the thread is used. This will allow for further tightening.

Bands/wires should be passed as in Drawings A and B.



Drawing A



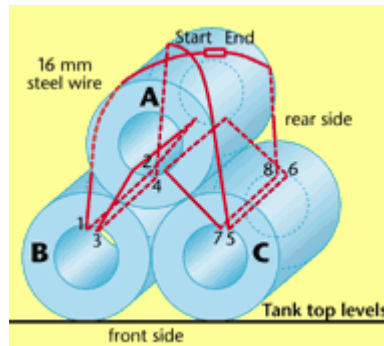
Drawing B



No. 3 Steel coils recommended securing



No. 4 Steel coils recommended securing



Drawing C

- (1) The wire is led through the centre of coil "B" from front to rear side.
- (2) The end is then passed upwards at the rear side and through the centre of coil "A".
- (3) It passes back downwards on the front side through the centre of coil "B".
- (4) The wire then passes upwards and diagonally over the top of coil "A" to the front where it is passed downwards.
- (5) It passes through the centre of coil "C".
- (6) It then emerges at the rear side. Passing up and through the centre of coil "A";
- (7) It continues back down again at the front side through the centre of coil "C".
- (8) At the rear side the wire is taken upwards diagonally across the top of coil "A" to be connected to the opposite end of the wire where it is joined with a span screw.

Drawings:

Courtesy of LLP Limited from the publication *Steel - Carriage by Sea* - 2nd edition by Arthur Sparks MNI.

Steel slabs

Mild steel slabs are relatively thin rectangular blocks of steel, weighing up to 20 tons per piece. A popular size can be 6500mm x 1200mm x 250mm with a specific gravity of 7.85; such a slab weighs 15.3 tons. Steel slabs are the basic material from which most steel products are manufactured. Slabs are usually stored in the open - unusually: for steel products, wetness and rust staining is of no consequence.

The traditional stowage method has been to load slabs with their longitudinal axis athwartships, right out to the ship's sides over and above the sloping plating of the hopper tanks. Dunnage was inserted between each tier, to allow re-slinging for discharge. Building out to the ship's sides produced a staggered stow, more stable than a uniform pile. With a part load, the best stowage position was thought to be at either end of the hold, close to the bulkhead.

Such cargoes are now usually carried in bulk carriers, of between 20,000 and 40,000 tons deadweight for full cargoes. In a 30,000 ton ship, the tank tops of the main holds would be about 16m wide. In such ships, the traditional stowage method would produce an unacceptable amount of broken stowage, or loss of space, in some areas.

This can be avoided by combining traditional athwartships stowage with fore and aft stowage. Complete fore and aft stowage is acceptable in some cases, provided the stow is built out over the hopper tanks. It is particularly important with steel slabs always to remember one of the basic principles of good stowage: to interlock the individual blocks, like building a brick wall. Non-interlocking stacks should be avoided

if at all possible. All gaps in the uppermost horizontal tier should be secured with suitable sized timber.

As stevedores are able to load heavier and heavier weights, methods of stowage have been devised in which the stevedores simply lower large single loads and stack them in the hatchway square, leaving large gaps at the sides and sometimes at the ends of the holds. These methods of stowage are not recommended and should be avoided for the reasons explained above. It may sometimes be acceptable, but only in vessels with box-shaped cargo compartments.

The danger of tank top overload should always be borne in mind and avoided by reference to the permissible tonnage and by use of suitable dunnaging, when possible



No. 5 Steel slabs awaiting shipment

Hot and cold rolled steel in packages and bundles

Cold rolled steel sheets are wrapped and referred to as packages. Hot rolled steel sheets are unwrapped, in bundles. Packages usually measure about 1m x 2m x 15cm, weighing about 2,000 kgs. Bundles are of more variable thickness and therefore variable weight.

These products should be stowed right out to the ship's sides with their longitudinal axis athwartships. No gaps should be left between the edge of the stow and the ship's sides/hopper tanks. Packages/bundles usually have bearers, either longitudinally or transversely. If the bearers are transverse and the units are placed athwartships, as they should be, two lines of 6"x1" single dunnage boards should be inserted to tie the stow together and keep it level.

If the tank top is not entirely covered, the "brow of the stow" i.e. the gap between the end of the stow and the bulkhead(s), or adjacently stowed cargo, must be secured, to prevent movement in a fore and aft direction. Dunnage can be laid on the tank top as appropriate.

Before commencement of loading, 16mm wire cables should be laid fore and aft, about 3m apart. When loading is completed, a 6"x1" board lattice fence is fitted to the face of the stow. The securing wires on the tank top are then brought up over the stow to be attached with a span screw to the opposite ends, and then tightened. Gaps between the top layer packages/bundles are secured by wedging and/or tomming



No. 6 Bundles of hot rolled steel sheeting



No. 7 Hot rolled steel in bundles



No. 8 Cold rolled steel sheeting in packages



No. 9 Cold rolled steel sheeting in packages

Single plates

Single steel plates are usually quite long and, although heavy, they lack rigidity because of their length. If they are not handled and stowed carefully, they may become kinked.

Single plates are ideally stowed in the same way as steel slabs. Suitable lengths of dunnage should be inserted between each tier of plates or tier of lifts of plates. The dunnage must be kept in line vertically, close enough together to stop the plates bending, where there are gaps between dunnage.

Plate-type hooks and clamps are used to secure the wire legs to the plates and are usually attached to a spreader.



No. 10 Single hot rolled steel plates awaiting shipment

Structural steel

Structural steel products are usually shipped in bulk carriers. Beams and channels commonly sustain crushing and deformation damage. This can be avoided by placing the products carefully and correctly, and by proper dunnaging.

Before commencement of loading, 3"x3" dunnage in cross section should be laid in athwartships lines across the tank top plating. The space between the lines of dunnage fore and aft, should be about 3 m. This pattern of dunnage should be separated between every tier, in order to bind the stow together and to allow re-sliding for discharge. The dunnage should be kept in line vertically. Every effort should be made to have beams with their webs placed vertically in stow.

These products should ideally be stowed in a fore and aft direction. If they are to be stowed athwartships, lifts should be placed fore and aft in the wings against the hopper tanks or ship's sides. The ends of the products should butt up against these lifts. The ends of athwartships steel must never be allowed to come into direct contact with the ship's sides.

The stow is secured in the upper tier or tiers. With large beams or channels, wood-wedges and timber dividers between the gaps is usually adequate. Reinforcing bars do not normally need to be secured. With bundled goods, some securing may be

necessary in the upper tier. Timber or wedges should be driven between the bundles in the upper tier, particularly with tightly banded, small dimensional angles, etc.

These goods are usually handled by means of chains and wire slings. Care must be taken not to overload slings. This is especially important when handling beams, which may become bent or dented at the flanges.



No. 11 Structurals: hot rolled steel beams or joists stored on the open quay

Sheet pilings

Sheet pilings should be stowed in the same way as structural steel, except that they are stacked on top of each other, to form unsecured bundles. Care should be taken to ensure that stacks are not excessive, or the top piles may crack.

Special care is needed in slinging. Braided slings are recommended, to avoid damage to the keying devices on the sides.

Pipes

Small diameter pipes are stowed in the same way as small scantling structural material. Large single pipes are always stowed fore and aft. Pipes must never be crossed - each pipe sits in the cantlines of the two pipes underneath. Athwartships lines of single flat dunnage are first laid upon the tank top and the first tier of pipes is laid side by side in a fore and aft direction.

If the pipes are not a perfect fit on the tank top or in the lower tiers, wooden stools should be built in the wings of the areas of the slope of the hopper tank sides.

Some coated pipes require special care in handling. The shipper may provide special lengths of packing, to stop these pipes chafing against each other. In such cases, and where there are unusual fabrications and finishes, the shipper should provide special guidance.

When loading is completed, the top tier of pipes must be secured. With some kinds of pipes, driving securing timber through gaps and the use of wires may not be advisable. Side chocking may be required in the area of the wings and the sides of the stow.

The Master should always check stacking limits before the beginning of loading.

Short single pipes may be loaded with wires hooked into the end of the pipes, attached to a spreader. Bevel ended pipes are loaded by wire slings, but the flat-plate type hooks on the ends must be copper lined or hard plastic coated. With special coated pipes, the wire sling may have to be covered in canvas



No. 12 Pipes correctly bundled and strapped

Wire rods

Coils of wire rods usually consist of wire with a diameter of between 5mm and 9mm. Bundles usually consist of three or four separate coils. Coils may be shipped singly or in unitised bundles. Units normally weigh about 1.2-1.5mt each. They are secured with flat metal strapping bands. These should be applied after the bundles have been compressed. Bundles secured by strapping bands are very rigid - in this state they are in the best condition for stowage in a ship's hold. Slack bundles which are not tightly pressed and secured in this way can suffer during handling, securing bands can converge and through pressure in the stow, wires can splay out and become damaged. In addition, serious tangling of windings can result.

Two lines of single flat dunnage should be laid on the tank top athwartships under each line of coils. Wire rods are not a high density cargo. Unlike most steel cargoes, they take up a lot of hold space. Coils or bundles are stowed on the tank top in lines across the hold, with the centre core pointing fore and aft. These products are stowed in the same way as hot/cold rolled steel, but with rods it is not necessary to arrange locking coils. Sometimes these cargoes are simply dumped in the hold. This should not be allowed. These products need to be stowed carefully and properly, like any other. The wire should not be allowed to rest against the ship's structure, or chafing damage can occur.

If it is intended to load a different, low density cargo on top of wire rods, remember that wire rods settle and sink considerably after loading. Stowage and lashing of other cargo on top should be planned with this fact in mind.

Soft copper wire rod is shipped in an unpacked condition and if great care is not taken, it may become chafed, kinked or scored, causing substantial cargo claims.

Wrapped



No. 13 High tensile wire rods fully wrapped

Unwrapped



No. 14 Hot rolled wire rods: no wrappers (unprotected) stored in the open air

Stowage certificates

If a Surveyor has been appointed to follow the loading operations, he should produce a stowage certificate showing:

- Stowage per cargo hold.
- Dunnaging of cargo.
- Measures taken to secure the cargo.
- Any interventions by the Surveyor which have led to changes in the stowage/lashing arrangements.
- Details of any differences of opinion, with whom, on what subject, with what result.

Before departure, the Master should be provided with copies of a stowage plan, hatch lists, etc. He may be asked to sign a document confirming that stowage and securing has been carried out to his satisfaction. The Master should obviously not sign this document if he disagrees with it or has any doubts.

The golden rules of stowage

Proper and efficient stowage is essential to avoid shifting, chafing and crushing damage. The guidelines for particular cargoes, as set out above, should be followed, and the following five Golden Rules should always be observed.

Golden Rule 1:

Before loading begins, check that there is adequate suction on all bilge lines. The date of the test and results should be appropriately entered in the deck log book.

Golden Rule 2:

A reasonable inspection of the cargo holds must be carried out before loading commences. The date and name of the vessel's officer who inspected the holds must be entered in the deck log book.

Golden Rule 3:

Never go to sea with the top horizontal tier of a steel cargo not fully completed. If the tier cannot be completed it should not be loaded, as securing with wires to the ship's sides and tomming with timber cannot be considered as proper precautions against shifting with this type of cargo and in this particular situation. In certain circumstances this rule may not apply to steel coil cargoes.

Golden Rule 4:

Steel products should never be permitted to rest against the ship's structure in stow: dunnage should always be used to prevent this occurring.

Golden Rule 5:

Underdeck steel cargoes should not be secured to component parts of the vessel's structure, with the exception of wire rod cargoes in certain circumstances (for example, half hatch stowage).

PART 2 CARGO CARE

SECTION 2 - ON THE VOYAGE

Supervision of loading, stowage and discharging

Surveyors may be available to help and advise the Master but it is the Master's responsibility properly and carefully to load, stow, carry, care for and discharge the cargo. He may at some stage be obliged to prove that he fulfilled this responsibility and in doing so took all measures humanly possible to protect the cargo while it was in his custody.

The maintenance of the vessel

In negotiating cargo claims, damage caused by lack of maintenance of the vessel often leaves the carrier with no defence. As a result of this he may have to pay the claim in full or otherwise settle on very poor terms even when other factors have played an important part in causing the damage. Proper maintenance is, of course, essential.

Watertightness

Steel cargoes are almost always high density deadweight cargoes. Vessels carrying these cargoes have a high range of stability and work heavily in a seaway, imposing concentrated stresses in various areas of the hull structure; especially in the area of the hatchways. If the hatches are to remain watertight it is essential that all component parts of the steel hatch closing appliances are maintained to a high standard. This also applies to all other main deck openings.

Ventilation

Most moisture damage and subsequent rust damage to steel cargoes is caused by cargo sweat and/or ship sweat. Steel loaded in a cooler climate going to or through a relatively warmer climate will, if ventilated, probably suffer from cargo sweat (that is, condensation of moisture directly onto the actual cargo). On the other hand, when a ship travels from a warm area to a relatively cooler area, the steel cargo is vulnerable to being affected by ship sweat (that is, condensation forming on the component parts of the ship's structure within the cargo holds dropping back onto the cargo) if proper ventilation does not take place.

Steel cargoes should therefore not be ventilated when passing from a cool climate to a relatively warm climate. Cargo should be given full ventilation when temperatures are falling. It will therefore be necessary to maintain temperature records from the commencement of loading up to completion of discharge. These records will enable the carrier to prove that all necessary measures were taken to care for the cargo during the course of the voyage. In the negotiation of cargo claims it is of great importance that correctly kept records are available which will accurately and acceptably correspond with the manner in which the ventilation was used.

When it is decided that the cargo should not be ventilated every effort must be made to seal off the cargo hold from the outside atmosphere. The aim should be to make the cargo hold as air-tight as possible. If cargo hold dew point temperatures are closely following outside atmospheric dew point temperatures, then the exercise is not working: hold sealing arrangements should be re-checked.

If there is any leakage of hatches, however slight, or the ingress or presence of free moisture in the cargo hold (for example, due to a flood back along bilge lines, the ingress of rain during loading, the presence of other cargo loaded in a wet condition, or the cargo holds not being dry when loading commences), there will be an appreciable increase in the relative humidity of the ambient air surrounding the cargo, resulting in copious cargo sweat and ship sweat, possibly accompanied by serious cargo damage.

Some Owners/operators equip their ships with either permanent or portable cargo hold dehumidification units which have proved to give satisfactory results.

Carriage of steel cargoes - Part 3 Surveys

Guidelines for Members, Masters and Surveyors

SECTION 1 - PRE-SHIPMENT SURVEY - CARGO

Information for the Surveyor

If a pre-shipment survey of cargo is planned, the Surveyor should be provided with the following information:

- Name of ship.
- Expected time of arrival.
- Loading terminal.
- Identity of applicant for survey.
- Name and full contact details of Agents.
- Instructions (for example, to survey all cargo or only particular parcels, or to survey cargo only or both the cargo and ship).

When to instruct a Surveyor

The Surveyor needs enough time to survey the cargo before commencement of loading. The length of time needed depends on the quantity of cargo and the number of parcels. As a rough guide, the Surveyor needs one clear day per 15,000mt of cargo. Fewer parcels mean fewer documents and less time is needed.

The Surveyor's duties

The Surveyor carrying out a pre-shipment cargo survey has a number of tasks:

- (1) To survey the parcels of cargo for: - rust condition - mechanical/handling damage.

The Surveyor should take any necessary photographs, preferably using a date insertion camera, and make a full note of the photographs he takes.

(2) To prepare descriptive clauses of any damage, to be inserted on Mate's Receipts and Bills of Lading. Cargo affected by rust or mechanical damage is not in apparent good order and condition and should not be so described. The Mate's Receipts and Bills of Lading should be appropriately claused to reflect the true condition of cargo.

(3) To ensure that the person in touch with the Shipper (for example, the chief tally clerk, or the Agent) obtains a copy of any descriptive clauses and passes them on to the shipper before the affected cargo is loaded.

(4) To assist the Master. If appropriate, the Surveyor should:-

- warn and advise the Master not to sign Mate's Receipts or Bills of Lading as presented except in the surveyor's presence;
- check that the descriptive clauses he has prepared are fully inserted on Mate's Receipts and Bills of Lading before they are signed;
- support the Master, if appropriate, in insisting that the Mate's Receipts and Bills of Lading are claused as necessary;
- help and advise the Master if it rains during loading.

N.B. It may be inappropriate for the surveyor to assist the Master if the Surveyor is appointed on behalf of a Charterer Member (rather than an Owner Member).

Preliminary report

As soon as the vessel has sailed (but in any event within 24 hours) the surveyor should send, by fax, a preliminary written report covering:

- Date and time of sailing.
- Port(s) of discharge, quantity of cargo per port, total tonnage loaded.
- ETA port(s) of discharge.
- General observations on the condition of the cargo.

Final report

After the vessel has sailed (but in any event within 5 working days) the Surveyor should send, by courier, a full written report containing the following information:

- Name of the applicant.
- Name of the vessel including relevant voyage number.
- Name of the Master.
- Name of the Chief Officer.
- Gross tonnage.
- Port of Registry.
- When and where built.
- Details of safety construction certificate.
- Details of last load line survey.
- Details of classification certificates and conditions of class (if any).
- Details of last special survey.
- Name of Owners and Operators.
- Name of Charterers' Agent.
- Name of Owners' Agent (protecting agent or not).
- Purpose of the survey.
- Date of arrival of the ship.
- Date when survey of steel commenced.
- Date and time when the Surveyor first boarded the vessel.
- Place where the vessel was berthed.
- Details of any discussions with the Master.
- Details of the cargo including:
 - (a) Number of Mate's Receipts and relevant Bills of Lading;
 - (b) Details of the parcel involved (for example, the number of pieces, packages or bundles, type of goods);
 - (c) Condition of each parcel of cargo clauses if any, entered in the Mate's Receipts and Bills of Lading;
 - (d) Details of the pre-shipment storage (for example, covered or uncovered on open quay, covered or uncovered rail wagons, open barge or coaster).
 - (e) Cargo hold stowage per Mate's Receipts or Bill of Lading.
- Details of tonnages loaded for each discharge port and where stowed in the vessel.
- Details of any stevedore damage (with copies of any letters of reserve/protest to accompany the report).
- Details of any stoppages for rain including details of whether the hatches were closed and, if so, whether closed in sufficient time to prevent cargo from becoming wet. It should be noted whether cargo brought forward for loading had been protected from contact with rain during any stoppages.
- Condition of the cargo holds prior to commencement of loading in relation to cleanliness and suitability to receive the intended cargo.
- Results of silver nitrate test on tank tops and ship's sides.

- Atmospheric temperatures prevailing during loading.
- Every effort should be made to obtain a copy of the cargo plan and a copy of the statement of facts to accompany the report.
- Photographs of the cargo should accompany the report, preferably with dated exposures.

PART 3 SURVEYS

SECTION 2 - PRE-SHIPMENT SURVEY - THE VESSEL

If such a survey is to be carried out, it should be done as soon as possible after the vessel's arrival at the load port. The surveyor should invite the Master or Chief Officer to attend. The following guidelines should be observed.

Cargo holds

The surveyor should check the condition of the cargo holds before the commencement of loading. If the hold is not in a suitable condition, the surveyor should report immediately, before any cargo is loaded.

If cargo compartments are washed with salt water in preparation for loading they must be given a final fresh water wash to remove any salt crystals. The surveyor should make spot checks with silver nitrate on the sides of the holds and on the tank top plating. This is particularly important when the discharge port is in the United States, where such tests are commonly carried out on discharge.

Steel hatch covers and other deck openings

Most bulk carriers employed in steel trades are fitted with MacGregor type wire-operated hatch panels. Alternatively, the panels may be operated by chains or by hydraulics. In most cases, the following checklist, with any necessary modifications, is recommended.

Check list

General

- (1) Favourable comments.
- (2) Adverse comments.
- (3) Types of hatchcovers involved.

Panels

(1) Well painted up, free from rust, rust scale or indentations, affected by rusty patches and scattered dents but general condition not considered to affect the strength of the appliances

OR

(2) Rusty, partly rusty, in appearance. Affected by rust scaling. Corrosion (light/heavy). Affected by scattered dents. General condition poor and considered to affect the strength of the appliances.

Rubber packing (gaskets)

(1) Rubber jointing pliable, not unduly compressed. Not torn, chafed or defective in any respect

OR

(2) Locally chafed, torn and/or distorted (squeezed or pinched in the retaining channels). Not firmly affixed in the retaining channels. Rubber jointing hanging out of retaining channels in places. Rubbers perished, hardened and lacking necessary pliability. Rubbers affected by heavy and unusual compression marks.

Retaining channels

(1) Free of rust scale or any deformation

OR

(2) Rusty, corroded, locally distorted, bent and/or torn.

Compression bars

(1) Free of rust scale or any deformation

OR

(2) Locally bent and/or torn in places. Waved along length. Locally waved in places. Affected by heavy (light) corrosion (points of corrosion). Distorted (locally) or (along length). Affected by heavy (light) corrosion. Metal parts seriously wasting away through corrosion.

(a) Transverse guttering and (b) Hatch rims

(a) (1) Free of rust scale, serious corrosion or any deformation

OR

(2) Channel bars locally bent and/or waved. Metal work generally corroded. Locally wasted away through corrosion.

(b) (1) Free of corrosion or any physical damages

OR

(2) Hatch rims locally wasted and reduced in height through corrosion. Deeply scored.

Steel to steel contact points

(1) No distortion, bending or excessive grooving

OR

(2) Sections bent. Heavily grooved, distorted and/or partly broken off.

Snugs

(1) Free of rust scales or any defects

OR

(2) Corroded - diminished in size. Holding properties diminished.

Crutches

(1) Free of rust scale or corrosion

OR

(2) Heavily rusted or corroded. Partly crushed. Completely crushed. Distorted.

Quick-acting cleats, rods, nuts and washers/ other cleating arrangement

(1) Free of rust scale or any defects. Rubber washers pliable. Corroded but corrosion not serious - general condition acceptable

OR

(2) (Number) corroded - cross sections area of rod diminished. Strength of rod impaired. Rod bent. Washers hardened and perished. Washer crushed. Tightening nut rusted and inoperable.

Cross wedges (cross joint cleats)

(1) None missing - all in place when surveyed. Wedges not bent, side springs complete and in good working order

OR

(2) (Number) cross wedges bent. (Number) cross wedges with inoperable springs. (Number) cross wedges with side springs missing. All cross wedges not in place at time of survey. Wedges tightened over welded pads on adjacent panel edges.

Inboard drainage system

(1) Coaming drain channels and all guttering free of loose scale, foreign matters and/or obstructions. Drain holes unobstructed, in good order and condition also in good working order. Non-return drain valves free and working correctly

OR

(2) Coaming drain channels partly (completely) obstructed with residues of previous cargo. Coaming drain channels corroded (lightly) (heavily). Drain holes blocked with residues of previous cargo (with rust scales). Non-return drain valves jammed and not in good working order. Drain holes not fitted with valves and drain pipes open.

Wheel tracks (guide rails)

(1) Free of loose scale clean and unobstructed

OR

(2) Worn, grooved, uneven, waved. Corroded (heavily or lightly) and weakened.

Wheels

(1) Well greased and free running

OR

(2) Seized up. Spindle bent, wheel not working.

(a) Panel side chains (b) Hinges (c) Hydraulics

(a) (1) Free of scale and correctly adjusted

OR

(2) Affected by rust scale and requiring adjustment.

(b) (1) Hinges in apparent good order and condition. Panels not misaligned

OR

(2) Hinges rusty and adjacent areas rust streaked. Wear down of hinge spindles apparent with resulting misalignment of panels.

(c) (1) Hydraulic system functioning correctly. No leaking of oil from joint connections or hoses

OR

(2) Hydraulic system malfunctioning. Oil leaking from hydraulic system.

Access hatches

(1) Cleat bolts and wing nuts working freely: wing nut thread well greased up. All cleats in place and complete with wing nuts. Packing pliable, complete and undamaged

OR

(2) Cleat bolt section seized up on operating spindle (all or give number). (Number) of cleats wing nuts missing. (Number) of wing nuts seized up. All (or give number)

cleats rusty, corroded and completely inoperable. (Number) cleats bent and inoperable. Packing torn, hardened, perished, sections missing. Packing retaining channels locally bent, rusty and corroded.

Access doors

(1) All securing lugs complete working freely and fully operable. Sealing rubbers (door edge packing) pliable and in good condition

OR

(2) Out of (give number) lugs, all (or give number) seized up and completely inoperable. Out of (give number) lugs (give number) missing. Sealing rubbers (door edge packing) hardened, perished, partly missing.

Bilge sounding caps

(1) Operating correctly and capable of being fully screwed down

OR

(2) Thread of cap damaged, cannot be properly screwed down in place. No proper cap fitted. Cap missing. Pipe opening closed with a wooden plug.

Sealing tape

The use of sealing tape on hatch covers is not recommended. Hatches are designed to be weather-tight; that is, they must be watertight in normal weather conditions. If they are in good order and well-maintained they will be.

In bad weather, experience shows that sealing tape is either ineffective or is simply washed away.

As well as being ineffective, the very use of sealing tape can be harmful to the carrier's interests - it can be regarded as an admission of lack of confidence in the watertightness of the hatch covers.

In short, sealing tape is not an effective way of creating a watertight seal and its use in any case a bad sign - it will not help to protect either the cargo or the carrier, and may even be harmful to the latter.

Testing for watertightness

In addition to a visual inspection of cargo holds and hatch covers, the surveyor should, if instructed, test the hatch cover panels for watertightness. Any defects should be noted by the surveyor, reported to the responsible deck officer and competently repaired, before the start of the voyage.

Three methods of testing are available: ultrasonic; hose; chalk.

Ultrasonic test

This can be the most reliable method. It is the preferred method of testing, but only if the surveyor is certified to carry out ultrasonic testing and is using properly certified and calibrated equipment approved by Skuld. It has a number of advantages:

- It can be used on loaded or partly loaded vessels without damage to cargo.
- It can be done by one person.
- It is less time-consuming than other methods.
- It reveals the exact location of any defects.

- Equipment is easy to use.
- It can be used at below zero temperatures.

The Master is to be informed of the scope of work and intended procedure. Personal safety measures are to be agreed.

The Club's requirement is that only competent and qualified operators, with properly certified, calibrated and approved equipment, should be allowed to use the ultrasonic equipment for testing hatches for watertight integrity. Therefore, ultrasonic testing should only be carried out if the Association has expressly authorised the surveyor to do so.

Hose test

If the Association has not authorised an ultrasonic test, hose tests should be carried out.

IACS (The International Association of Classification Societies Ltd.) International Guidelines 1985 dictate how the test should be carried out. They specify that the nozzle diameter must be a minimum of 12mm, that the end of the nozzle of the hose delivering the stream of water should be held at a maximum of 1.5 metres from the joint being tested, that the pressure to be used should be sufficient for a free height of water with stream directed upwards of at least 10 metres.

The actual joint to be tested is situated some distance below the surface of the hatch panels, which meet to form a very narrow gap. Therefore, the water from the hose, when testing, cannot be directed onto the actual joint forming the watertight seal. In fact the force of the water directed towards the joint is dissipated against the surface of the hatch panels. Hose testing has for many years been the principal method of testing, because there was no other known method available, other than the less satisfactory chalk test. However, hose testing is still an acceptable method of testing for watertight integrity. It is usually necessary to use two surveyors and in order to increase the efficiency of the test it is advisable to plug the drain holes on either side of the transverse joint so that the guttering can be filled with water.

Chalk test

This test method should be the last resort. If other methods are not possible, this test is achieved by applying ordinary chalk to all compression bars, closing the hatches and then re-opening them to see if imprints of the chalk on the sealing rubbers can be observed. The benefit of this test is that it can be performed with or without cargo in the ship. On the other hand, application of the chalk to the compression bar is time-consuming. Heavy and light imprints on the rubber gaskets can give rise to indecision as to how effective the test really is. Naturally, areas where there is no imprint must mean absence of contact between the compression bar and the rubber seal; these are obviously areas of potential leakage. This test is more often used, and is useful, when rubber gaskets have been renewed.

The survey report

Preliminary

If any significant defects are found, the Surveyor should report, by phone or fax, to the Club immediately. He should also report to the Master if appropriate.

Upon completion of the survey and in good time before the vessel sails from the port, the Surveyor should report by fax to the Club setting out details of any defects found during the survey. If appropriate, he should provide the Master with a copy.

Final report

The Surveyor should without undue delay (but in any event within 5 working days), send a full written report, by courier, containing the following information:

- Name of Surveyor.
- Date of report.
- Name of applicant for survey.
- Summary of Surveyor's terms of reference.
- Name of the vessel.
- Type.
- Gross tons register.
- Port of registry.
- Classification Society.
- Date built.
- Place built.
- Details of safety construction certificate.
- Details of classification certificates and conditions of class.
- Details of last special survey.
- Details of last load line survey.
- Number of cargo holds.
- Number of deck hatches per hold.
- Hatch closing system.
- Number of deck ventilators per hold.
- Ventilation system.
- Number of sounding pipes per hold.
- Number of access openings per hold.
- Number and type of other weather deck openings.
- Name and city of Owner.
- Name and city of Manager/Operator.
- Name and city of Charterer.
- Name of Charterers' Agent at port of loading.
- Name of Owners' Agents/P&I Correspondent at port of loading.
- Name of the Master.
- Name of the Chief Officer.
- Names and business of others in attendance.
- Location of the loading berth.
- Time and date the vessel arrived.
- Time and date Surveyor proceeded on board.
- Time and date copy of preliminary report handed to the Master.
- Time and date loading commenced.
- Time and date vessel sailed.
- Full details of test for watertight integrity.

- Full details of repairs and adjustments after preliminary report to the Master.
- Photographs of damages, defects and repairs as found necessary (with the photographs showing exposure dates).
- Report on condition of hatches.

SECTION 3 - DISCHARGE SURVEYS

Instructions to Surveyor

When a Surveyor is instructed to attend the discharge of the cargo, the hatches should, if possible, remain as they were at sea (that is, unopened and all securing in place) until the Surveyor has the opportunity to survey the hatches. He should be able to report that, upon boarding the vessel he ascertained that the hatches were still in their undisturbed sea-going condition with all securing wedges and quick-acting cleats fully and firmly in place. The Surveyor should witness opening of hatches and either report that all cargo in sight was dry and in apparent good order and condition or give a full description of what he observes when the hatches are open. If leaking hatches are involved the Surveyor should conduct a full hatch survey similar to that which he would carry out when performing a pre-shipment survey. He should follow the discharge of the cargo, consider and study the cause of any damages found in stow with a view to reporting on them. Surveyors should particularly bear in mind that it is advisable for them to attend towards the completion of discharge, as it is in the bottom of the cargo holds where damages from overstowing pressure and unexpected moisture damages can show up.

In any event, where damage has occurred and is evident, the Surveyor should take an active and prominent interest in ensuring that, in discharging, sorting and storing damaged cargo after discharge, everyone involved acts fully in the interests of mitigating the loss. For example, even where wrapped cargo has sustained heavy mechanical damage, it should not be left on the open quayside exposed to the elements. In addition, he should try to ensure that no steps are taken which prejudice the member's interests; for example, cargo which has been partly in contact with sea/salt water should never be washed down with fresh water from the city mains: city mains water is invariably contaminated with chlorides. There are many other factors, too numerous to mention, of which the competent Surveyor should be aware.

The survey

Any damaged cargo discharged from the ship should be the subject of a statement from the Master. Depending upon what the damage actually is, and how it was caused, the following is a check list of matters which the Surveyor should refer to in his report. In collecting information, it must be left to the Surveyor's discretion as to what is relevant to the actual cause and circumstances of the damage.

- Name of applicant and the party whom he represents.
- Name of the ship and number of the relevant voyage.
- Gross tonnage and port of registry.
- Purpose of the appointment.
- Date when the surveyor went on board the vessel.
- Place where the vessel was berthed.
- Name of the Master.
- Name of the Chief Officer.
- Name of the Owners.
- Name of Operators.
- Name of Charterers and/or their Agents.
- Name of Owners' Agents (whether shared with Charterers or acting as protecting Agents).
- Name of Classification Society.

- Details of safety construction certificate: -
- classification certificate;
- last load line survey;
- last special survey;
- any conditions of class.

Copy documents which should be obtained

- Copies of the relevant log book pages.
- Copies of relevant Mate's Receipts and Bills of Lading.
- Copies of voyage ventilation records.
- Copies of bilge sounding records.
- Copies of any correspondence between the stevedores and/or the Charterers at the port of loading and the port of discharge relevant to any current voyage cargo damage.
- Copy of the cargo plan.
- Copy of any documentation received from Charterers, shippers or stevedores relating to any current voyage cargo damage.
- Copies of ship's plans as found relevant/necessary (for example, ventilation plan, piping plan, general arrangement plan and capacity plan).
- Statement of Facts covering discharge of the ship, to be checked against deck log book times for the same periods.

Contents of the Surveyor's report relative to the cause of any damage

Non-return valves on bilge lines

Check that they are working properly. Valve chest on the engine room side of the aft bulkhead should be opened and the seating of the valves examined and/or any other relevant parts of the bilge pumping system.

Tank tops

- Details of pressure testing.
- If damage is associated with a crack in the tank top, give details of the exact position of the crack, whether the crack has come into existence through damage to the tank top, the general physical condition of the tank top or weakness in the welding.
- If damage is associated with leaking tank-top manhole lids, give details regarding the state of the packing - type of packing - also the studs and securing nuts.
- Are the manholes recessed and/or fitted with protection covers?
- Holes in pipes.
- The apparent condition of the pipe in general should be reported.
- The exact position of the hole, or holes, should be recorded and it should be clarified whether the hole/holes has come into existence through the effects of corrosion resulting from lack of maintenance, or through the effects of erosion from within the pipe (that is, from an inside or outwards direction).
- Is the hole or defect in an accessible position? Would the defect have been visible from a reasonable inspection of the cargo hold prior to loading cargo?
- With leaking pipe flanges it is necessary to state whether or not the flanges were completely parallel; mention the type of packing used also its condition, measurements of the flange sizes of the holding bolts and general condition.
- Where substantial condensation damage is concerned the surveyor should carry out a full ventilation survey as referred to earlier.

The survey report

Preliminary

Upon completion of the survey it will be necessary for the surveyor to produce a preliminary report, briefly referring to identification details of the incident, the nature of the damage, and the cause and circumstances of the damage sustained by the cargo.

Final

The final survey report will contain full facts relating to the survey and be completed by the surveyor giving his considered opinion as to the cause of the damage. However, it is emphasised that surveyors should on no account include in their reports any opinions as to liability.

Stevedores' outturn report

Upon completion of discharge it is customary in many ports for the stevedores to present the Master with a stevedores' outturn report for his signature. This document usually gives a general description of items of cargo which, according to the stevedores, were allegedly found damaged prior to discharge, before the goods were handled by the stevedores. If these damages were not brought to the attention of the Master before being handled by the stevedores, he should refuse to sign the report. If the damages were brought to the attention of the Master, at the correct moment, then he may sign the report "for acknowledgement of receipt only." The descriptions and quantities referred to in these reports are often inaccurate.

Who should be authorised to board the vessel and examine the cargo?

In many ports when a vessel arrives with a cargo of steel on board, it is not unusual for cargo interests' surveyors to board the ship, proceed into the cargo holds, take photographs and test surfaces of the cargo and the ship's structure with silver nitrate, without letting anyone know who they are, or what their business is on board the ship. Such people ignore the fact that a ship is private property: they should present themselves to the Master, explain why they are on board and obtain the Master's authorisation to remain on board.

Surveyors representing cargo interests can survey the cargo after it is landed ashore from the ship but should not be allowed to do anything on board without the Master's permission. The Master should refer such Surveyors to his Agent or the Club's Correspondents who would then advise the Master as to whether he, the Master, is under any obligation to permit the Surveyors on board. If eventually the cargo interests' Surveyor is allowed on board the vessel, he must be accompanied by the carriers' Surveyor and also by a member of the vessel's staff. It should be remembered that voyage records kept by the ship are private documents so that caution must be exercised as to who is permitted to examine them.

If a claim or arrest is made on the vessel, the Master should notify the Club's Correspondents who will immediately inform the Club so that appropriate action can be taken.

SECTION 4 - CARGO/COMMODITY SURVEY

The survey

If it is alleged that cargo has been damaged, a Surveyor may be instructed to inspect the cargo after discharge. The Association might agree to a joint survey with the cargo interests to see if all interested parties can reach joint agreement as to the extent of the damage. At such surveys, Surveyors should keep in mind that it is incumbent upon the receiver to show the damage and prove any loss which he will be claiming. It should also be borne in mind that the receiver cannot claim any loss which could have been avoided had he taken reasonable steps to mitigate his damages.

The survey report

Preliminary

This should be a short report identifying the case in question and briefly explaining the aspect, nature and extent of the damage.

Final

The final report should include details of the following:

- Name of the applicant and whom he represents.
- Date and place where the survey was held.
- Purpose of attending the survey.
- Name of the vessel, date of arrival and date of discharge of the cargo.
- Bill of Lading details concerning the goods to be surveyed.
- Names of all present at the survey, who they represent and in what capacity.
- The name of the receiver.
- Details of the holds from which the cargo was discharged.
- Confirmation that the goods were properly identified as being the actual goods to be surveyed. There are instances where Surveyors have been too casual in their approach to the survey and have either surveyed the wrong goods or have surveyed goods as presented which could not be identified with the shipment in question.
- Description of the goods (for example, packing, securing, weight per unit).
- A complete descriptive report of the damage before and after the packing is removed.
- The nature of the damage; for example, contact with fresh water, chlorides, liquids, powders, grease, oils. Joint samples should be taken and retained for future reference. Analysis of samples, if found necessary, is in most instances for the account of cargo interests as part of their obligation to determine the nature of the damage.
- Comments on the damage must include a full and complete explanation as to how the receiver justified the allowance he obtained from the Surveyors and on what basis the Surveyors were prepared to agree and accept the allowance as being fair and reasonable.
- If agreement as to the extent of damage cannot be reached, details and evidence should be provided as to why the cargo interests' Surveyors' figures were unreasonable.
- When a receiver attempts to reject his cargo and insists that he be allowed to abandon the goods (in which case the goods would in all probability have to be disposed of by sale) such action should not be approved by the Surveyor, unless it can be proved by the receiver that he is unable to use the goods on account of the

damaged condition which initially gave rise to the claim. All events and discussions of importance leading up to the acceptance, or non-acceptance, of the cargo are to be reported.

- Any information or evidence which might be useful in defending the claim.

Silver nitrate testing and sampling

Silver nitrate solutions for testing for chlorides are not reliable unless they contain an amount of chlorine-free nitric acid: without the presence of this constituent in the solution it will react to alkalis. For this reason surveyors should use their own solution to check when complaints are made by cargo interests' Surveyors that goods are contaminated by chlorides. As silver nitrate solutions deteriorate with time, Surveyors should test their own solutions. The mains tap water usually gives a brackish reaction and this can therefore generally be used.

Official rust samples or samples of the material should be selected jointly and sealed. Samples of the actual material must be selected with care. Instances will arise where the samples have to be properly wrapped and protected without being touched by human hands. Sodium chloride (NaCl) is exuded through the pores of the human skin and can contaminate samples, this being of importance where traces of NaCl might enter into future arguments concerning the nature of the damage.

A silver nitrate test with positive results is not conclusive evidence of contact with sea water; it is only an indication that sea water might be involved. If cargo interests maintain that there has been salt water contamination then the carrier's Surveyor must ensure that there is a quantitative analysis by a reputable laboratory, where all the solids found in sea water are identified as being present and in the correct proportions

Carriage of steel cargoes - Part 4 The Bill of Lading

Guidelines for Members, Masters and Surveyors

SECTION 1 - THE LEGAL POSITION

A "clean" Bill of Lading.

As a general rule, the carrier must, on demand of the shipper, issue a Bill of Lading showing "*the apparent order and condition*" of the cargo at the time of loading.

A "*clean*" Bill of Lading is one which describes the cargo as being in "apparent good order and condition", without containing adverse remarks. A clean Bill of Lading is effectively a representation that, at the time of shipment, the cargo was in good order and condition as far as would be apparent from the type of inspection which a reasonable carrier could be expected to make. This representation will usually prevent the carrier from arguing that any damage to the cargo occurred before the cargo was received into his custody.

For example, if a carrier issues a clean Bill of Lading for steel coils which were rust stained before shipment, the carrier can usually be held liable to the receiver for that rust staining. The carrier cannot argue that the coils were already rust stained when loaded onto his vessel, because he is bound by the clean Bill of Lading he issued.

The statements in the Bill of Lading as to the apparent order and condition must be accurate: the carrier is not protected if he or the Master use reasonable care but still issue an inaccurate Bill. Consequently, if in doubt the Master should seek guidance from the Club Correspondent or a Surveyor appointed to assist. Any remarks on the Bill of Lading usually reflect remarks in the Mate s Receipts, so the remarks in the Mate s Receipts must also be accurate.

Letters of Indemnity

In the "real world", the shippers often need a clean Bill of Lading for their sales contracts or letters of credit and they may attempt to persuade the vessel's Charterers or Owners to issue a clean Bill, even though the cargo is obviously not in apparent good order and condition. In return for a clean Bill of Lading, the shipper will often offer a Letter of Indemnity which, on its face, appears to indemnify the owner or charterer against all possible consequences of issuing a clean Bill of Lading.

It is, however, extremely dangerous to issue a clean Bill of Lading in these circumstances. Firstly, the issue of a Bill of Lading containing a false statement is a crime in many countries, as it is, in essence, a conspiracy by the shipper and the carrier to defraud the receiver. Secondly, any Letter of Indemnity would almost certainly be legally unenforceable. Even where shippers have honoured such Letters of Indemnity in past cases (for commercial reasons) they may not do so in future cases, where the sum involved is more substantial and where there is a dispute as to the extent to which damage has a pre-shipment origin. Thirdly, the Member will lose his P&I cover if he issues, or authorises the issue of, a clean Bill of Lading for cargo

which he knows is damaged. The only circumstances where a Letter of Indemnity may be acceptable is where there is a genuine dispute as to whether a clean Bill of Lading should be issued.

Claused Bills of Lading

Where the cargo is not in apparent good order and condition, the carrier is entitled to insist on the Bill of Lading being claused.

If there is no Charterparty applicable, the carrier can probably decide on his own wording for the clausing, provided that the wording is neither inaccurate nor misleading. However, if the carrier exaggerates the severity of any damage or defects, he may be liable to the shippers.

If there is a Charterparty, the carrier may be under an obligation to issue Bills of Lading "as presented". In those circumstances, the shippers are probably entitled to decide on their own wording for the clausing but the carrier is still not obliged to accept that clausing if it is inaccurate or misleading.

As a general rule, a carrier should attempt to agree the wording of clausing with the shippers: in practice, the pre-shipment Surveyor will, at many ports, negotiate routine clausing with the shippers on behalf of the carrier. If, however, an agreement cannot be reached, in cases where the dispute may be significant, the Club should be notified (either directly or through its Correspondents) since there may not only be a factual or expert dispute (as to the extent to which the cargo is not in apparent good order and condition) but a legal dispute as to the identity of the party entitled to decide on the precise wording of any clausing.

SECTION 2 - CARGO CONDITION CLAUSES

There is no single standard wording for clausing Bills of Lading in the steel trade but the following descriptive clauses are recommended by Skuld in appropriate cases:

"Rust stained"

When **75% or more of the surface area of the item of cargo/cargo is covered with a fine, light coloured film of rust** which when removed by wire brushing, scraping or wiping reveals a smooth, bright metallic surface



No. 15 Rust stained

"Partly rust stained"

When **under 75% of the surface of the item of cargo/ cargo is covered with a fine light coloured film of rust** as described for "Rust Stained" above



No. 16 Partly rust stained

"Rusty"

When **75% or more of the surface area of the item of cargo/cargo is covered with a dark brown coloured rust formation**, which when removed by scraping or wire brushing reveals an uneven, dull surface still rusty in appearance to some degree.



No. 17 Rusty

"Partly rusty"

When *less than 75% of the surface of the item of cargo/cargo is covered with a dark brown coloured rust formation* as described for "Rusty" above



"Rust Spots Apparent"

Localised very slight penetration of rust in the form of rusty spots and especially in areas where the mill scale coverage is broken or fragmented. The spots are not prominently bulbous in appearance and, when cleaned away, leave a smooth steel surface.



No. 18 Rust Spots Apparent

"Rust spotted"

Localised penetration of rust through the mill scale. Bulbous, revealing an uneven surface when removed by wire brushing. Parts of the surface without mill scale may be rust stained with rust spotting.

"Wet before shipment"

Partly or totally wet surfaces apparent before shipment but may only become apparent when moved for shipment (for example, water can run out of the inside of structural steel, when lifted). When lifting hot rolled coils, flexing of the windings often squeezes out water from between the turns of plating; in which case, although initially apparently dry, the goods are wet before shipment.



No. 19 Rust spotted

"Rust with pitting"

Deep brown coloured rust which, often with rust scale formation, when removed by wire brushing or scraping reveals pitting of the surface of the steel.



No. 20 Rust with pitting

"Covered with snow"

Visible surfaces partly or totally covered with snow and/or ice.

"Areas of steel surfaces reacting to silver nitrate solution tests"

Suspect areas should be tested. If they react, the test is proof that chlorides are involved: see the comments above on silver nitrate testing and sampling.



No. 21 Silver nitrate. Note milky white area: positive reaction

"Stained by an unidentifiable powder"

These powders are often hygroscopic and contain chemicals which can be aggressive to steel surfaces. The colour of the powder may be mentioned. Surveyors should endeavour to take and retain samples of the powder.

"Rust streaked"; "evidence of contact with free moisture - drip down rust streaks"

These clauses will apply mainly to the packing of wrapped material; they are very important as drifting free moisture can penetrate the overlaps of packing and contact the contents so causing damage direct by contact, also creating internal sweating of the material.

NB. Where wrapped goods are concerned many of the above mentioned clauses can be used; for example, "Wrappers Rust Stained." Where galvanised material is concerned the rust is referred to either as "White Oxidation Marks" or, when more advanced, as "White Rust". It is important to mention drip down moisture runs when these are observed.

Mechanical (handling) damages

Although at the time of loading these damages may be nothing more than irregularities, they can eventually lead to damage developing and the goods must be considered as not being altogether suitable perhaps for stowage purposes, or capable of withstanding normal handling; the following clauses on Bills of Lading should make this clear.

Unwrapped material***Hot rolled steel sheeting in coils***

- "Inner and/or outer (or both) edges of plating locally dented and/or buckled where handling gear marked (number of coils affected)."
- "Side edge windings locally affected by deep score marks." - "Inner and/or outer (or both) turns of plating telescoped up to (give maximum extent of telescoping in centimetres, also number of coils affected)."
- "Telescoped edges of plating torn and bent (number of coils)."

- "(Number of coils) loosely wound, windings slack, strapping bands slack; average number of strapping bands per coil broken and/or missing."
- "Coil ovalised: note two way inner diameter measurements and mention numbers of individual coils affected."

NB. The tightness of the windings of coils and efficiency of strapping is of considerable importance. Loosely wound coils can lead to instability of the stow, damage to the material and eventual costs for re-strapping in order to facilitate further handling (for example, on carriage to final destination). The number of strapping bands applied are the minimum; broken or missing strapping bands should not be ignored.



No. 22 Hot rolled coils. Note bending damage to inner circumference turns of plating



No. 23 Hot rolling coils - excessive telescoping

Hot rolled steel plates in bundles

"Edges of bottom plates in bundles locally bent and/or buckled where handling gear marked." "Edges of plating locally scored/gouged (number of bundles affected)."

Single steel plates

- "(Give number of plates). Plate edges locally bent where handling gear marked."
- "(Give number of plates). Plates waved/bent along length. Bent on end."

"Large steel beams"

These can be shipped in single pieces or wired into bundles. Overloading of slings may cause bending of the flanges. When the goods are in bundle form, secured or unsecured, it is important to observe how the flanges can lead to pressure in stow resulting in serious distortion of the beam webs and such damage is not uncommon. The flanges must not overlap consecutively but alternately. Steel beams are regularly shipped in large quantities.

- "(Number of pieces) flanges incorrectly overlapping for stowage purposes."
- "(Number of pieces) flanges locally bent. Beams bent. Webs bent and/or distorted."



No. 24 Large steel beams

Merchant iron

Small scantling material in the form of angles, flats, beams, rounds, squares, channels, etc., shipped in lengths of 20 and 40 feet often form part of a cargo. They are made up into unprotected bundles which are secured with flat metal strapping bands or wire. If not well packed and tightly secured, in handling, individual pieces project at the ends and become vulnerable to bending damages.

- "Bundles loosely secured."
- "Securing of bundles insufficient."
- "Individual pieces projecting on ends. Projected and pieces bent."

Pipes and tubes

The remarks above for Merchant Iron would apply to small scantling pipes made up into bundles. If these pipes are fitted with plastic protection caps their condition should be noted.

Single Mild Steel Pipes are shipped loose and in various lengths. Damages consist of localised denting on the body of the pipe or on the ends. Ends can be completely distorted so that the pipe in the affected area is out of round. If the ends of the pipes are bevelled, ready for welding, the bevelled edges often become scored or damaged (requiring rebeveling). It is customary to handle these goods with copper or plastic lined lifting clamps/hooks. In the following the number of pipes affected should be mentioned:

- "(Number) pipes locally dented in (number of places)."
- "(Number) pipes dented on one end. Out of round on one end."
- "(Number) pipes bevelled end scored, nicked, cut."

Specially coated pipes and cement lined pipes often form part of ship's cargoes. Although such pipes are unprotected, damage to the coatings or even defects caused in handling can provoke claims.

- "Cement lining affected by hair line cracks."
- "(Number) pipes cement coating chipped and/or locally broken on ends."
- "(Number) pipes protective coating locally scored, chafed where handling gear marked."

Wire rods***Unwrapped goods***

Unwrapped wire rods are subject to claims for scoring, nicking, twisting and tangling. Such wire has in many instances to undergo redrawing. Scoring and nicking may result in the wire breaking in the dies and evidence of the defects is carried on in the drawn material. Twisting and tangling causes delays on the production line. The following clauses can be used:

- "Strapping bands slack and converging. Bundles slack and leaning to one side."
- "End windings twisted and/or tangled."
- "Percentage of visible windings nicked, scored, chafed."



No. 25 Wire rods: disintegration of bundles caused by bad stowage & rough handling

Wrapped goods

Wrapped wire rods are usually destined for prestressing purposes, wire for musical instruments and tyre cord, etc. Any defects whatsoever will undoubtedly result in claims. This is delicate material and the following clauses can be used:

- "Packing locally chafed where handling gear marked."
- "(Number of coils) packing locally torn, partly torn, visible contents scored, chafed, rusty."

Sheet pilings

Single and double sheet pilings have keying grooves on their edges. These interlocking grooves must not sustain damage.

- "Keying grooves locally bent in (give number of positions)."



No. 26 Sheet pilings ready for shipment

If uncoated, a normal rust clause will apply. If coated for protection, the following will apply if the coat is defective:

- "Rust stained/rusty, where protective coating scratched, scored, gouged or chafed away."

Wrapped material

Steel coils

- "Inner and outer edges of circumference packing dented and chafed where handling gear marked."



No. 27 Steel coils - cold rolled steel strip sheet

Packages

- "Upper and lower edges of packing dented where handling gear marked."



No. 28 Packages - cold rolled sheets

General

- "(Side packing) (circumference packing) (inner core packing) (top packing) locally dented / scored / torn open / contents exposed / visible plate edges buckled/ scored / chafed / rusty."

- "(Number) strapping bands broken and/or missing."

- "Inner and/or outer circumferences plate edges telescoping, edges of plating buckled/torn."

- "Coil (give package number) ovalised (give inner core diameter two way dimensions)."

Carriage of steel cargoes - Part 5

Responsibilities Under Charterparties

Guidelines for Members, Masters and Surveyors

Types of contracts

In addition to the Bill of Lading (which evidences the contract of carriage between the carrier and the cargo interests), there will often be a Time Charterparty or a Voyage Charterparty, or both.

The Owner's obligations under the Hague or Hague-Visby Rules

The Bill of Lading will usually be subject to the Hague or Hague-Visby Rules. These Rules will also often be incorporated in a Time Charterparty or Voyage Charterparty by means of a Paramount Clause. Under the Hague or Hague-Visby Rules, the Carrier, Owner or Disponent Owner has an obligation, before and at the beginning of each voyage, to exercise due diligence (that is, reasonable care) to make the vessel seaworthy. For these purposes, a vessel is not seaworthy if she is not cargoworthy. In addition, the Rules impose a general obligation properly and carefully to load, handle, stow, carry, keep, care for and discharge the cargo.

Loading, stowage and discharging operations

Time Charterparties

However, under most unamended Time Charterparty forms, it is the Charterer (rather than the Owner) who is primarily responsible for loading, stowing and discharging the cargo. Nevertheless, the Master is always entitled to supervise those operations and there may be certain situations where responsibility shifts back to Owners (for example, where the Master negligently intervenes in the operations or where there is a problem, such as stability, which is particularly within the province of the Master). It is, however, not unusual for Charterparties to be amended to make the Master responsible for loading, stowage and discharge operations and, in those cases, the responsibility is transferred, even where the stevedores are engaged by the Charterer.

The NYPE Inter-Club Agreement

The position with regard to cargo claims is simplified under the NYPE form Charterparty, if the contract incorporates the Inter-Club Agreement. Where this Agreement is incorporated into the charter, the general rule is that the Owner will be 100% responsible for claims arising out of the vessel's unseaworthiness (or an error or fault in the navigation of the vessel), the Charterers will be 100% responsible for claims arising out of cargo handling (unless the charterparty is amended to make these matters the Master's responsibility, in which case responsibility is apportioned on a 50/50 basis), and shortdelivery and other claims will be apportioned on a 50/50 basis.

Voyage Charterparties

Under a Voyage Charterparty the Charterer will be primarily responsible for loading, stowage and discharging, if the contract provides for FIOS terms. If, however, the contract provides for liner terms, then Owners will be primarily responsible for these operations.

Conclusion

The above is a general description of the parties' obligations under Charterparties, but in the event of a dispute or disagreement, it is essential to contact the Club (either directly or through its Correspondents). Complex disputes and problems can arise out of the carriage of steel cargoes. The Club has a vast array of technical and legal advice at its disposal, not only to assist after a claim has arisen, but to assist in the prevention of claims. In the event of uncertainty as to what should be done, the Member should contact the Club. Skuld is there to help, as part of the Member's team.