

Shipboard Cargo Handling **Safety Guide**

Marine Department
Hong Kong

Shipboard Cargo Handling Safety Guide

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Introduction

The “Shipboard Cargo Handling Safety Guide” published by the Marine Department has been issued for more than 10 years. With the advancement of the cargo handling industry and the application of new technology, the safety and health of cargo handling industry should be re-assessed comprehensively, to cope with the ever changing working environment.

For the sake of upgrading the standards of safety and health of the industry, and to reduce accident happened, the Transport & Physical Distribution Industry Safety & Health Committee of the Occupational Safety & Health Council have obtained permission from the Director of Marine, edited the “Shipboard Cargo Handling Safety Guide” issued in 1982, and published a new guide with wider spectrum and detail information.

This Guide aims to provide all kinds of basic knowledge of safety and health, including safe features & equipment, safe means of access, proper use of lifting gear and lifting appliances and the safe working practices for stevedores. This Guide has added an additional chapter in the safe operation of container handling, and has explored in depth the hygiene and health matters related to shipboard cargo handling operation. To help ease reading by workers, this guide is presented in a simple and easy way, meant to convey safety message to reader.

This Guide is for the guidance of the industry and should not be taken as a legal interpretation of the regulations.

Acknowledgement

This Guide is generally based on the “Safety Code” issued by the Federal Advisory Committee on Australian Waterfront Accident Prevention. Other sources of material used in the guide include the “Code of Safe Working Practices for the Safety of Merchant Seamen” HMSO, (U.K.) and related publications of safety and health guides issued by the International Maritime Organization and the International Labour Organization.

Preface

This new publication of “Shipboard Cargo Handling Safety Guide” is based on the safety guide of the same title issued by this department in 1982, and revised with updated safety and health basic knowledge by the Transport & Physical Distribution Industry Safety & Health Committee of the Occupational Safety & Health Council to finalize the edition.

The Occupational Safety & Health Council published the first edition of the guide and distributed to parties concerned. As the response from outside are so well that it soon runs out of stock and still in need for supply today. As such, Marine Department have sought permission from Occupational Safety & Health Council to publish this guide again, aimed to continue our commitment for promoting industrial safety and health, to let workers involved understand the responsibility and knowledge of safety, to improve the safety awareness, and subsequently to enhance the safety of marine industrial activities.

Marine Department
July 1995

Section 1

General

(I) Responsibility of Ships and Lighter Owners

1. It is the responsibility of the owner of a vessel to provide safe ship's gear and equipment, safe means of access and safe working places for all cargo-handling workers on board the vessel; and responsible for the periodical inspection and maintenance of this equipment and gears, to ensure those equipment are in normal working order.
2. It is the responsibility of the owner of a vessel to provide necessary information, training, instruction and supervision to everyone working on board vessel, to ensure the safety and health while they are at work. The safe working practices, the potential risks and the necessary safety measures while engaged in cargo handling operation are the information that must be provided by the owner of vessel.
3. When vessels are carrying dangerous goods, it is the responsibility of the owner of a vessel to inform stevedore workers and other person working on board, about its stowage location, potential hazards and safety measures needed to be observed.
4. It is the responsibility of the owner of a vessel to provide proper personal protective equipment, such as safety harness, safety helmet, safety shoes etc, and to ensure these personal protective equipment are properly used and maintained.
5. It is the responsibility of the owner of a vessel to provide suitable and adequate first aid medicines and life saving equipment, such as life jacket and life buoy etc, and must be readily accessible on board vessel.

(II) Responsibility of Stevedoring Company and Sub-contractors

1. To provide adequate personal protective clothing and gears, such as safety helmet, safety shoes and safety harness to workers employed.
2. To provide training of safe working practices on cargo handling operation to workers employed.
3. To appoint experienced person with adequate knowledge of safety to

charge and supervise cargo handling works on board vessels.

4. To provide proper lifting gear that has been tested and examined for use by workers employed.

(III) Responsibility of Stevedoring Supervisors

1. To assign workers for job suitable to age, state of health and skill, and to be properly supervised.
2. To ensure workers carrying out cargo handling work in a safe and healthy environment.
3. To ensure workers complying with the safe working practices of cargo handling for avoidance of accident.
4. To ensure workers using lifting appliances and lifting gear in a proper manner.
5. To ensure and supervise workers using personal protective equipment properly.

(IV) Responsibility of Stevedore Workers

1. Worker should not remove , alter, displace or interfere with any safety device provided for their protection, or the protection of others, or interfere with a method or practice which has been adopted to avoid accident or injury.
2. Worker should report any defects of equipment or any hazardous situation to a responsible person.
3. Worker at work should co-operate with his supervisor to comply with the safe working practices for prevention of accident or bodily injuries to himself or others.

(V) Responsibility of reporting accident

1. It is the legal requirement under the Shipping and Port Control (Cargo Handling) Regulations, Cap. 313 that ship owner, master or cargo handling supervisor should report the incident in writing or verbally to the Director of Marine, and shall furnish written report of full

particulars to the Director of Marine within 24 hours, for any of the following incidents happened in the course of any process of cargo handling:-

- (a) a person is killed or seriously injured in an accident;
 - (b) a crane, winch, hoist or other appliance used in hoisting or lowering cargo collapses or fails (other than breakage of a chain or rope sling); or
 - (c) a person, cargo or equipment is lost overboard from a vessel.
2. A person shall be deemed to be seriously injured if he is admitted to a hospital immediately after he sustains injury for observation or treatment.
 3. The public should report the above incident verbally to the Marine Industrial Safety Section (Tel: 2982 4472-4) during office hours, or report incident to the Vessel Traffic Centre of Marine Department outside office hours (Tel: 2858 2107)
 4. Written report of accident may please forward to the following address:
Marine Industrial Safety Section
Room 2315, 23/F., Harbour Building,
38 Pier road, Central,
Hong Kong.
Fax No. 2543 7209

(VI) Concerns of people of the industry

1. For the sake of safety, people of the industry should read safety and health guidance and possible proposed amendment of this booklet thoroughly.

Section 2

Gangways and Means of Access

(I) Gangways and Access to Vessels

1. Owner of a vessel should provide sufficient, safe and suitable means of access.
2. The gangway or accommodation ladder of a vessel should be kept properly trimmed at all times consistent with change in tides or the trim of the vessel.
3. Gangway or accommodation ladders should never be so steep as to make footholds unsafe. The inclination of the gangway to water level should not exceed 55 degrees, unless otherwise its design render larger angle possible.
4. The means of access should, whenever practicable, be placed in such a position that no loads pass over it. Otherwise, a clear and visible notice should be posted to alert person using the gangway.
5. While boarding or disembarking vessels, if hoisted cargo stop or pass over the means of access, one should wait until the hoisted cargo was away. If stevedore workers find that someone was accessing the vessel, they should stop transferring hoisted cargo over there but a safe place, and resume operation until the one using the means of access was away.
6. When there is a possibility of a person falling from the lower end of an accommodation ladder between the wharf and the vessel, a safety net should be provided by the ship and rigged under the accommodation ladder.
7. Workers must not use any means of access other than that duly provided and should at all times keep both hands free for ascending and descending ladders.

(II) Access between Vessels

1. When two vessels are lying alongside each other, a safe means of access shall be provided by the vessel having the higher freeboard.

(III) Access to Lighters or Barges

1. A safe means of access should be provided between a lighter or barge and the vessel, wharf or sea wall alongside which the lighter or barge is berthed.
2. When portable ladders or rope ladders are used they should be firmly secured at their upper ends and further secured as necessary to prevent twisting or swaying.

(IV) Access to Cargo Spaces

1. All passageways and walking spaces providing entrance to ships and to compartments therein should be kept clear of obstructions at all times to provide safe access.
2. Deck cargoes, hatch beams, hatch covers, pontoons dunnage etc. should be stowed to facilitate safe access to places of work.
3. When hinged steel lids are provided as covers over deck openings which give access to hold ladders, such lids are to be firmly secured when in the open position to prevent the lid closing whilst the access is in use.
4. When hatch ladders have been removed or damaged, warning notices in English and Chinese should be displayed at the upper access to the ladder and access prevented by a safety net or other suitable means.
5. In circumstances where a permanent ladder is not provided as a means of access from the deck to the hold of a ship, a portable rigid ladder may be used. As the portable ladder thus provides the means of escape, it must be strong enough to support the weight of the maximum number of persons who may be climbing it at one time.
6. Rope ladders should not be used as a means of access to cargo spaces as far as possible. If rope ladders have to be used, it must lean on shell of hatch. Suspended rope ladder should never be used as a means of access to cargo spaces.

(V) Portable Ladder

1. Portable ladders including vertical ladder, extractable ladder and rope ladder should be made of sound materials, and the structure of which should have sufficient load carrying capacity.
2. The width of foothold of portable vertical ladder should be between 380 mm to 450 mm (15" to 18"). The distance between footholds should be equal and between 250 mm to 350 mm (10" to 14").
3. Extendable ladder when fully stretched should not be more than 15 metres and be fitted with two extended sections at the most. Extendable ladder must be equipped with strong and effective locking means, able to secure sections of ladders to desired position. The structure of extractable ladder is of more complex design than vertical ladder, and would render risk of accident if not properly maintained. As such, vertical ladder should be used as far as practicable.
4. Rope ladder must be provided with slip resistant footholds of width at least 400 mm (16") and depth 115 mm (5"), The distance between footholds should be 310 mm (12"). Footholds must be secured to prevent twist, turnover or tilt. Rope ladder of length more than 1.5 metres (approx. 5') should be fitted with spreader of length at least 1.8 metres (approx. 6'). The lowest spreader must be on the fifth step from the bottom and the interval between spreader must not exceed nine steps.
5. Portable ladder should be regularly checked and maintained in good condition by experienced person. Prior putting the ladder into use, we should ensure that the footholds of which are intact first.
6. Should face with the ladder while accessing, and hold nothing with both hands to avoid obstructing the safety of access and bodily injuries from careless falling of objects. If it is necessary to carry objects, sack or other suitable equipment should be used. Should avoid carrying too heavy or too big objects.
7. Should avoid wearing slippery shoes while accessing over portable ladders.
8. Should not allow two men accessing over portable ladder at the same time.
9. Should never access over portable ladder without proper assistance if sustain hand or leg injury.
10. Portable ladders should be securely lashed at the upper end and elsewhere as necessary to prevent displacement. A rope ladder should never be secured to rails or any other means of support unless it is of so

constructed and fixed as to take the weight of a man and a ladder with an ample margin of safety.

11. Unless the upper end of a portable ladder has suitable handholds or other means, otherwise the upper end of the ladder should be at least one metres (3') above the upper landing place.
12. Portable ladders should be placed at an angle with ratio of height and length be 4 to 1, and the clearance behind the footholds should be at least 150 mm (6").
13. Portable vertical ladders should be placed on strong and secured flat surfaces, should not use loose items to wedge the foot of the ladder, and should not place the ladders on unsecured objects, like wooden box, or oil drums etc.
14. A rope ladder should be left in such a way that it either hangs fully extended from a securing point or pulls up vertically with sufficient length before being used.
15. Ladders should be properly maintained to extend life span and reduce risk of damages. Ladders should not be placed with other things on top to avoid being damage. Wood ladder should be stowed in cool place with no direct sun light. Wood ladders should not apply with colour paint to avoid defects being covered. Damaged ladders pending for repair should be placed separately to avoid being confused.

Section 3

Working Places Safety

(I) Hatch Covers and Beams

1. Hatch covers and beams should be of robust construction and made from sound materials, and maintained in good states of repair and any faults should be brought to the notice of the master or officer in charge of the vessel.
2. Broken, split or poorly fitting hatch covers should not be used.
3. Hatch covers should completely cover the hatch, or section of the hatch, with no gaps left between the covers and adequate landing surface on the king beams and on the hatch coaming landings.
4. Person in charge of work should ensure that hatch beams are properly placed in position and that hatch covers are sound and fit correctly before cargo is loaded upon them.
5. Person in charge of work should ensure that the hatch covers and workers would not be endangered before cargo is loaded on hatch covers.
6. Cargo should not be landed or worked upon a section of hatch covers without the “sister” or “queen” beam beneath being in position.
7. If weather condition changed and required covering a hatch with tarpaulins, hatch covers should firmly secured in place before covering tarpaulins. Otherwise, person in charge should post warning notice to alert worker not to walk upon hatch opening covering with tarpaulins to prevent the risk of falling into the hatch.
8. When persons are covering a hatch with tarpaulins and walking upon the hatch covers, they should always walk in a forward direction and never backwards.
9. Fork-lift trucks or other mechanical handling equipment should not be operated upon tween deck hatches unless due regard has been paid to the bearing capacity of the hatch covers in relation to the wheel load or weight of the equipment and the cargo to be lifted.

(II) Stowed Cargo

1. Cargo should be stowed in tween decks to leave a minimum working space around the hatchway of 1 metres (39”), for access to remove or replace hatch covers and beams in safety. A white line should be painted on the deck to indicate the working space.
2. When two gangs are working in the same hatch on different levels, a safety net should be rigged and properly secured so as to prevent worker falling down or cargo falling from the upper level onto men working below.
3. Persons working on a tall stack of cargo, where there is a risk of falling, should be protected by the spreading of a safety net or in some other suitable way.

(III) Deck and Hatch Top

1. All working places and emergency exits on board vessel should be free from obstruction. Objects that are liable to cause accident or hinder escape should be cleared off.
2. Rope gear on board vessel, i.e. preventer guys, slewing guys, pendants etc., should be coiled or made up neatly adjacent to their respective fastening devices to provide a clear deck space.
3. Deck cargoes should be so stowed as to allow for the safe operation of cargo winches or cranes, and safety to workers.
4. A safe passageway should be maintained around the hatch coaming, to allow for transit of working personnel while deck cargoes are in place. If it is not practicable to provide such a passageway, and the high of deck cargoes render the handrail at shipside and hatch coaming to prevent the falling of worker overboard or hatch opening not possible, temporary fencing should be secured to ensure safety.

(VI) Open Hatchway on Weather Decks

1. Open hatchways on the weather deck which are not protected to a clear height of 760 mm (30”) by coaming should be securely fenced to prevent falling of workers, if the hatch covers or hatch tends are not in position.
2. Safety railing or fencing should be of strong construction, and have a

height of 1 metre (39”) for the upper and 0.5 metre (19.5”) for the lower sections.

3. When work is finished and it is necessary to close the hatches, the weather deck hatch covers or well secured hatch tents should be placed in position.
4. Any partial covering of a weather deck hatchway, such as the use of alternate hatch covers or places of dunnage, should not be covered over by a tarpaulin.

(V) Open Hatchways in Tween Decks

1. Any partial covering of a tween deck hatchway using alternate hatch boards or pieces of dunnage should not be covered over by a tarpaulin.
2. An opening in the deck of a hold should not be used in connection with cargo handling unless such opening is effectively fenced or well lighted.
3. Where a hatchway is open during cargo operation, the maximum precautions should be taken, subject to circumstances and conditions prevailing, to prevent access to tween decks where there is a risk of a person falling through an open hatchway to a lower level.
4. Open hatches in tween deck should be effectively railed off; or, alternatively, access to the deck prevented by means of safety nets or locked hold entrances.
5. Where tween deck hatch covers are partially opened for access in way of hatch ladders, the opening should be effectively illuminated.

(VI) Weather Deck Railings

1. Portable weather deck railings which have been removed for purposes connected with cargo handling should be replaced in position as soon as there is no longer any reason for the removal.

(VII) Confined Spaces

1. Before allowing person enters into confined space or unventilated holds, proper means by using suitable equipment to check the environment are safe should be adopted. Such spaces may have organic decomposition of cargo residue or oxidation of ferrous metals resulting in oxygen deficiency.
2. Before entering into a compartment which is suspected to be closed for quite sometime, it should be thoroughly ventilated and tested to check for oxygen deficiency or presence of any toxic gases.
3. Please refer to Marine Notice 115A of 1992 Appendix I, “Precautions to be taken before entering into tanks or other confined spaces” issued by the Marine Department, and “Confined Spaces Safety Guide” published by the Labour Department for details of safety procedures entering into confined spaces and its preventive measures.

(VIII) Lighting and Ventilation

1. All places on board vessel where work are being carried out and where workers are required to proceed in the course of their duties should be efficiently lighted whenever natural light is inadequate.
2. Places on board vessel where cargo handling operation are being carried out, should maintain an illumination of at least 20 metre candle light (lux.)
3. Spaces other than cargo handling place, such as main deck and passageways between cargo handling places should maintain an illumination of at least 8 metre candle light.
4. The illumination around accommodation ladder or gangway for access of vessels should maintain at least 20 metre candle light.
5. The illumination is measured one metre above ground as standard. As a general reference, 8 metre candle light is equivalent to an object visible under direct moonlight.
6. When visibility is being affected by fog, clouds of dust, the level of lighting should be increased appropriately.
7. Apart from the above minimum lighting requirements, acceptable level of lighting on workplaces should enable worker to see obvious damage to or leakage from package of cargoes. When there is a need to read labels or container plates or to distinguish colours, the level of lighting should be adequate to allow this, or other means of illumination should

be provided.

8. Lighting should be reasonably constant and arranged to minimize glare and dazzle, the formation of deep shadows and sharp contrasts in the level of illumination between one area and another.
9. Broken or defective lights should be reported to the responsible officer as soon as possible.
10. Before leaving an illuminated area or space, a check should be made that there are no other persons remaining within that space before switching off or removing lights.
11. In each compartment of a ship where cargo is being worked, effective and suitable provision should be made for maintaining adequate ventilation.

(IX) Dangerous and Harmful Environments

1. Before persons are permitted to work in a ship's hold or other cargo space which had been previously fumigated, a qualified person should certify that the hold or space is safe to enter.
2. Before persons are allowed to enter into any enclosed spaces, tank, etc., in which fermentation of organic material or rusting may have resulted in a deficiency of oxygen or presence of toxic gases, such space should be tested by suitable means, such as gas detector, to check whether the atmosphere is safe.
3. Where stevedores are exposed to dangerous or irritating concentrations of dust, fumes etc., suitable respiratory protective equipment and eye shields should be provided and worn.

Section 4

Opening and Closing of Hatches

(I) Lifting Gear for Beams, Slab Hatches and Pontoons

1. Hatch beams should be handled with proper lifting gear, and rope tails of adequate length should be attached to each leg of the lifting gear.
2. Lifting gear for pontoons or slab hatches should consist of four legs and on every occasion, when lifting, all four legs should be shackled or hooked at the corner of the pontoon or hatches.
3. There should be sufficient sets of lifting gear available to handle beam and hatchway covers at every hatch of a vessel at any one time.

(II) Handling Beam and Hatch Covers

1. Hatchways should be uncovered sufficiently to allow cargo loads to be safely hoisted or lowered. This is especially important on lighters berthed alongside ships, wharves or sea walls where there is a likelihood of the lighter surging and being displaced in relation to the position of the cargo hook from the ship or the shore crane.
2. A hatchway beam should not be left in position unless:-
 - (a) the hatchway is of such a size that a beam may be left in position without danger to persons working in the hold or other such compartment and
 - (b) the beam is secured.

Which means that every beam above the working deck must be either secured or removed.

3. The only exception to the above rule is in instances where there is cargo stowed on the hatch covers and beams of a deck above the working deck and it is impossible to reach the beams. In such a case, only the beam or beams adjacent to the working area need be secured. When it is not possible for some reason to secure a beam by its usual fastening, it may be tommed down from above or secured by wire or chain from below as a temporary measure only.
4. No beam or hatch cover should be removed or replaced whilst work is proceeding below in the hold or deck beneath the hatchway.
5. Roller or hinged hatch covers when stowed at the end of a hatchway in

the vertical position should be adequately secured and care should be taken to prevent their displacement in the event of being struck by a passing load.

6. Unshipped beams, pontoons and hatch covers should be stowed in a stable manner, on the non-working side of the deck when possible. Where necessary, they should be firmly wedged, lashed or made safe by other means to prevent any movements or capsize.
7. When removing or replacing hatch covers by hand it is recommended that workers should do the followings:-
 - (a) work from the centre of the hatchway out to the coaming when removing and
 - (b) work from the coaming into the centre of the hatchway when replacing the covers.

(III) Mechanically Operated Hatch Covers

1. Mechanically operated hatch covers should only be operated with the permission of the deck officer in charge.
2. Care should be taken to ensure that all persons are clear of mechanical hatch covers before they are operated.
3. Mechanical hatch covers should not be left in an open or partially open position without being adequately secured to prevent movement.
4. The power to mechanical hatch covers should be cut off when hatch covers are not being operated or alternatively the controls locked to prevent unauthorized interference.
5. Pull wires of mechanical hatch covers operated by cargo winches should be disconnected from the winch when not in use.

(IV) Power-operated Ship's Equipment

1. Power-operated doors, decks, ramps or other similar ship's equipment should not be operated by persons other than the ship's authorized staff unless under direct supervision of such staff.

Section 5

Cargo Handling Lifting Appliances and Lifting Gear

Shipboard Cargo Handling Lifting Appliances and Lifting Gear

(I) General Requirements

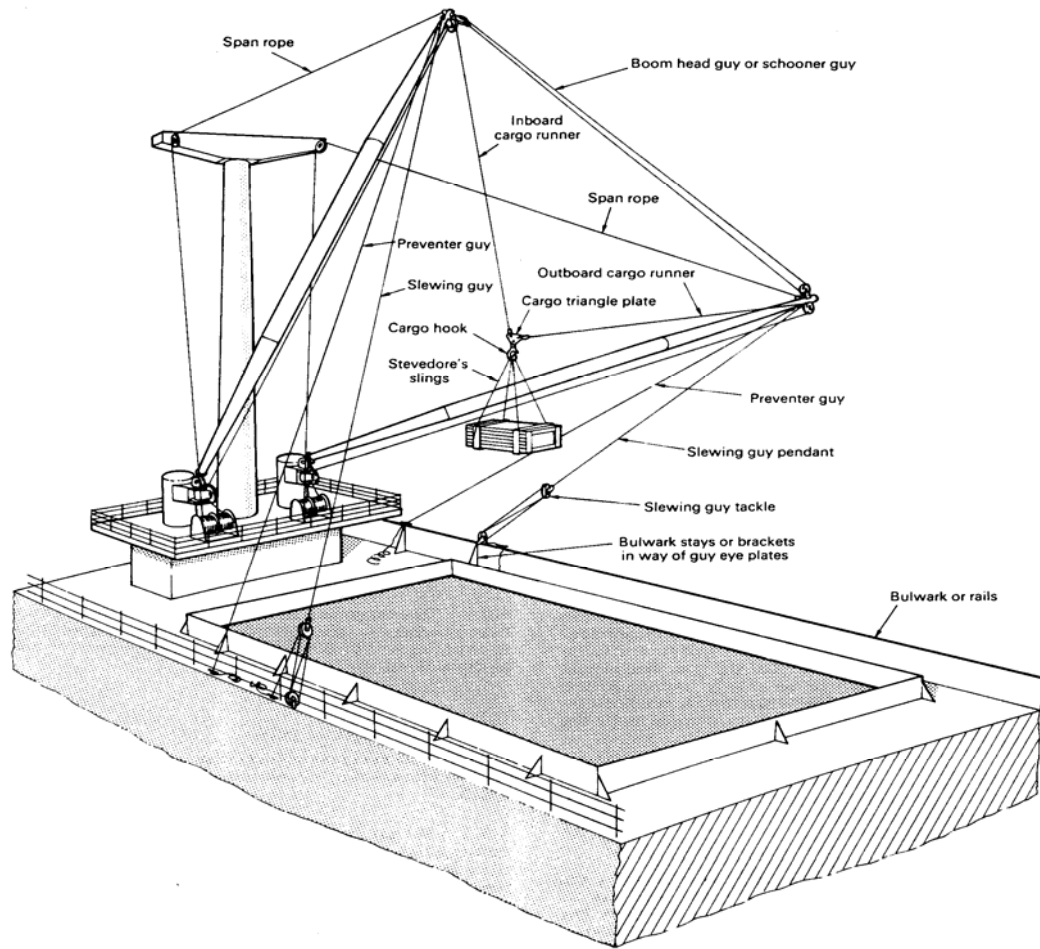
1. Owner of vessels and ship's master should ensure that the cargo handling lifting appliances and lifting gear used on board are of good mechanical construction and design, made of strong and sound materials, and free from patent defect.
2. Ships' cargo handling gear and machinery should not be subjected to loads beyond the certified safe working load. In deciding whether a lifting appliance is of adequate strength for the purposes for which it is to be used, account should be taken of the weight of the associated lifting gear, and whether the gear is likely to impose additional stresses by virtue of the nature of the operation.
3. The weight of a heavy package or article of cargo should, if any doubt exist, be checked before being lifted.
4. Cargo handling gear should only be used for the purpose for which it is intended.
5. Loads should not be dragged horizontally by means of a runner loading from a derrick or crane unless there is no risk that the safe working load of any part of the gear will be exceeded.
6. Ship's standing derricks (i.e. other than crane derricks) should only be hoisted or lowered under the supervision of a ship's officer, foreman, stevedore or other responsible person. (N.B. a crane derrick is a derrick so rigged that the powered cargo purchase, slewing and luffing movement may all be operated at one time by a driver or drivers).
7. When standing derrick is raised or lowered by a span (topping lift) which driven by the cargo winch, a man should be stationed at the span winch to ensure the safe engagement of the pawl bar before the span winch drive is disconnected.
8. When a single span derrick is being raised or lowered, the bull-wire (winch-end whip) should be securely shackled to the drum end of the winch..
9. Before a derrick fitted with a span tackle is raised or lowered, the

hauling part of the span wire (the free end) should be flaked out on deck. A man should then be detailed to keep the wire free of turns to assist the man controlling the wire on the winch drum end and when making fast to the bitts or cleats.

10. The span tackle should be secured on the bitts or cleats by three complete left-hand turns followed by four crossing turns and finally the whole secured with a lashing to prevent the turns jumping off due to the spring of the wire.
11. Suitable chain stoppers should be used when hoisting or lowering derrick when patent clamps or other attachments are not provided.
12. A chain stopper should be applied with two half hitches in the form a cowhitch, suitably spaced with the remaining chain and rope tail backed round the wire and old taut to the wire.
13. Where a cargo runner derrick heel, lead block is liable to drop below a clear height of 2 metres over a working space when the runner is slack, the block should be fitted with a preventer wire rope or chain to prevent it so dropping onto a person's head.
14. Ship's cargo handling appliances and gears should never be used for lifting and carriage of person unless it is specially designed, altered and equipped to ensure safety, and have obtained permission from ship's master or duty officer.

(II) Derricks used in Union Purchase (Married Runner)

1. To avoid excessive tension when using derricks in union purchase rig, the following precautions should be strictly adhered to :
 - The angle between the married runners should not normally exceed 90 degrees and an angle of 120 degrees should never be exceeded.
 - The cargo sling should be kept as short as possible so as to clear the bulwarks without the angle between the runners exceeding 90 degrees (or 120 degree in special circumstances).
 - Derrick should be topped as high as possible consistent with safe working.
 - The derrick should not be rigged further apart than is absolutely necessary.

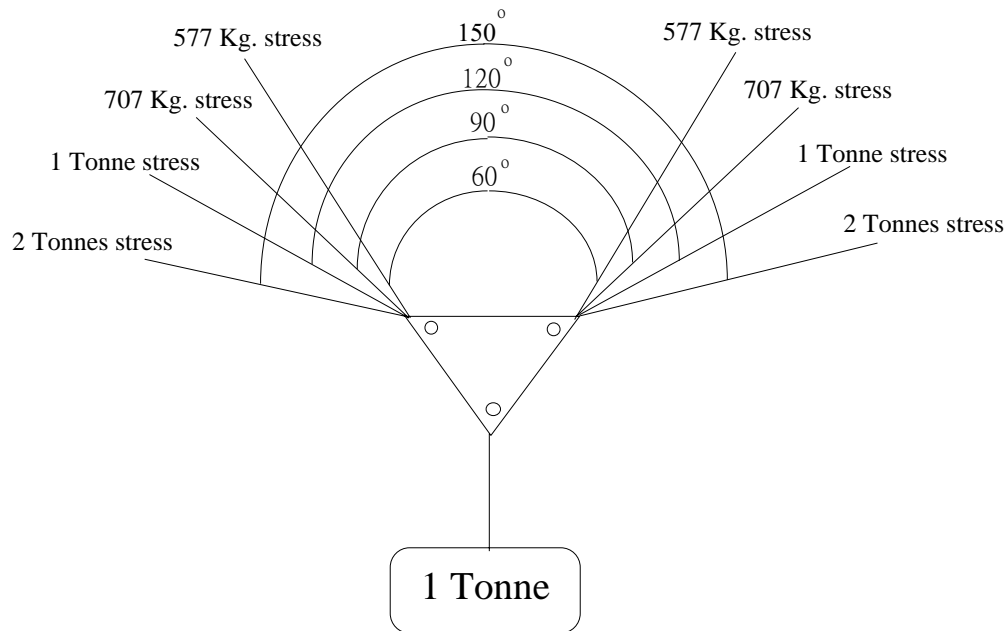


Union Purchase Rig

(Diagram copied from the "Code of Lifting Appliances in a Marine Environment" published by the Lloyd's Register of Shipping 1987)

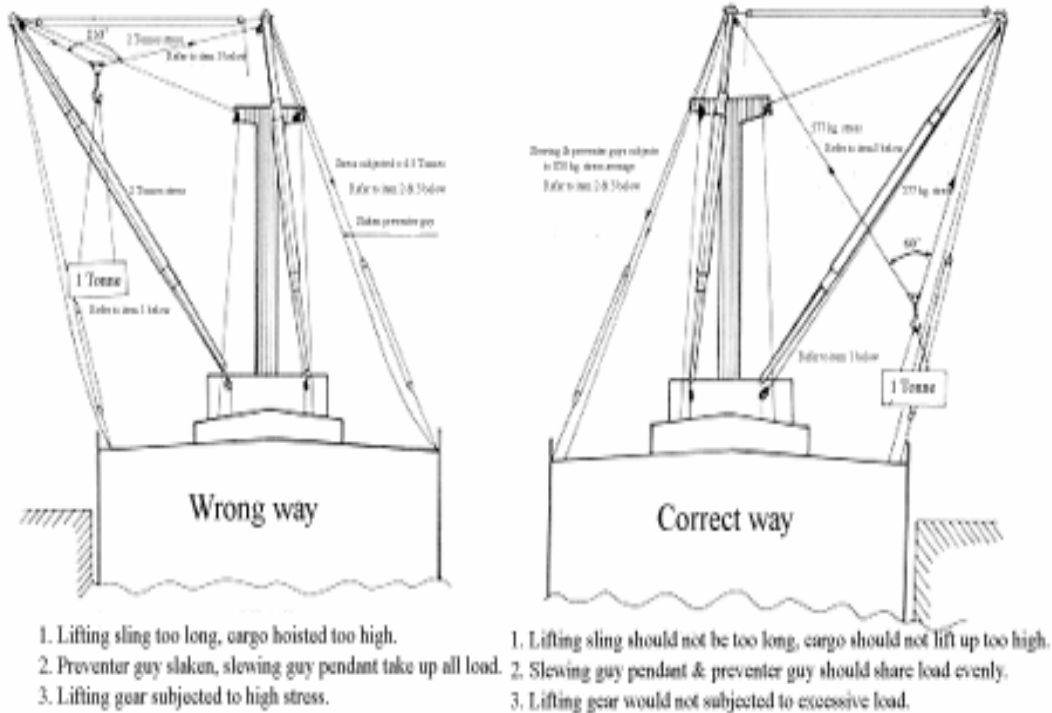
2. The following examples will show how rapidly excessive loads may be put on derrick, runners and attachments as the angle between runners increases:
 - At 60 degrees included angle, the tension in each runner would be just over half the load.
 - At 90 degrees, the tension would be nearly three-quarters of the load.
 - At 120 degrees, the tension would be equal to the load and
 - At 175 degrees, tension would be 11.4 times the load.

Stress subjected by cargo handling gear



The wider the angle between slings the greater the stress subjected by the slings

3. A preventer guy of sufficient strength to take the maximum stress which it would be called on to bear should be rigged on the outboard side of each derrick when used in union purchase.
4. The slewing guy should be set up in conjunction with the preventer guy, but allowing the preventer guy to take the weight.
5. The preventer guy and the slewing guy should be secured independently at the derrick head and to individual deck or superstructure attachments of sufficient strength and suitable placement.
6. Narrow angles between derricks and the outboard guys and between outboard guys and the vertical should be avoided, as this materially increases the loading on the guys.
7. The angle between the outboard derrick and its outboard guy and preventer should not be too large as this may cause the outboard derrick to “jack-knife”.
8. In general, the inboard derrick guy and preventer should be secured as nearly as possible at an angle of 90 degree to the derrick.



(III) Winches and Cranes

1. Winches and cranes should not be used unless all dangerous moving parts and live electrical conductors are effectively fenced or guarded.
2. When steam winches are being operated, winch drivers must ensure that the winches and steam pipes are drained of water before work commences and after any period during which the winches have remained idle.
3. Winches and cranes should be so operated that smooth hoisting and lowering of loads is accomplished and jerking of loads is avoided.
4. When a winch or crane is temporarily out of commission due to repair or overhaul, an appropriate cautionary notice should be placed on or near such winch or crane prohibiting its use until the machinery is again in good working condition.
5. Makeshift extensions to winch control, particularly for the purpose of operating two winches by one man, should not be permitted.
6. Cargo runners should be of sufficient length as to leave a minimum of four turns on the winch drum when the cargo hook is at its lowest working position.
7. Span tackle (topping lift) and slewing guy tackle wires should be of sufficient length as to leave a minimum of three turns on the winch

drum when the derrick is at its maximum outreach.

8. The ends of cargo runners, span tackles and slewing guy tackles should be securely attached to the winch drums by clamps, U bolts or some equally effective method. The use of rope yarns or seizing wire should be forbidden.
9. Deck cranes which are capable of being moved on rails should be firmly secured in the required position according to the manufacturer's instructions before the crane is used for cargo handling.
10. Inexperienced persons should not operate winches or cranes unless under the direct supervision of a competent driver.
11. When working with rope falls on winch drum ends, a responsible person should always be stationed at the controls of the winch to stop it in case of need.
12. When a winch or crane is engaged in operation, there must be a responsible person stationed at the controls stand. No winch or crane in operation should be left unattended.
13. A person responsible to operate lifting appliance should assign with no other duty that may affect his basic roll. He should stay in an appropriate and protected location, facing the controls stand, and should as far as possible capable to seeing the process of the whole operation clearly.

Cargo Handling Gear Other Than Ship's Gear

(I) Stevedores' Gear

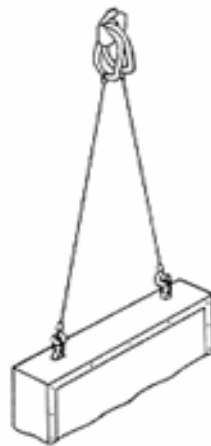
1. The person in charge of cargo handling on board a vessel should not use or permit the use of any cargo lifting gears other than ship's gears, e.g. chains, pulley blocks and lifting slings etc., unless such gears had been thoroughly examined by a competent examiner and issued with certificates before first putting into use.
2. The person in charge of cargo handling on board a vessel should not be used or permit to be used any cargo handling gears other than ship's gears, unless such gears had been thoroughly checked by a competent person within 3 months before being sent on board for use.
3. On completion of work on board a vessel, all such gears should be carefully inspected by a competent person and any items requiring

repair should not again be used until so repaired and again examined.

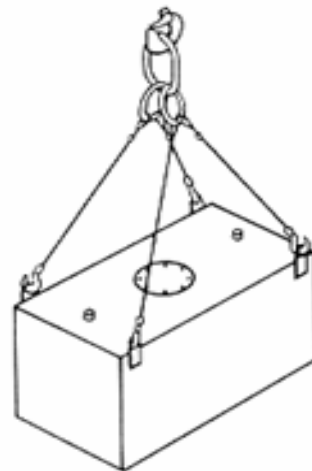
4. The safe working load of wire ropes commonly used on board a vessel are listed below for reference. When multi-legs slings are being used, attention are drawn to the inclined angles of the legs of slings, as the angle of which would affect the load carrying capacity of the slings.



Single part lift



Two part lift



Four part lift

Annex

Safe Working Load of Wire Sling commonly used on board ships
 Strand 6 x 24, Fibre Core, Tensile Stress 1420N/mm
 BS302 : Part 3 : 1987 Standard, Safety Factor : 5

Wire Rope Size			Single part lift		Two part lift	Four part lift	
			0 deg.	0-90 deg.	90-120 deg.	0-90 deg.	90-120 deg.
Diameter.	Circumference.		SWL	SWL	SWL	SWL	SWL
	mm	mm inches	Tonnes	Tonnes	Tonnes	Tonnes	Tonnes
12	38	1.5	1.2	1.6	1.2	2.5	1.8
14	44	1.6	1.6	2.2	1.6	3.3	2.4
16	50	2	2.1	2.9	2.1	4.4	3.1
18	57	2.2	2.6	3.7	2.6	5.5	3.9
20	63	2.5	3.2	4.5	3.2	6.8	4.9
22	69	2.6	3.9	5.5	3.9	8.2	5.9
24	75	3	4.7	6.5	4.7	9.8	7.0
26	82	3.2	5.5	7.7	5.5	11.5	8.2
28	88	3.5	6.4	8.9	6.4	13.4	9.5
32	101	4	8.3	11.6	8.3	17.4	12.5
36	113	4.5	10.5	14.7	10.5	22.1	15.8
40	126	5	13.0	18.1	13.0	27.2	19.4

See also BS6166 : Part 1 : 1986

(II) Mobil Crane, Fork-lift Truck, etc.

1. No load attached to a mobile crane or fork-lift truck should be suspended or swung over the head of a person.
2. When mechanically powered vehicles are left unattended, the controls should be neutralized, power shut off, brakes set and the forks, blade or scoop of the machine placed in the lowered position.
3. Fork-lift truck should travel with the forks at the lowest practicable position.
4. Special care should be taken to ensure adequate ventilation of space in which internal combustion powered mechanical handling equipment is operated.

5. All fork-lift truck drivers should read and refer to the safety pamphlet of “safe practices in operating fork-lift truck” published by the Labour Department.

(III) Portable Electrical Light and Power Leads

1. Portable electrical leads of hand held lamp or temporary lighting should be properly laid and rigged to avoid damage of cables and prevent stumbling to others.
2. Portable electrical leads should be so rigged that they do not interfere with accesses and ladders, and should be kept clear of loads, running gear and moving equipment to prevent damage to the cables.
3. Portable or adjustable electric lights should be so rigged that the light emitted does not impair the vision of signalmen and winch operators.
4. Portable leads should be fitted with the correct type of plug to fit the socket. Bare wire connection should not be used.

Section 6

The Handling of Cargo

(I) Slinging of Loads

1. Loads should be properly made up and securely slung before they are hoisted. If load being handled is a heavy one, strops or slings should be of sufficient size and length to allow for the safe slinging of cargo and safe attachment to the cargo hook.
2. Strop or slings should be pulled sufficiently tight before hoisting and so positioned that no part of the load can slide or fall out during hoisting or lowering.
3. Where the nature of a sling load is such that each item of the load cannot be firmly held in position by the tightened sling, a cargo net should be used instead of a sling.
4. The hooks of multi-leg slings should be inserted from the inside of the lifting eyes to minimize the chance of the hooks disengaging should the sling become momentarily slack.
5. Any loose dunnage or debris hanging or protruding from a load should be removed prior to the hoisting of the load.
6. Large, heavy or long loads which require careful manual guidance during hoisting or lowering operations should have guide lines of suitable length attached to them.
7. Before heavy or cumbersome loads such as long lengths of steel, timber, tubes, etc., are hoisted, the load should be given a trial lift in order to test the efficiency of the slinging. Where necessary, two slings should be used on long loads to maintain the stability of the load.
8. Suitable packing material should be used to prevent wires and fibre ropes being damaged by contact with sharp edges on loads and suitable packing must always be used to prevent chains coming into direct contact with any sharp edge of steel or other hard material.
9. The tiers of cargo on trays, pallets, etc., should be complete tiers and no loose packages likely to fall out during hoisting or lowering should be added to the load.
10. Pallets or trays of cargo should be hoisted with slings which provide support at all four corners of the pallet or tray.
11. The angle between the legs of slings should not normally exceed 90

degrees.

12. When lifting loads, slings should be placed as near to vertical with the load, to avoid risk of collapse of cargoes and damage of slings or lifting appliances.
13. Any load which is improperly slung should not be hoisted.
14. When lifting load, care should be taken not to put your hands between wire slings and cargoes.
15. Except for the purpose of breaking out cargo or making up "sling", lifting hooks should not be attached to the banding or other fastenings of packages of cargo unless such fastenings have been specifically designed for lifting purposes.
16. Cargo handling place should identify clearly with safe and dangerous areas, and to ensure that people working there should have sufficient space to manoeuvre.
17. Loads should not be left suspended from a derrick or crane unless a competent person is actually in charge of the winch, crane or other lifting appliance during the time it is so suspended.
18. Loads should not be left suspended for too long over cargo hatch or main deck etc., when there is person working below or passing by. If it is possible, the loads should be lowered to shipside or deck area between cargo hatches, however wire slings should be kept taut to prevent cargoes slide or fall out when loads are being lowered.

(II) Signalman

1. A signalman should always be employed when loading or discharging cargo at a hatchway unless the crane or winch driver has an unrestricted view of the load at all times.
2. Winch and crane drivers should obey signals only from the signalmen and from no other person, except that every stop signal should be obeyed regardless of who gives it.
3. There should be one signalman for each cargo hook working in the hatch.

(III) Stacked Cargo

1. Effective measures should be taken at all times to prevent the collapse of stacked cargo.
2. When any cargo is being stacked above a height of 2 metres, a safe means of access to the stack, such as using portable ladder, or stacking cargoes to form steps, should be provided.
3. When person has to work on stacked cargoes, attention to be drawn to whether stacked cargoes are firmly secured. If stacked cargoes are unstable, they should be re-arranged and properly secured before stepping on.
4. To provide a safe stack during the stacking of bagged cargoes, bags should be adequately cross-tied, with particular attention being given to those bags forming the corner of the stack.
5. When stacking round cargoes, such as rolled steel or paper on its bilge, the ground tier should be stowed as far as practicably along the hatch transversely, firmly and adequately wedged to prevent any collapse.

(IV) Bulk Cargo

1. During the handling of bulk cargoes, the person in charge should ensure there is close supervision of any work being carried out by persons in the hatch, and check the number of person engaged in trimming of bulk cargoes in and out of the hatch and other compartment carefully. During the entire cargo operation, a designated person should station on deck above that hatch at all time, to watch the safety of persons working in the hatch.
2. Where persons are engaged in trimming bulk cargoes in the hatch, and by the nature of the cargo there is a problem with dust, the persons should be provided with and should wear respiratory and associated equipment and where necessary, protective clothing.
3. Where grabs are being used in the handling of bulk cargoes, there should be sufficient area available at the loading and unloading points for persons to stand clear of the swinging grab.
4. Special care should be taken in the use of grabs not to exceed the maximum safe working load of the derrick rig, taking into consideration the weight of the grab and the load it will carry.

Section 7

The Handling of Dangerous Goods

(I) General Requirements

1. It is the responsibility of the master of a vessel to advise stevedores and other persons working on board of the presence and location of dangerous goods, and to warn them of the risks involved and the precaution to be taken in respect of such cargo.
2. The person in charge of cargo handling on board a ship which has dangerous goods on board or is to load dangerous goods should be satisfied that all persons under his supervision are warned of the nature of the dangerous goods, the risks involved and the precautions to be taken.
3. Special care must be taken in the handling of dangerous goods, giving due consideration to the type of packing, the nature of the goods and the hazards associated with them.
4. Workers should familiarize themselves with the internationally agreed labelling scheme for dangerous goods so as to be able to recognize the hazards associated with dangerous goods of various types.
5. In the event of spillage or damage to a package of dangerous goods, the officer in charge of the vessel must immediately be informed.
6. Unusual smells or any effect of dizziness or illness suffered by any person should immediately be reported to the officer in charge.
7. If spillage occurs or a package or receptacle is sufficiently damaged or defective that leakage or spillage of the dangerous goods is likely, the person in charge should cease cargo operation in the vicinity and all persons leave the immediate area, and report the incident to the Fire Services Department.
8. Should not smoke and carry with naked lights or equipment to make fire at dangerous goods store and when handling dangerous goods.

(II) Dangerous Goods Labels

1. Dangerous Goods Labels issued by the International Maritime Organization (IMO) are enclosed in the diagram. The industry should

know and understand in details the type of dangerous goods it represents and its associated hazards. As regards classifications, characteristics and safe handling of various type of dangerous goods, please refer to the International Maritime Dangerous Goods (IMDG) Code published by the IMO.

(III) Personal Protective Equipment

1. Where necessary, due to leakage or spillage, stevedores should be provided with adequate protective clothing and personal protective equipment to shield them from the effects of such leakage or spillage of dangerous goods.
2. Stevedores should be instructed in the use and care of personal protective equipment and clothing.
3. Protective clothing and equipment should be kept clean and properly maintained and should be washed and disinfected when necessary.
4. Stevedores should not misuse or intrude with the safety equipment provided by the proprietor.

International recognised D.G. Labels



Section 8

Handling of Containers

(1) **General**

1. Person in charge should ascertain the weight of container being handled and the lifting appliance has adequate safe working load to cope with, before cargo operation is commenced.
2. Container should not be lifted whenever the weight is beyond its maximum operating capacity or exceeding the safe working limit of the lifting appliances and gear. A container of unknown weight should be treated as one that exceeds its maximum operating capacity.
3. When handling container, care to be taken against the possibility of uneven loading and poorly distributed weight of contents, thus leading to serious unstable situation when container is being lifted.
4. If container is damaged, worker should report defects to person in charge at once, and seek advice on the appropriate way to transfer it.
5. Before container handling is commenced, person in charge should appoint a designated signalman. The derrick operator should obey signals only from the signalmen and from no other person, except that every stop signal should be obeyed regardless of who gives it.
6. Derrick operator should have a clear and unobstructed view.
7. Container should be lifted vertically with suitable lifting device hanged over the four corners at roof of container. Lifting slings should be integrated with spreader for lifting of container together.
8. If circumstances render the use of spreader not possible, lifting slings that have been examined in good order may be allowed to be used to lift container direct. However, spreader should be used to prevent the risk of folding while handling aluminum container.
9. If lifting slings are being used to lift container direct, the hooks of slings should be engaged to the corners at roof of container from inside and out, in order to reduce the chance of hooks being disengaged when lifting slings are momentarily slacken. Further more, worker should attach hooks slings to the main cargo hook or secured by rope after detaching from the corners of container, to prevent lifting slings from swinging and endangering the worker.

10. Lifting slings being used should have adequate safe working load, and not to be overloaded. Care should be taken that the safe working load of a 4-leg slings for lifting of container is not equal to four times the load carrying capacity of each sling used vertically. A container with cargoes, its centre of gravity is seldom acted at the centre of the container, as such, the stress acted upon each sling is different. Furthermore, as the slings are not vertically attached, its safe working load would be further reduced. Thus, for the sake of safety, the safe working load of multi-leg slings should be accessed by person with relevant knowledge and experience.
11. Before lifting up container, all locking devices to that container must be definitely released. When hoisted container is lowered, it should not be locked with other container or deck plate, until lifting slings or spreader have been moved away.
12. Care must be taken when lift or lower container to and from cell guide, as to avoid container being jammed in the cell guide due to deformation of container.
13. If lifting slings are being used to lift or lower container from cell guide direct, the hook of lifting slings should change to T-Lock. Never attempt to lift container improperly by inserting hooks narrowly into the corners of container.
14. Each crane should lift one rather than two containers at a time, irrespective the container is an empty or a loaded one.
15. Container lifted up should not stay in the air for too long.
16. When hoisted container has to be held manually to position, worker should pay attention to hands being crushed. Never use hands to deal with devices at bottom of container, such as stacking cones etc., while container is being lifted or lowered.
17. Worker should always stay alert while engaged at work, never stand on “dead corners”, such as narrow stay between swinging container and stacked container or other object, and should not stand under hoisted container and its travelling path.
18. Proper means on board, such as fixed walkway or portable ladder to be used to access stacked containers. Should not climb over containers, and ride on hook slings or hoisted container, as those improper ways are dangerous and would render risk of accident easily. Please refer to Section 2 (V) of this Safety Guide for safe use of portable ladder.
19. Don't use portable ladder to access stacked containers over 3 tiers high,

unless the design of the portable ladder would prevent it from move during use. Portable ladder should be held and secured in position while it is being used.

20. Worker should wear safety helmet and safety shoes while handling containers on board. Jacket or belt that are colourful and reflective should be worn while engaged at work at night or inside the hatch of container vessel.
21. All stevedore workers and crane operators should not work for too long with no break. Crane operators should have at least 2 shifts to work in rotation.
22. Lashing gears for containers should be handled with care, and should not be thrown from height.
23. Refrigerated containers should only be lifted or lowered when power supply cables are disconnected by ship's crew or designated person.

(II) Mid-stream Operation

1. During mid-stream operation, vessels, dumb steel lighters in particular, would always be in an unstable condition due to swell of the sea. Utmost care should be exercised by observing strictly the proper working procedures and taking adequate safety measures while working under this circumstances. Never act in a hurry as that would render risk of accident.
2. As containers are heavy objects, all lifting appliances and lifting gear used for handling containers should maintain in good working condition in order to ensure safety.
3. Cranes fitted on board vessel should be used as far as practicable, as such equipment are more stable than derrick crane of lighters when engaged in cargo handling operation at mid-stream.
4. When checking and maintaining derrick crane and its accessories of lighters, person involved of the trade in general would pay more attention to wear and tear of the winch, braking device, wire ropes and pulley blocks, but ignore the stress bearing parts, such as goose-neck pin and bush that are prone to wear and tear. Person involved when carrying out annual inspection, should pay attention on whether the goose-neck pin shown signs of cracks. During quadrennial thorough examination, the goose-neck pin of derrick boom should be taken out

for detail examination.

5. When crane operator is in control of derrick of lighter, care must be taken to prevent derrick boom slew over 90 degrees, for avoidance of unnecessary transverse stress induced, or boom striking the structure of the mast
6. When person is working in a container on board lighter, the operation of derrick boom should stop if excess listing would be induced to the vessel.
7. When engaged in container operation at narrow hatch of lighter, workers who need to hold hoisted container should stand at safe place or guide container to position with sling.
8. The stack of containers on board lighter should not be too high, consideration should be given to means for worker to access containers safely.
9. Stacking cones should be placed properly between stacked containers when containers are stacking on board lighter, and stacked containers should be secured with suitable lashing means firmly, to prevent the collapse of containers.
10. Operation should stop in the event of bad weather.

(III) Working in Container

1. Care must be taken when opening doors of container. Do not stand in path of an opening door, and open one door at a time to prevent cargoes in the container suddenly collapsed, and caused accident.
2. When handling dangerous goods, such as opening up or packing container, person in charge should provide appropriate supervision.
3. Do not enter into container that has Dangerous Goods Label without checking for evidence of leakage or damage to the dangerous goods. The atmosphere in the container could be toxic or flammable.
4. If a container has a sticker on the door indicating that it has been under fumigation during the voyage, open the doors and allow the container to be adequately ventilated before entering.
5. When using a fork lift in a container, ensure the slope of ramp is appropriate, and positively secured to the container.
6. When internal combustion engine driven fork lift is not engaged at work, do not leave the engine running while waiting inside a container.

7. Working in a container could only be carried out safely on land. If for practical reasons, it is necessary to open up container for handling of goods inside on board a lighters, proper preventive measures to securing cargoes firmly for avoidance of accident to be provided. However, cargo work inside a container should be stopped in the event of bad weather.

Section 9

Health

1. Persons should work according to their own age and state of health, never over estimate his own ability.
2. Labourer carry goods manually should stay in correct pose. If heavy object is being handled, mechanical means to be used to reduce the risk of overworked or injury.
3. Crane operator repeats in the same act for prolong period of time would induced fatigue, signalman views from top to bottom for long time would induced neck and back ache. Limbs to be stretched while at work, to reduce the possibility of fatigue of muscles.
4. When person is allowed to enter into any cargo hatch or deep tanks, care should be taken to check whether there is insufficient oxygen or toxic gases in the atmosphere of the tank due to oxidation of ferrous metal (rusting) or fermentation of organic materials. Before entering into a suspicious cargo hatch that could have been closed for some time, the hatch should be thoroughly ventilated and the atmosphere of the space to be tested by suitable means, such as gas detector to ascertain there is sufficient oxygen and free from toxic gases.
5. Special attention should be paid to maintain sufficient ventilation when internal combustion engine driven cargo handling machinery is operated in an enclosed cargo hatch.
6. Before person is permitted to work in a ship's hatch or other cargo space which has been previously fumigated, a qualified person should certify that the hatch or space is safe to enter.
7. When handling toxic chemicals, such as pesticides, insecticides and fertilizers etc., workers should wear hand gloves and respiratory protective equipment to ensure health and safety.
8. Where stevedores are exposed to dangerous or irritating concentrations of dust, fumes etc., suitable respiratory protective equipment and eye shields should be supplied and worn.
9. Any sensation of illness felt at work should be reported to the person in charge.
10. Cuts and abrasions at work should be treated immediately and properly. Admission to hospital for medical treatment is necessary if

the situation is serious, and should aware of rusting steel sheet or nail as that could infect tetanus.

11. This is an infection which may be contracted by person handling infected animal parts such as skins, wool, hair and bones. Within 2 to 7 days of becoming infected, a small itchy pimple forms at the site of infection, usually on an abrasion or scratch of the skin. This soon develops into a blister surrounded by a red, swollen area, the centre of which later becomes black and dead, whilst the sufferer becomes very ill. Medical attention should be sought as early as possible, informing the doctor of the previous contact with animal parts, as lack of treatment can be fatal.
12. High humidity and heat can lead to heat exhaustion and heat stroke which may be fatal. When working in these conditions it is advisable to drink at least 4.5 litres of cool (but not iced) water daily. It is best to take small quantities at frequent intervals. Extra salt is essential; this can be in the form of two salt tablets four times a day or a level tea-spoonful of table salt in plenty of water each morning and again in the evening, or added to food. If the work is in enclosed spaces, they should be well ventilated.
13. Misuse of alcohol or drugs affects a persons fitness for duty and harms his health. The immediate after effects may increase liability to accidents. Drinking alcohol whilst under treatment with prescribed drugs should be avoided, since even common remedies such as aspirin, seasickness tablets or codeine may be dangerous in conjunction with alcohol.

Section 10

Safety Rules for Stevedores

(I) General safety rules for stevedores

1. Do get to know the details of your job and ask when in doubt.
2. Do carry out the instruction of your foreman and the hatch signalman.
3. Do wear sensible clothes and safety shoes and helmets.
4. Do stack cargo so that it is stable and steady.
5. Do wear protective equipment when supplied.
6. Do watch your step. There are many things on a ship you may trip over or bump against.
7. Do make sure all machinery is switched off before leaving it.
8. Do observe safety regulations, for example “no smoking” signs.
9. Do report all injuries or sickness to the foreman.
10. Do use both hands when ascending and descending ladders.
11. Don't fool around, this can cause injuries.
12. Don't operate machinery without permission.
13. Don't jump from the ship to the wharf, use the gangway.
14. Don't walk across hatchways, walk around them.
15. Don't leave injuries unattended, get first aid to dress up wounds as soon as possible. Serious injury should admit to hospital for medical treatment immediately.
16. Don't throw any objects into or out of a ship's hatch.
17. Don't enter into a ship's hatch, tween deck or any compartment without the permission of the person in charge.
18. Don't pass under or stand below a suspended load.
19. Don't stand in the bight of a wire or rope.
20. Don't allow person influenced by alcohol or drugs to stay or work at cargo handling area.
21. Don't lift or lower cargoes through a hatchway whilst any person is using a ladder in the hatch square close to the cargo handling operation area.
22. Don't stand on travelling path of hoisted cargo, or stand between hoisted cargo and fixed object.

(II) Safety Rules for Signalmen

1. A clear code of signals, agreed in advance and understood by all concerned in the operation should be used. (Please refer to Annex 2).
2. Do stand on favorable location, so that progress of work could be clearly seen.
3. Do keep the walkway between the hatch square and shipside clear and unobstructed.
4. Do stand where the winch driver can clearly see you.
5. Do give the winch drivers clear and efficient signals.
6. Do keep the moving cargo hook in sight.
7. Do make sure that the sling is fully hooked on or unhooked before giving a signal to hoist.
8. Don't lift any improperly slung load.
9. Don't give hoisting signal, unless it is informed and certified by worker responsible for slinging of cargoes that cargoes are tied up properly.
10. Do endeavor to protect the safety of all person working in the hatchway, to avoid accident.
11. Before cargoes are being lifted or lowered from the hatch, stevedores working below should be warned to vacate away from the hatch square, until the hoisted cargoes had been shifted from the hatch, or had been lowered to place that stevedores could move or handled safely.
12. Don't let anyone climb up or down a hatch ladder while sling is going in or coming out.

(III) Safety Rules for Winch and Crane Drivers

1. Do see that wires are properly secured to winch drums.
2. Do run the winch or crane both ways and test the brakes before starting work.
3. Do switch the winch or crane off and place the controls in neutral before leaving.
4. Do check where the emergency stop switch (if fitted) is.
5. Do pay attention to the signalman.
6. Do ensure a double gear winch is in the most suitable gear for the intended work and that the gear or clutch lever is properly pinned or lashed.

7. Do report winch or crane faults to the person in charge.
8. Don't rig up temporary extensions to winch control handles.
9. Don't leave your winch controls with a load suspended.
10. Don't change a winch gear when under load.

(IV) Safety Rules for Hatch Foremen

1. Before starting work:-

- Do warn workers to follow the safe working practices during cargo operation.
- Do provide necessary personal protective clothing and equipment, and ensure that workers are using those equipment properly.
- Do check the safe working loads of derrick and cranes.
- Do ensure derricks are correctly positioned when working in Union Purchase.
- Do ensure correct tension on slewing guys and preventer guys.
- Do ensure correct securing of fixed topping lifts.
- Do look aloft to see that all appears to order.
- Do see that hatch covers and beams are safely stacked when removed.
- Do see that the proper gear is used for removing hatch covers and beams.

2. Then:-

- Do leave a clear walkway around hatch coamings.
- Do see that hatch covers and beams not removed are safely secured against displacement.
- Do see that beams and hatch covers are replaced in their proper positions.
- Don't allow overweight loads to be lifted.
- Don't allow improperly slung loads to be lifted.
- Don't allow loads to be left suspended without drivers at the controls.
- Don't allow makeshift extensions to be fitted to winch controllers.

(V) Safety Rules for Lightermen and Launch Crews

1. Do open the hatch wide enough for cargo to pass through with plenty of clearance.
2. Do secure those beams which have to be left in position against dislodgment by passing cargo.
3. Do keep the decks free of gear etc., to allow a safe walking space.
4. Do take care when berthing that you are not thrown off your feet should the vessel come alongside heavily.
5. Do take care with man-made fibre ropes used for mooring or warping. They can kill or maim if they part under strain due to the high elasticity.
6. Do examine your running gear frequently.
7. Do keep mast stays tight. Slack stays put too much strain on the mast which may collapse.
8. Don't climb mooring ropes to or from the ship or the wharf.
9. Don't rely on steel hooks for mooring or towing purposes. These can become lethal missiles if dislodged when man-made fibre ropes are under tension. Use a soft eye splice instead, it is much safer.
10. Don't use poor quality or re-cycled fibre ropes for slings or moorings.
11. Don't top the derrick too high. With multi-sheave tackle, you could overstrain the gear and cause a failure.
12. Don't over-reach the derrick. The load could cause an excessive list which may in turn cause cargo to shift to the low side and capsize the lighter.
13. Don't leave a winch running without an operator at the controls to stop the winch in case of emergency. Persons have been killed on being caught up by a rope on a revolving winch drum.
14. Don't allow any inexperienced person to operate a winch unless he is under direct instruction by a competent person who is standing by the controls.

(VI) Safety Rules on Ro Ro Ships

1. Don't use cargo ramps for pedestrian access unless specific walkways are provided.
2. Don't allow "passengers" on fork lift trucks or other mechanical handling equipment.
3. Don't work along on vehicle decks Have another man with you

keeping watch for moving vehicles.

4. Don't enter vehicle decks unless you are authorized to do so.
5. Do wear high visibility clothing if you have to enter vehicle decks.
6. Do use the proper pedestrian walkways and accesses.
7. Do look out for vehicles. The drivers may not be able to see you.

(VII) Manual Handling

1. Many accidents in cargo handling are caused by incorrect manual lifting. The back bone was not made to lift, but to support the head. The most important thing to remember when lifting heavy objects is that the main lifting strain should be taken by the upper leg muscles and not the back.
2. The only way to achieve this is to stand over or as close as possible to the object being lifted. Place one foot in front of the other to the side of the object. Keep the chin in and avoid dropping the head forward or backward. Bend the legs and keep the back straight, but not necessarily vertical. Grip the object with the palms of the hands and the roots of the fingers, not with the finger tips. Keep the arms in to the side of the body. To lift this way, all you need to do now is to stand up.
3. Lowering is a reversal of the process: one leg slightly forward, arms in to the side, back straight, chin in, bend the legs.

(VIII) Slips, Trips and Falls

1. Every year many workers suffer painful injuries, sometimes fatal, due to slippery deck, standing on an object which turns under the foot, stepping on an upturned rail, tripping over ropes, broken bindings, dunnage, loose gear, etc. Watch where you are going and don't leave anything in the working area which is liable to cause such accident. Report spills of oil or other liquids, or cargo in the form of pellets which could roll underfoot, so that it can be cleared up before someone slips on it.

(IX) Working clothes

1. Clothing should be chosen to minimize working risks.
2. Scarves, sweat rags and other neck wear, loose clothing, finger rings and jewellery can be hazards when working with machinery. Long hair should be covered.
3. Scandals and plimsolls are dangerous and should not be worn when working, since they offer little protection against accidental scalds or burns or falling objects and add to the risks of tripping and falling or slipping on ladders as do old, worn out, down-at-heel shoes.
4. Whilst loose-fitting gloves allow hands to slip out readily, they do not give a good grip on ladder. Wet or oily gloves may be slippery and great care should be taken working with them.

Section 11

Summary of Shipping and Port Control
(Cargo Handling) Regulations 1978

Part 1

Preliminary

1. Citation and commencement of regulations.
2. Interpretation of terms used in the regulations.
3. Application: regulation apply to appliances and gear on board vessel not those ashore.

Part II

Safe Means of Access and Workplaces

4. Duty to comply with this Part by owner, master or officer in charge.
5. Safe means of access to ships.
6. Safe means of access when vessels are alongside each other.
7. Safe means of access to holds.
8. Lighting of workplaces.
9. Adequate ventilation and precautions against contaminated atmospheres.
10. Gear for lifting beams. Requirement to have proper slings with rope tails.
11. Markings on hatch coverings and beams to ensure correct positioning.
12. Maintenance of hatch coverings and beams in safe condition.
13. Handgrips to be provided on hatch boards and locking devices on hatch beams and coverings.
14. Safety in removing and replacing beams. Sufficient space to be available around hatches (600 mm).
15. Power operated hatch coverings and hull doors to be operated by competent persons.

Part III

Lifting Appliances and Lifting Gear

16. Duty to comply with this Part by owners of lifting appliances or the masters of ships.
17. Safe lifting appliances and gear to be of good construction and design etc., properly installed, maintained and rigged.
18. Markings on lifting gear. Weight of grabs, lifting beams etc., to be marked on the gear.
19. Prohibitions regarding lifting gear. No wrought iron gear to be used. Supervision of heat treatment of lifting gear.
20. Testing and examination of lifting appliances. (Derricks, cranes, etc.)
21. Testing of lifting gear. (Blocks, shackles, hooks, swivels, etc.)
22. Testing and inspection of wire ropes. Certificate of test to destruction by manufacturer. Types of splicing, the use of broken ropes, etc.
23. Certificates to be obtained and inspections to be recorded in cargo gear register.
24. Safe working load of pulley blocks to be marked on blocks.
25. Safe working loads for cranes and derrick to be marked on appliances. Slings to be marked by a tablet or a S.W.L. table for slings to be available to persons using slings.
26. Prohibition of shortening of chain by knotting and their protection against misuse.
27. Fencing of motors, gearwheels, etc.
28. Safeguards on cranes, winches, etc., to prevent accidental fall of load.
29. Driver's platforms on cranes, etc., to be provided with proper fencing and access ladders.
30. Measures regarding steam obscuring work places.

Part IV

Cargo Handling

31. Duty to comply with this Part by stevedores and workmen.
32. Means of escape of workers from bulk cargoes.
33. Safe working load of lifting appliances and gear not to be exceeded.
34. Competent person to be in charge of lifting appliances when load is left suspended.

35. Competent persons to operate lifting appliances, etc. Minimum age 18 years.
36. Deck-stages or cargo-stages to be substantial, properly built and secured.
37. Fencing of open hatchways. (This is also the duty of owners, masters and officers in charge).
38. To provide a secure and safe landing platform at tween decks when working cargo in the hatchway.
39. Cargo not to be lifted by hooking on to fastenings of bales, etc.
40. Provision of staging when space under a skeleton deck excess 600 mm in depth.
41. Shoring of cargo to prevent collapse of stow.
42. Securing of hatch beams. Beams to be either removed or secured when working cargo.
43. Employment of signallers.

Part V

Miscellaneous Prohibitions

44. Duty to comply with this Part by all persons.
45. Prohibition of removal of fencing or other safety devices unless authorized.
46. Safe means of access to be used.
47. Prohibition against going upon hatch beams for hooking on.

Part VI

Miscellaneous Provisions

48. Prohibiting on use of appliances or gear which do not comply with Part III of the regulations.
49. Obligation of employers to comply with regulations 5, 6, 8 & 9 if owner, master, etc., does not comply. (i.e. access to vessel, ventilation and lighting).
50. Issue of certificates, etc., by competent examiners of lifting appliances

and lifting gear.

51. Production of registers for inspection by officers of the Marine Department.
52. Reciprocal arrangements. Acceptance of registers, certificates etc., issued by other authorities.
53. Duty to report accidents by owner or master and the persons in control of cargo handling.
54. Director of Marine to specify certificates.

Part VII

Offences and Penalties

55. Offences by owners, master etc. Penalties for contraventions.
56. Offences by owners of lifting appliances, etc. Penalties for contraventions.
57. Offences by persons carrying on cargo handling. Penalties for contraventions.
58. Offences against Part V.
59. Offences by employers. Penalties for contraventions.
60. Offences by competent examiners, etc. Penalties for contraventions.
61. Offences for failure to produce register, etc. Penalties for contraventions.

Schedule

Procedure for testing and examining lifting appliances and lifting gear.

Appendix I

Marine Department Notice No. 115A of 1992
Precautions to be taken before entering
tanks and other closed spaces
Notices to Shipowners, Masters, Shipbuilders,
Shiprepairers, Stevedores and Operators

Attention is drawn to the danger of entering a tank or closed space on board ship without first taking the precaution of thoroughly ventilating it. This danger exists whether the spaces are empty or are being used for the carriage of certain cargoes such as oil, grain, coal, potatoes, onions, organic substances or chemicals. A mishap most commonly occurs when persons go into an oil tank which has recently contained petroleum, or into a cofferdam, a water ballast tank, or a void tank which has been empty and closed for some time.

The lack of oxygen in an empty, insufficiently ventilated, closed tank is caused by resting, which gradually extracts oxygen from the air, and by the presence of oil vapours which displace or contaminate the air. In cargo holds and storerooms carbon dioxide may develop at the expense of the oxygen in the air because of chemical changes in the goods being carried. Poisonous gas may be produced by coal cargoes or bunkers and in spaces in which heating stoves or boilers are installed.

Ballast tanks, oil tanks, voids, storerooms, cargo holds, pump rooms and other spaces which may contain a dangerous concentration of suffocating or poisonous gas should always be thoroughly ventilated and the atmosphere inside tested before an attempt is made to enter, and it should be borne in mind that any gas in the compartment is likely to be heavier than air and may be localised. If there is any doubt about the atmosphere there should be someone standing by and a breathing apparatus, smoke helmet or smoke mask should be used and a lifeline carried.

It is recommended that, where applicable, warning notices should be posted at pump room entrances prohibiting entry unless authorised by a responsible officer and that similar notices concerning cargo tanks and other closed spaces should be posted in prominent places.

When there is a casualty in an enclosed space which might have been caused by gas or lack of oxygen, it is most unwise for anyone to go to his aid without first donning breathing apparatus, smoke helmet or smoke

mask and carrying a lifeline. A rescuer who fails to do this will most likely be overcome himself and will jeopardise not only his own safety but also that of the man he hopes to save.

Additional copies of this notice may be obtained from the Marine Department Marine Industrial Safety Section, Room 2315, Harbour Building, 38 Pier Road, Central, Hong Kong.

Director of Marine


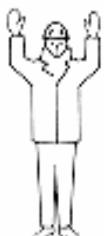




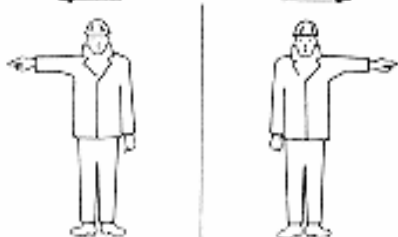
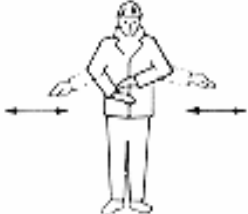
Marine Department

Hong Kong.

Date: 13th August 1992

Appendix II

Code of Hand Signals

 STOP	 EMERGENCY STOP	 CLENCH AND UNCLENCH FINGERS TO SIGNAL 'TAKE THE STRAIN' OR 'INCH THE LOAD'
 HOIST	 LOWER	 SLEW IN DIRECTION INDICATED
SIGNAL WITH ONE HAND OTHER HAND ON HEAD		SIGNAL WITH ONE HAND OTHER HAND ON HEAD
 JIB UP	 JIB DOWN	 EXTEND JIB
DERRICKING JIB		TELESCOPING JIB
 TRAVEL TO ME	 TRAVEL FROM ME	 TRAVEL IN DIRECTION INDICATED
SIGNAL WITH BOTH HANDS		 OPERATIONS CEASE
 TWISTLOCKS ON/OFF	ROTATE WRIST OF LEFT HAND	

Addresses & telephone no. for offices of consulting organisations

Marine Department

Marine Industrial Safety Section

Room 2315, 23/F., Harbour Building,
38, Pier Road, Central, Hong Kong.
Telephone: 28524477

Labour Department

Occupational Safety & Health Division

15/F., Harbour Building,
38, Pier Road, Central, Hong Kong.
Telephone: 28524041

Labour Department

Factory Inspectorate Division

16/F., Harbour Building,
38, Pier Road, Central, Hong Kong.
Telephone: 28150678

Occupational Safety & Health Council

14/F., L & D House,
2-4, Cameron Road, Tsimshatsui,
Kowloon, Hong Kong.
Telephone: 27399377