ICHCA
International Limited

INTERNATIONAL SAFETY PANEL

BRIEFING PAMPHLET SERIES #29

LOADING LOGS FROM WATER

In British Columbia

BY AL LE MONNIER AND CHUCK ZUCKERMAN

ICHCA INTERNATIONAL PREMIUM MEMBERS:

TT CLUB

STRAANG

ICHCA INTERNATIONAL LTD is an independent, non-political international membership organisation, whose membership comprises corporations, individuals, academic institutions and other organisations involved in, or concerned with, the international transport and cargo handling industry.

ICHCA International is dedicated to the promotion of safety and efficiency in the handling and movement of goods by all modes and throughout the supply chain. Originally established in 1952 and incorporated in 2002, it operates through a series of Local, National and Regional Chapters and represents the cargo handling world at various international organisations, including the International Maritime Organization (IMO), United Nations Conference on Trade and Development (UNCTAD), the International Labour Office (ILO) and the International Standards Organization (ISO). It also maintains a close liaison and association with many non-governmental organisations.

ICHCA International members include ports, terminals, transport companies and other groups associated with cargo handling and coordination. Members of ICHCA International Panels represent a substantial cross-section of senior experts and professionals from all sectors of the cargo transport industry globally. Members benefit from consulting services and informative publications dealing with technical matters, “best practice” advice and cargo handling news. It has an International Safety Panel, an International Research and Education Panel, an International Security Panel and an Environmental Sub Group. It also organises an ad hoc ILO Advisory Group. For more information visit the website.

ICHCA International Limited
Suite 2, 85 Western Road,
Romford, Essex, RM1 3LS
United Kingdom

Tel: *+44 (0) 1708 735295*
Fax: *+44 (0) 1708 735225*
Email: *info@ichcainternational.co.uk*
Website: *www.ichca.com*

© ICHCA International Ltd.

The International Safety Panel Briefing Pamphlet series consists of the following pamphlets:

No. 1 International Labour Office (ILO) Convention No. 152 Occupational Safety and Health in Dockwork (*revised)*
No. 2 Ships Lifting Plant (*revised)*
No. 3 The International Maritime Dangerous Goods (IMDG) Code (*revised)*)
No. 4 Classification Societies (*revised*)
No. 5 Container Terminal Safety (under revision)
No. 6 Guidance on the Preparation of Emergency Plans (*revised)*
No. 7 Safe Cleaning of Freight Containers *(revised)*
No. 8 Safe Working on Container Ships
No. 9 Safe Use of Flexible Intermediate Bulk Containers (FIBCs) *(revised*)
No. 10 Safe Working at Ro-Ro Terminals
No. 11 The International Convention for Safe Containers (CSC) (*under revision)*
No. 12 Safety Audit System for Ports
No. 13 Loading and Unloading of Solid Bulk Cargoes (*under revision)*
No. 14 The Role of the Independent Marine Surveyor in Assisting Claims Handling
No. 15 Substance Abuse
No. 16 Safe Use of Textile Slings
No. 17 Shore Ramps and Walkways (*under revision)*
No. 18 Port State Control
No. 19 Safe Handling of Interlocked Flats *(under revision)*
No. 20 Unseen Dangers in Containers
No. 21 Stow it right
No. 22 Suspension Trauma
No. 23 Safe Handling of Forest Products
No. 24 Safe use of Road Vehicle Twistlocks
No. 25 An Illustrated Guide to Container Type and Size Codes
No. 26 Safe Handling of Dangerous Bulk Liquids and Gases
No. 27 Safe Working with Pallets
No. 28 Safe Slinging
No. 30 Safe Handling of Tank Containers

The International Safety Panel Research Paper series consists of the following research papers:

No. 1 Semi-Automatic Twistlocks
No. 2 Fumes in Ships Holds (*revised)*
No. 3 Health & Safety Assessments in Ports (*revised)*
No. 4 Container Top Safety, Lashing and Other Related Matters (under revision)
No. 5 Port & Terminal Accident Statistics (*revised)*
No. 6 Safe Handling of Radioactive Materials in Ports and Harbour Areas (*revised))*
No. 7 Ship Design Considerations for Stevedore Safety (*revised)*
No. 8 Safe Walkways in Port & Terminal Areas
No. 9 Personal Protective Equipment & Clothing
No. 10 Back Pain
No. 11 Lifting Persons at Work for Cargo Handling Purposes in the Port Industry
No. 12 Whole Body Vibration
No. 13 Lifting of Containers by Rubber Tyred Gantry Cranes

© ICHCA International Ltd.

No. 14 Lashing of Containers
No. 15 Terminal Operations in High Winds

The International Safety Panel Technical/Operational Advice series consists of the following:

No. 1 Vertical Tandem Lifting of Freight Containers
No. 1A Vertical Tandem Lifting – Operations Checklist
No. 2 Container Vessels – Safety aspects of Lashing on Deck 40' and 45' containers with particular regard to horizontal lashings

Plasticised Pocket Cards

IIL/1 Dangerous Goods by Sea Documentation
IIL/2 Dangerous Goods by Sea: The IMDG Code Labels, Placards, Marks and Signs
IIL/3 Confined Spaces on Board Dry Cargo Ships

General Series

No. 1 Guidelines to Shipping Packaged Dangerous Goods by Sea – Advice to Consignors and Shippers
No. 2 Fire Fighting in Ports and on Ships

Other titles in many of the series are in preparation

This publication is one of a series developed by the International Safety Panel ("Safety Panel") of ICHCA International Limited ("ICHCA"). The series is designed to inform those involved in the cargo-handling field of various practical health and safety issues. ICHCA aims to encourage port safety, the reduction of accidents in port work and the protection of port workers' health.

ICHCA prepares its publications according to the information available at the time of publication. This publication does not constitute professional advice nor is it an exhaustive summary of the information available on the subject matter to which the publication refers. The publication should always be read in conjunction with the relevant national and international legislation and any applicable regulations, standards and codes of practice. Every effort is made to ensure the accuracy of the information but neither ICHCA nor any member of the Safety Panel is responsible for any loss, damage, costs or expenses incurred (whether or not in negligence) arising from reliance on or interpretation of the publication.

The comments set out in this publication are not necessarily the views of ICHCA or any member of the Safety Panel.

All rights reserved. No part of this publication may be reproduced or copied without ICHCA's prior written permission. For information, contact ICHCA's registered office.

© ICHCA International Ltd.

ICHCA International Limited - INTERNATIONAL SAFETY PANEL

The International Safety Panel is composed of safety and training officers and directors, transport consultants, representatives from leading safety and training organisations, enforcement agencies, trade unions, insurance interests, institutions and leading authorities on the subject area from around the world.

Mike Compton (Chairman), *Circlechief AP*, UK
John Alexander, UK
Meir Amar, *Port of Ashdod,* ISRAEL
Paul Auston, *Checkmate UK Limited*, UK
David Avery, *Firefly Limited*, UK
Peter Bamford*,* CANADA
Christian Blauert, *HHLA,* GERMANY
Jan Boermans, *DP World*, THE NETHERLANDS
Mike Bohlman, *Horizon Lines,* USA (Deputy Chairman)
Roy Boneham, UK
Bill Brassington, UK
Jim Chubb, *BMT Marine & Offshore Surveys Ltd (incorporating BMT Murray Fenton Limited*) UK
Gary Danback, *IICL*, USA
Rob Dieda, *SSA,* USA
Trevor Dixon, *WNTI,* UK
Steve Durham, *Trinity House,* UK
Patricia Esquival, *OPCSA,* SPAIN
Margaret Fitzgerald, IRELAND
Pamela Fry, *DP World,* CANADA
Kirsty Goodwin, *SAMSA,* SOUTH AFRICA
Fabian Guerra, *Fabian Guerra Associates*, EQUADOR
Harri Halme, *Min. of Social Affairs & Health, Dept for Occupational Health & Safety*, FINLAND
Geoff Holden, *LEEA,* UK
Laurence Jones, *TT Club,* UK
Peter van der Kluit, THE NETHERLANDS
Fer van de Laar, *IAPH*, THE NETHERLANDS
Larry Liberatore, *OSHA,* USA
Catherine Linley*,* AUSTRALIA
Shimon Lior, *Israel Ports, Development and Assets*, ISRAEL
Richard Marks, *Royal Haskoning,* UK
Joachim Meifort, *Hamburger Hafen-u Lagerhaus A-G*, GERMANY
Marios Meletiou, ILO, SWITZERLAND
John Miller, *Mersey Docks & Harbour Company*, UK
Al le Monnier, *ILWU,* CANADA
Greg Murphy, *Patrick Stevedoring.* AUSTRALIA
Pedro J. Roman Nunez, *Puertos del Estado*, SPAIN
John Nicholls, UK
Nic Paines, *Gordon, Giles & Coy Ltd*, UK
Mick Payze, AUSTRALIA
Irfan Rahim, *IMO,* UK
Risto Repo, *Accident Investigation Bureau of Finland*, FINLAND
Pierre-Yves Reynaud, *Port of Le Havre,* FRANCE

© ICHCA International Ltd.

Raymond van Rooyan, *SAPO,* SOUTH AFRICA
Ron Signorino, *The Blueoceana Company, Inc*., USA
Tom Sims, UK
Mark Sultana, *Malta Freeport Terminals Ltd,* MALTA
Matt Smurr, *Maersk Inc,* USA
Armin Steinhoff, *Behörde für Arbeit, Hamburg*, GERMANY
Peregrine Storrs-Fox, *TT Club,* UK
Bala Subramaniam, INDIA
Markus Theuerholz, *German Lashing,* GERMANY
Hubert Vanleenhove, BELGIUM
Evert Wijdeveld, *Environmental & Safety Affairs, Deltalinqs*, THE NETHERLANDS (Deputy Chairman)
Bill Williams, *Maersk Inc.* USA
Dave Wilson, *Hutchison Ports (UK) Limited*, UK
Rachael White, *PEMA,* UK
Beat Zwygart, *Lemantec International*, FRANCE

OBSERVERS:
Capt. Jim McNamara, *National Cargo Bureau, Inc*., USA
Charles Visconti, *International Cargo Gear Bureau, Inc*., USA

CORRESPONDING/ASSOCIATED MEMBERS:
Paul Ho, *HIT,* HONG KONG
Richard Day, *Transport Canada*, CANADA
Samuel Ng, *Maritime Department,* HONG KONG

The above lists those persons who were members of the Panel when the pamphlet was published. However, membership does change and a list of current members can always be obtained from the ICHCA International Secretariat.

© ICHCA International Ltd.

ABOUT THE AUTHORS

Albert Le Monnier: Albert has been a stevedore for 32 years working in all facets of the cargo handling in port work. He was chairman of his union's local safety committee from 1992 to 1997. He was a Business Agent for the same local from 1997 to 2000. As a Vice President for ILWU Canada, he has coordinated the safety program for all the member and affiliate locals of the ILWU Canada. He is the spoke person for the union in regulatory matters in Canada.

Chuck Zuckerman: Chuck has been a stevedore for 30 years and also has a vast experience in material handling equipment. He has published historical articles about Vancouver's waterfront as well as designing a Crane Operator's Training course complete with training manuals and instructional videos. He designed a similar program for Dock Checkers. His latest project was to design Safety Training videos and manuals for entry level stevedores covering many aspects of working safely and efficiently at various jobs.

Acknowledgements
Acknowledgements:
Written by Albert Le Monnier, ILWU Canada and Chuck Zuckerman, ILWU Local 500

Published in cooperation with the British Columbia Maritime Employers Association.
Illustrated by Leslie Marining – Creative Link Graphics – for the British Columbia Maritime Employers Association. Illustrations and graphics are the property of the BCMEA and are not to be reproduced without their written consent.

© ICHCA International Ltd.

LOADING LOGS FROM WATER
In British Columbia

© ICHCA International Ltd.

Contents **Page**

© ICHCA International Ltd.

ISBN: 978-1-85330-013-4
Published: April 2009

© ICHCA International Ltd.

LOADING LOGS FROM WATER IN BRITISH COLUMBIA

1. INTRODUCTION

1.1 Log loading is a stevedoring operation that has not changed significantly since timber became an export commodity.

1.2 The work was more dangerous using Standing Gear Rigging powered by 4 ton steam winches. Although only a single log would be lifted at a time, it had to be swung or dragged to a corner of the hatch using tackle blocs attached to combines. Sometimes logs had to be rolled into a wing using peaveys and elbow grease. These techniques often created an uncontrolled log rolling hazard as the free swinging log tumbled into its position in the stow, or so was it hoped.

1.3 In our modern era of log ship loading, lifting gear is now done by hydraulic cranes with a 40ts capacity. Additionally logs, which are now second and third growth, are smaller in diameter and can be bundled together. The skill of walking on loose logs is still necessary however rolling logs by hand is a lost art. The ever present danger of tripping on loose bark is of concern to workers hooking up logs in the hold, on deck, and in the water.

1.4 One fact that has remained constant over the years is that log loading operations has had the highest rate of injury. However, due to the implementation of a systematic training program and improved equipment the rate of injury has dramatically decreased in 2005 and 2006.

1.5 The purpose of this pamphlet is to provide guidelines when handling this dangerous commodity. The guidelines are currently the standard safe work practices used in British Columbia, Canada, and it is hoped that these guidelines will be relevant to similar operations elsewhere.

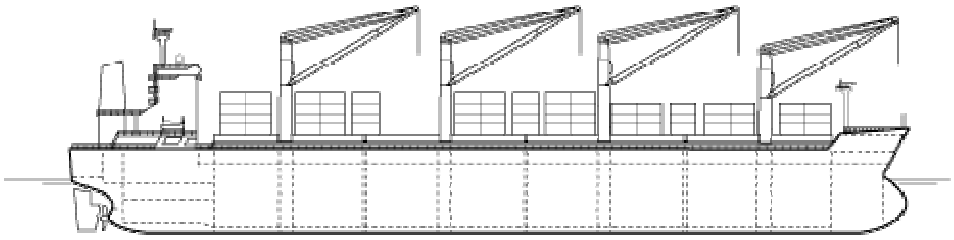
1.6 The most important aspect in safely loading logs is constant communication between all employees involved in the process.

© ICHCA International Ltd.

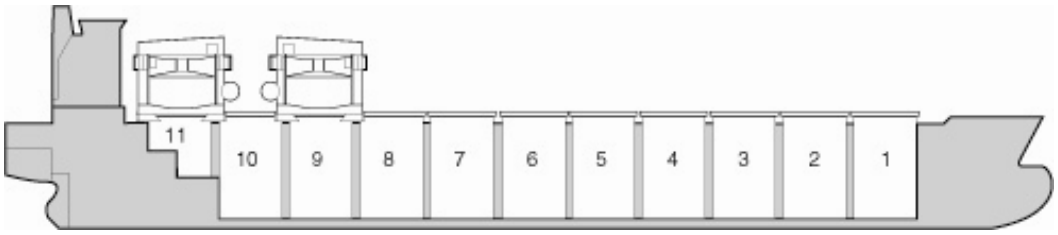
2 DESCRIPTION OF EQUIPMENT

2.1 Vessel Cranes:

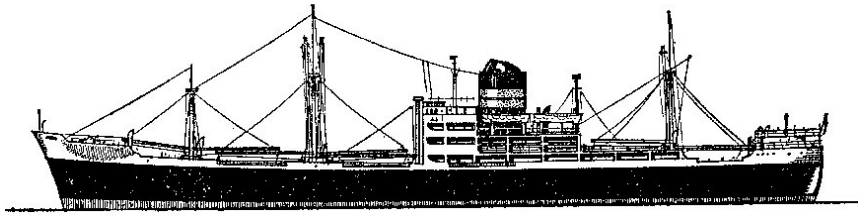
- Pedestal Cranes:
  The Pedestal crane is now the most common type of lifting appliance for log loading. The main feature of this type of crane is its ability to slew 360°. This greatly aids in controlling where the logs are supposed to be stowed. If the logs are bundled, it is recommended that the lifting appliance should have a SWL of 30 to 40 Metric Tons. That should ensure that the longest or heaviest bundles don't exceed the SWL. As the name implies, its main feature is the ability to slew 360°.

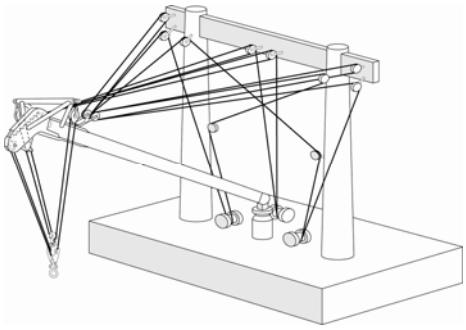


- Gantry Cranes:
  Typically only two Lifting Appliances will be seen on these vessels. One disadvantage of using this type of vessel is the often need to turn the load athwart over the log boom creating a potential overhead falling hazard. This type of vessel however has hatches/holds without wings. This eliminates the need to "dump" or "roll" logs, however their capacity can only be efficiently used with "square" bundle ends They are never used for deck loads.



- Swinging Stick Derrick:
  We see less of this type of appliance used. Their SWL is usually 25 MT at best and have a limited range of slew radius on board.



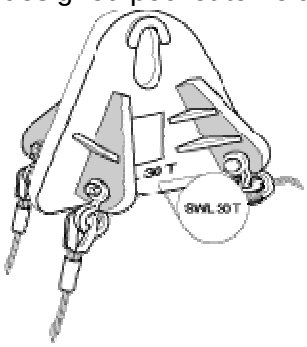


© ICHCA International Ltd.

2.2 Lifting Bridles:

There are essentially only two types of lifting devices specially designed for handling logs.

- Manual Log Lifting Bridle: It consists of a heavy steel plate with a central eye to connect a 35T shackle. At the bottom of the plate, two legs are shackled at each end with a specially designed pocket to hold the sling's knob.



- Automatic Release Log Bridle: This lifting device has a plunging arm mechanism that when activated by lowering the hook until the arm is down, it automatically releases the same side of both slings. This eliminates the need of hold workers to continually walk on log surfaces to unhook the load.

WARNING!
It is important when using these devices to ensure it is clear of debris or an unintended release could occur. Workers should be instructed on their proper use.

2.3 Wire Slings:

For loading under deck these slings are usually 30 feet long, have a 20 MT SWL each with babbitts at both ends. At one end a "Dumping Bell" is inserted on each sling. The bells are used to help dump the load into the wings under deck. When on deck, shorter slings are used without the bells.

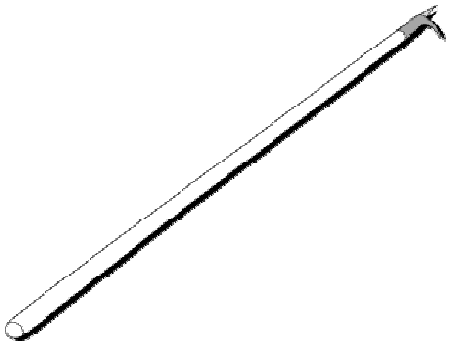
2.4 Chains, Shackles and Hooks:

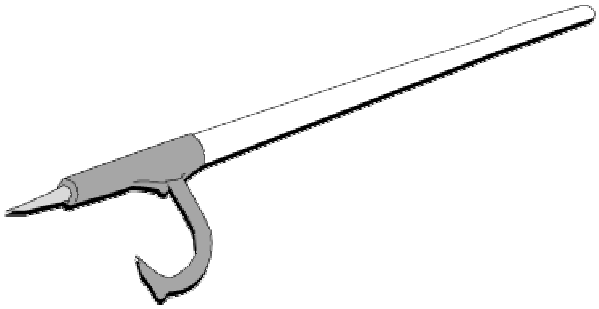
Chains are used for lashing on deck loads.

© ICHCA International Ltd.

2.5 Pike Poles and Peaveys:

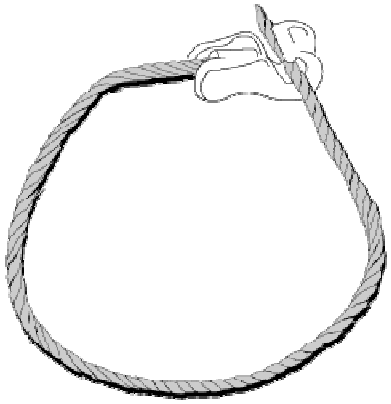
The Pike Poles are used on the boom to push and set up loads in front of the lifting appliance. The peavey is used to roll a log.





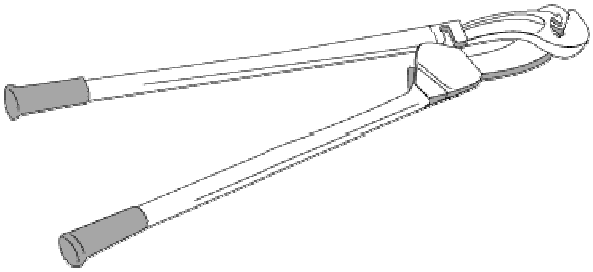
2.6 Bear Paw:

The Bear Paw is designed to enable a choke lift.



2.7 Ratchet Band or Wire Cutters:

Used to cut the wires on a bundled load of logs.



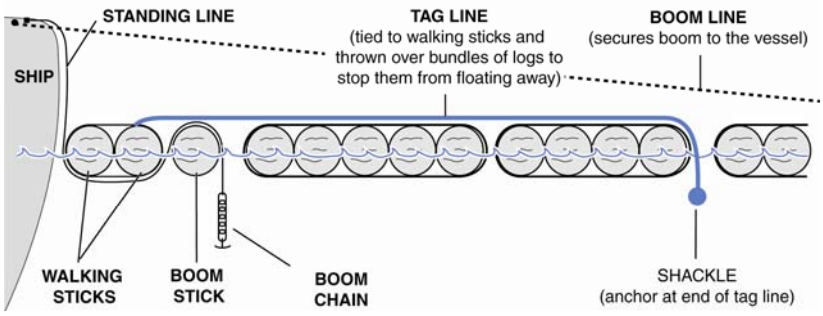
2.8 Chain Tighteners:

This modified version of a chain saw tightens lashing turnbuckles cinching tight loaded logs on deck.

© ICHCA International Ltd.

2.9 Tag Lines and Boom Lines:

Boom Lines are used to secure log booms to the vessel.
Tag Lines are lighter ropes and are used to secure one bundle of logs to another, or to raise or lower equipment over the side of the vessel or into the hatch e.g. cutters, pike poles, water jugs, etc.



2.10 Boom Chains:

To stabilize booms to the walking sticks or log loads.

2.11

2.12 Chainsaws and Related Protective Gear:

The Chainsaw is used in cutting Catwalk lumber.

2.13

2.14 Safety Boat:

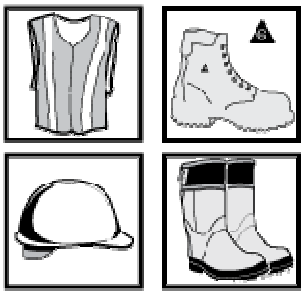
The Safety Boat is an open aluminum row boat equipped with an appropriate lifting apparatus, Two Oars, a Life Ring, a Life Line and a Bilge Plug. Where there is a current, a manned motorized boat is essential.

© ICHCA International Ltd.

3 PERSONAL PROTECTIVE EQUIPMENT:

3.1 Hold Workers:

- Steel-toed Safety Boots:
  These should have a 6" Ankle Support and it is advised that they be equipped with Caulk Soles. It is important to frequently inspect the boots spikes to ensure they are still sharp and stable.
  On the alternative the same boots with Caulk Sandals affixed. These are not as efficient.
- Non obstructive Hi-Visibility clothing:
- Waterproof Gloves
- Protective Helmet



3.2 Boom Worker:

Similar as above but add Personal Flotation Device and waterproof steel toed caulk boots.

3.3 Topside:

Topside personnel should don caulk footwear if it is necessary to walk on logs.

3.4

4 PRE-JOB COMMUNICATIONS:

4.1 General Safety Instructions

It is necessary for supervisory personnel to ensure all workers involved in the loading operations receive a detailed reminder of some of the dangerous aspects of the job.

WARNING!
This is particularly important if the work force is inexperienced.

This is commonly known as **"Tool Box Talk"**.
All categories should be reminded of the following basic rules:

- Listen/watch for instructions from your supervisor or Hatch Tender

© ICHCA International Ltd.

- Mobile Phones or other electronic devices are not permitted
- When using vertical ladders, the Three-Point-Contact Rule should always be observed.
- Wear necessary Personal Protective Equipment
- All employees should check periodically for damaged slings

4.2 Boom Workers Safety Instructions:

- Boom Workers should be aware of what is taking place above their head – Stay in a safe position.
- They should be aware that some log bundles may have protruding logs below the waterline.
- They should not turn their backs on a load or remain near a load being hoisted.
- They should assume a safe, balanced position when trying to free log jams.

4.3 Hold / Deck Workers Safety Instructions by the Hatch Tender or Supervisor:

- Workers should know where the load is going before it enters the hatch.
- Workers should stay together in a safe location in the hatch.
- Workers should ensure that the crane operator can seem them. (If you can't see the crane driver, he can't see you)
- Workers should be aware of slippery surfaces on Deck or in the Hold. (Caulk spiked soles on steel can be very treacherous) They should be mindful of loose bark, mud, frost, ice, etc.
- When it is necessary to cut bands, it is important to always maintain a balanced body position.
- Workers should never climb in or out of the Hold whilst a load is being moved.
- It may be necessary to turn the load around in the hold or on deck using Pike Poles when the crane operator cannot turn it on his own. This should be done with the load as low as possible. It is essential to have firm footing during such a maneuver.
- When asked to unhook a load, workers should ensure the bridle and the load is at rest and not under tension.
- When slings are being pulled from one end, workers should stay well clear of the area.
- When on deck, tripping hazards become present for workers such as Wiggle Wires, Hog Lashings, turnbuckles, Foot Wires etc.

© ICHCA International Ltd.

5 TOPSIDE SAFE PRACTICES IN HANDLING LOGS:

Topside personnel are typically comprised of:

- a crane driver and
- a hatch tender (signaler)

per hatch operation.

5.1 Gear Inspection:

5.1.1 Before the start of any job, arrangements should be made with the vessel to provide the ILO Convention 152 certificate of Thorough Examination for the lifting appliance and certificates for the hoist and lofting wire ropes.

5.1.2 Once it is ascertained that the certificates are in order and up to date, the Topside gang for each crane should proceed in doing a visual inspection of the appliance and wires and a test of all emergency switches.

5.1.3 Topside should also inspect the lifting bridles and slings and any other loose gear that may be used during processes.

5.1.4 Topside should ensure that the Safe Working Load (SWL) of the lifting gear is never exceeded. (see 6.3)

5.2 Hold and On Deck Topside Safety Procedure:

5.2.1 To minimize re-handling of loads, Topside and Hatch Foreman should review the loading plan and sequence for the placement of the logs in the hatch.
- Should the first loads go in the aft end or fore end of the hatch?
- Should there be any loads athwart ship?

These decisions depend on the size and shape of the hatch and the available lengths of the logs.

5.2.2 The Hatch Tender should always communicate with the Hold workers and the crane driver as to where the load is going in the hatch before signaling to bring it over the hatch combing.

5.2.3 Hold workers should be standing diagonally opposite the loads final resting place and should make eye contact with the crane driver whenever possible.

5.2.4 It might be necessary to change the location of the load in the Hold. Any such movement should be communicated to the Hold workers before being executed and time given for them to reposition themselves.

© ICHCA International Ltd.

5.2.5 The crane operator should never change the location of the load on his own without communicating to the Hatch tender or Foreman. He should be aware of the Hold workers location at all times.

5.2.6 Only Standard Topside hand signals should be given to the crane driver.

5.2.7 Safe un-hooking of the load: When a manual bridle is used, the crane driver should lower until the sling ends are at the workers waist height. Hold workers should not approach the bridle until it is stable. Once the correct side has been released, the crane driver should bring the bridle over the edge of the load where the slings are being pulled. This minimizes excessive swinging of the bridle during the pull. He should wait until the workers have re-positioned themselves to a safe location in the hatch. The slings should be pulled evenly and should not be allowed to tangle up.

5.2.8 When the slings are about to pull free, the crane driver should anticipate this and slow down the hoist. As soon as the slings are free he should lower the slings rapidly on the load to stop them from swinging erratically.

5.2.9 Slings should never be taken out of the hatch whilst still swinging wildly.

5.2.10 When slings hanging vertically are being moved to the boom, they should be kept high enough to avoid obstacles on deck.

5.2.11 The crane driver should slew smoothly and bring the lifting bridle over the water with minimal swing movement. He should not lower the slings to the boom workers until all swinging motions have ceased.

5.2.12 It is necessary from time to time to cut the bundle's band when dumping the load into the wing or to eliminate a void in the stow. Slings should be kept taut around the load before beginning any cutting operation.

5.2.13 When working on deck, Topside should be aware of adjacent gangs working the same area and should be in a safe position to give signals.

© ICHCA International Ltd.

5.3 Over the boom Topside Safety Procedures:

5.3.1 In most cases the crane driver does not have a full vision of the entire work area on the boom so he must rely on the signals from the hatch tender. The hatch tender should ensure that all the boom workers working for his hatch are warned before bringing the slings to them.

5.3.2 The slings, hanging vertically, should be lowered to waist height. Allow boom workers to get hold of each sling before continuing to lower the slings as they are being wrapped around each end of the load. It is usually sufficient to lower the bridle until the hooked ends of the slings are also at waist height.

5.3.3 When the load is hooked up, the hatch tender gives a signal to slowly hoist the bridle as the boom workers keep the slings evenly apart.

5.3.4 When the slings are beginning to tighten up, the hoist should come to a crawl until the slings are fully taut. If this is not done, the tightening causes too much of a jerking motion for the boom workers. It can sometime be severe enough to cause arm injury.

5.3.5 Now that the slings are taut, Topside should wait for the boom workers to step off the load and find a safe location either on the boom or on the Walking Sticks.

5.3.6 If the Walking Sticks are the only safe place for the workers to stand, the load should not be lifted if any of the adjacent cranes are already lifting a load.

5.3.7 When everyone is in a safe position, the hatch tender signals the crane driver to slowly extract the load from the water. The hatch tender should ensure that the load is horizontal and that all the logs are securely held by both slings. If this is not the case the load should be re-slung.

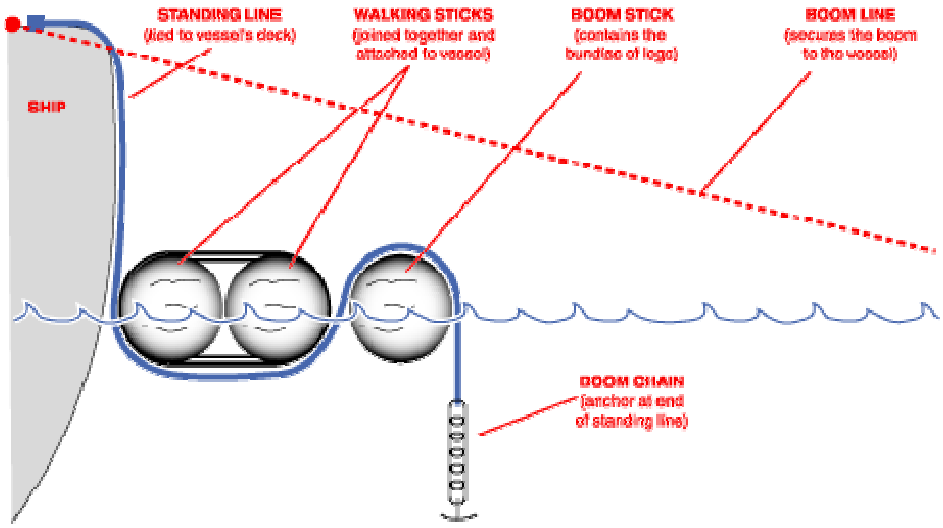
WARNING! A log plunging back into the water is very unpredictable.

© ICHCA International Ltd.

6 BOOM WORK:

6.1 Boom set-up:

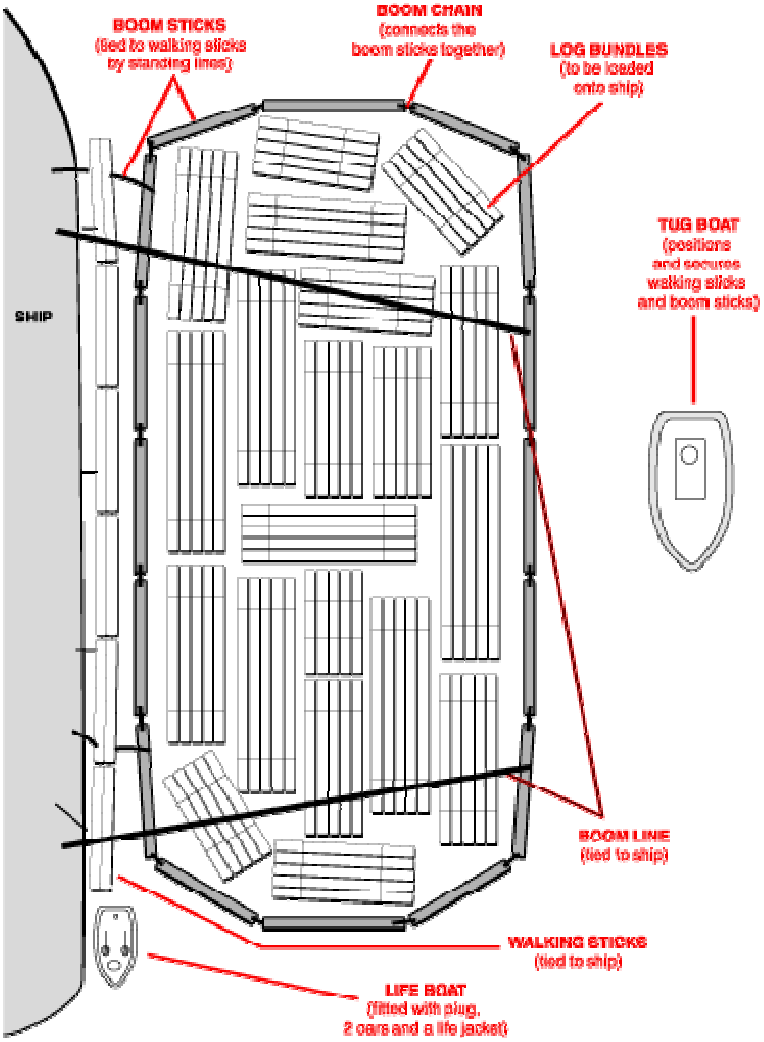
6.1.1 Walking Sticks are a platform for boom workers to walk on. This platform is composed of sufficiently large logs banded together two wide, butt to butt, from stern to bow, and attached at each end with large chains. They are attached to the vessel with Standing Lines. One end of the Standing line is tied on the vessel's deck, and the other end goes under the Walking Sticks and over the Boom Stick. A short Boom Chain is attached at the other end of the Standing Line to act as an anchor.



6.1.2 Log Boom: The log boom is brought along side the Walking Sticks by small tug boats named Dozer Boats. A log boom consists of logs, bundled or loose of various lengths, that are held in place by sufficiently large logs (Boom Logs) attached together with chains forming a rectangle. This rectangle is usually the length of a working section of a vessel and about 20 meters wide.

6.1.3 Safety Boat: The Safety Boat is brought from the dock to the water and attached to the Walking Sticks adjacent to the gangway. In it are the oars and Pike Poles needed for the job.

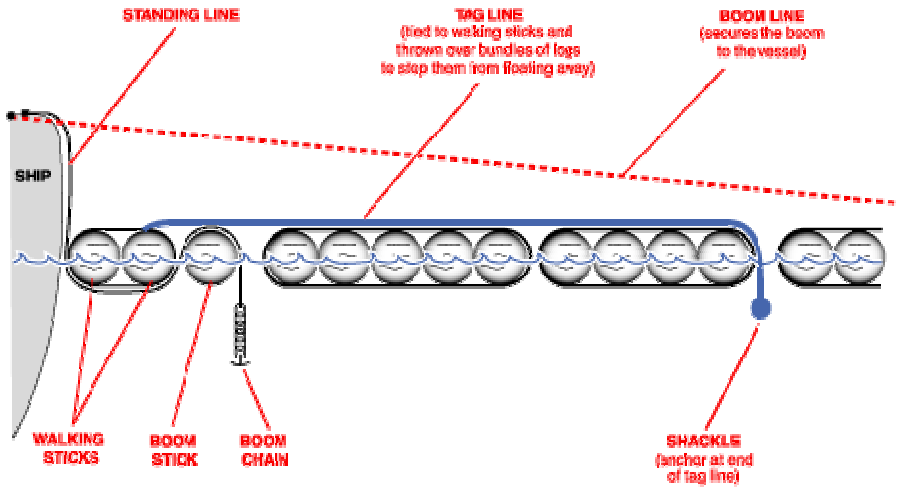
© ICHCA International Ltd.



6.1.4 The boom is fastened to the vessel with lines (Boom Lines) tied to the outside Boom Logs and the vessel's deck. As the boom gets smaller during loading, the remaining logs are being kept closed to the vessel by keeping the Boom Lines taut at all times.

© ICHCA International Ltd.

6.1.5 A Tag Line**,** with one end tied to the Walking Stick and a heavy Shackle at the other end, is placed over the assigned load to keep it from floating away.



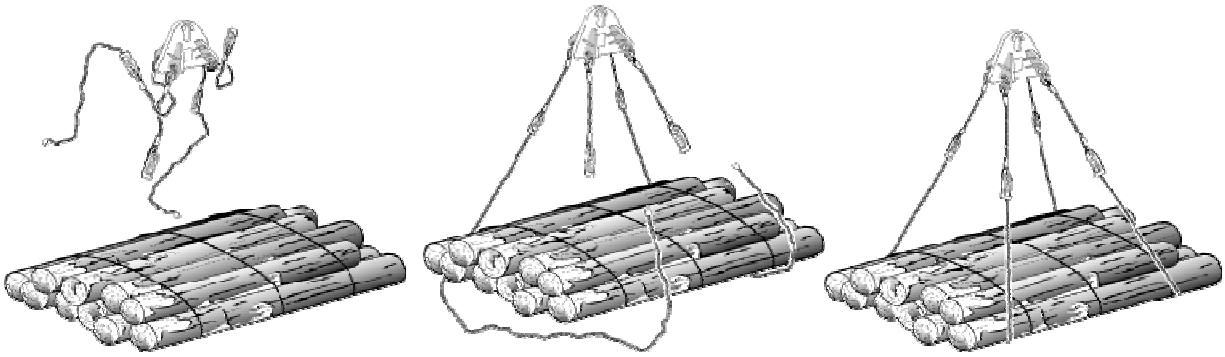
6.2 Safe Procedure on the Boom:

6.2.1 The Boom workers are instructed as to the desired load length. Using Pike Poles the boom workers maneuver the logs accordingly and bring the desired load within the reach of the crane.

6.2.2 Pike Poles should never be thrown and when not being used should be spiked on logs so they remain vertical and don't become a tripping hazard.

6.2.3 Boom workers should be alert at all times watching for lifts being taken to the adjacent hatches or swinging slings.

6.2.4 To sling a load, 4 boom workers are required, two per sling. As one hold the end of the sling, the partner feeds the length of the sling under the end of the bundle ensuring that the sling submerges completely underneath all the logs. The worker holding the sling's babbitt takes it to the appropriate sling hook.



© ICHCA International Ltd.

6.2.5 As slings get pulled from loads, they sustain a great deal of friction with the logs. It is therefore necessary to inspect the slings on a regular basis for small cuts (jaggers) and to watch for strand separation or elongation from the babbitt.

6.2.6 When the load is hooked up, each worker grabs his side of the sling and “walks” it back to maximize its grip to ensure an even lift. The worker should hold the slings between their thumb and fingers, not with their hand gripped around the sling. This technique is used because should the sling suddenly tighten a worker’s normal reaction would be to hold tighter whereas this action may cause serious injury. Workers should not walk under the bridle.

6.2.7 When the slings are finally taut, the boom workers walk off the load and find a safe location, away from the swing of the load.

6.2.8 Workers should never turn their back to the load after it is hooked up.

6.2.9 There should only be one worker per log moving from one to the other for stability purpose. Caution should be taken when jumping from log to log or bundle to bundle.

6.2.10 Boom workers should maintain good housekeeping around their work area.

6.2.11 During deck loading, boom workers should not stand on the Walking Sticks whilst the load is being landed.

6.2.12 It is important for boom workers to communicate with one another and their Supervisor or Hatch Tender throughout the shift.

6.3 Weight Limits:

6.2

6.3.1 ILO Convention 27 dictates to signatory nations that packages/loads over one MT ton must be clearly marked. When the nature of the cargo makes such requirement impossible, an approximate weight of the package/load must be displayed. With logs, an approximate weight is even more problematic if not impossible. It is therefore essential to ensure the number of logs being lifted is well within the Lifting Gear limits taking into account the size and length of the logs, silt accumulation, water or snow accumulation etc. Consideration should also be given to the added momentary weight the crane sustains caused by a suction effect as the load leaves the water and the excess weight of the water captured temporarily inside the load.

6.3.2 As per the ILO Code of Practice in Port Work, it is inappropriate to use the Lifting Appliance load limit cut off to determine if a load is overweight. Cut off limits are usually set at around 5% over the SWL of the appliance.

© ICHCA International Ltd.

6.3

6.4 Lighting:

6.4.1 The ILO Code of Practice suggests a lighting of 50 LUX for ship working areas. However in British Columbia ports, logs are not lifted from the water after dusk because sufficient lighting over the boom and in the hatch is not practical. Lashing operations are rarely carried out after dusk.

6.4

7 HOLD WORK:

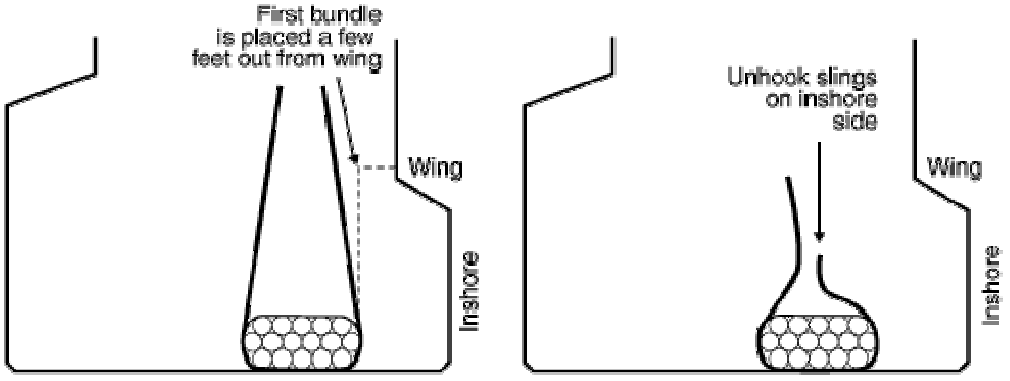
7.1 Guidance:

For the purpose of this chapter it is assumed the vessel has semi opened hatches. The IMO Code for Safe Stowage and Securing should be used as guidance in planning the stowage of logs.

6.5

7.1.1 Before the commencement of loading proceeds the dimensions of the hatch are ascertained as well as its shape (with regard for shears or corrugated bulkheads). This information determines the sequence and pattern of the loading process. This is discussed between the foreman and topside personnel.

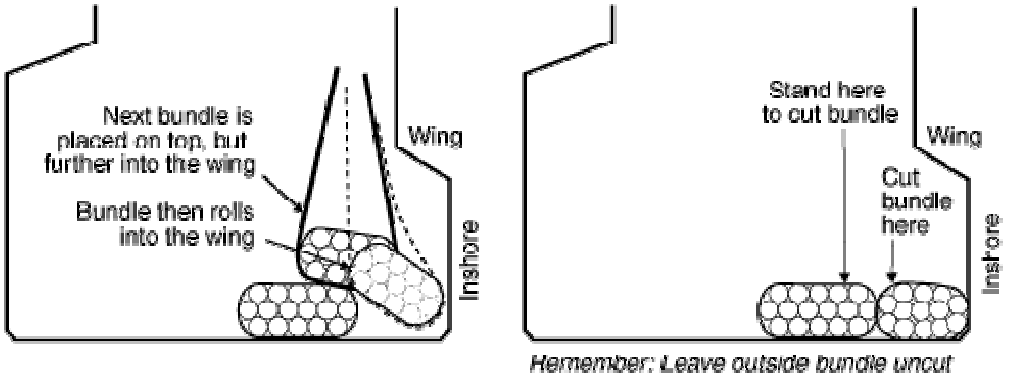
7.1.2 It is generally accepted that the first load placed in the hatch is the most important. It is usually landed on the side closest to the crane and one or two meters from the wing. It should be landed fore-aft tight against and perfectly perpendicular with the bulkhead. This will ensure that the following loads will continue the same pattern. It is also. acceptable to load “a pass” of loads tight to the forward end or aft end of the hatch. Maintaining a pass of loads forward or aft in the hatch allows the hold men to know where to expect the next load



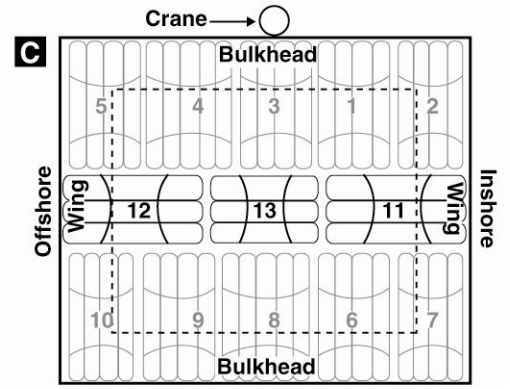
7.1.3 If the hatch has a sheared shape at one end such as the forward hatch, the gap caused by the shear should be filled by a short length load to maintain the same pattern.

© ICHCA International Ltd.

7.1.4 This pattern should be kept for the next several passes as the square of the hatch is being loaded. The aim should be to build a nice, straight crowning stow that permits an easy process when it is time to fill the wings by dumping the logs.



7.1.5 If because of inadequate log lengths it is impossible to maintain a strictly fore-aft stow without incurring a large void at the center of the hatch, the void should be filled by landing the necessary number of loads athwart ship to fill the void.



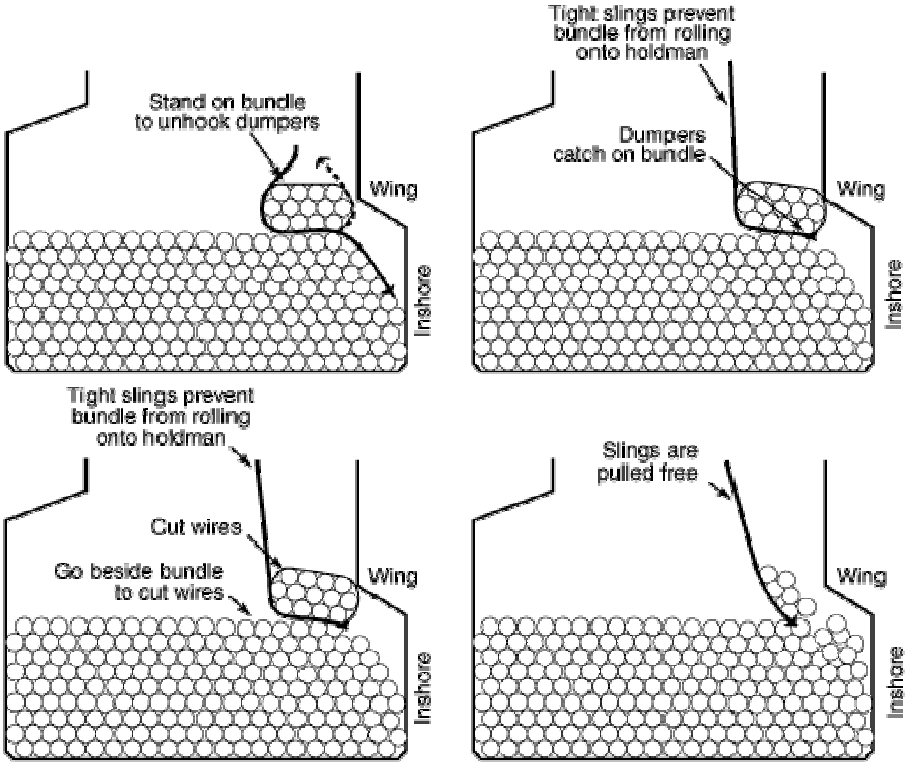
It is always necessary to cut the banding of bundled logs to ensure the stowage is snug and tight.

7.1.6 It is a cardinal rule that hold workers do not climb in or out of the hatch whilst the load is being lowered or moved around the hatch.

7.1.7 Dumping a load into the wing: The load is brought against the hatch combing and lowered on the stow with the dumpers facing the wing. The load should be as closed to the bulkhead as possible without touching it. If the load is bundled, the bands should be cut first before dumping. The cutting should be done with the slings taut.

7.1.8 After the workers stand in the clear, the crane driver lowers the bridle so the dumpers can be removed.

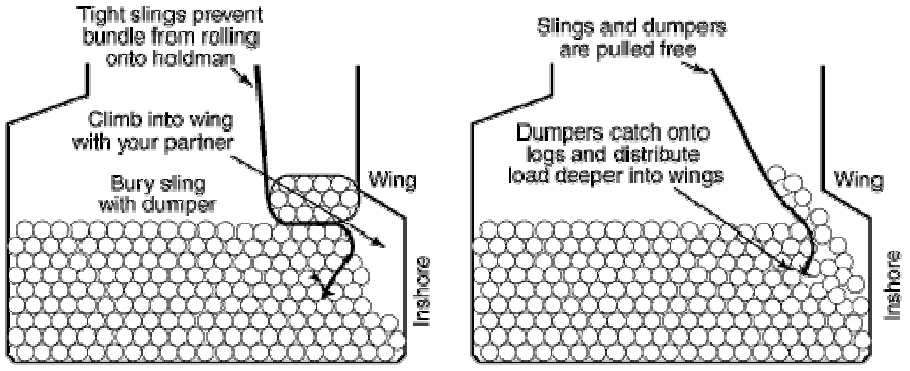
© ICHCA International Ltd.



7.1.9 ***WARNING! The dumper bells should never be caught or placed against any structural part of the vessel.***

If using an automatic bridle, it may be necessary for workers to adjust the location of the dumpers.

7.1.10 The crane driver, after ensuring the hold workers are as far as possible from the operation, raises the slings slowly allowing the dumpers to bind against the bottom of the load. He should allow no more than two logs to roll off at a time to give them a chance to roll down straight and evenly. The aim should be to not have to re-handle the logs in the wings as this greatly increases the risk of injury.



7.1.11 Sometimes logs have not rolled down properly and must be re-handled. The hold workers must get down into the wing to reposition the slings around the protruding or jammed logs

© ICHCA International Ltd.

to allow them to fall back properly. At times this does not work and individual logs must be re-hooked using a loose gear named the “Bear Paw”.

7.1.12 Often logs are destined for different ports of call. It is necessary to “mark off” the logs so that the importing port knows when to stop unloading. The mark off is usually done by painting the butt ends of the logs. Workers should take great care for loose bark and voids when marking off.

7.1.13 When the hold is fully loaded, it is at times necessary to “cherry pick” some logs and move them around to different locations of the hatch’s square to ensure the stow does not interfere with the hatch lid. Communication between all involved during such an operation is essential.

8 LOADING THE DECK:

8.1 Guidance: The IMO Code of Safe Practice for Ships carrying Timber Deck Cargoes must be adhered to in ensuring a proper safe loading and securing of a deck load of logs.

8.1.1 Before loads are taken on deck the stanchions or uprights should be raised and secured.

8.1.2 The Hog Lashing wires and wiggle wires should be neatly coiled and ready for use.

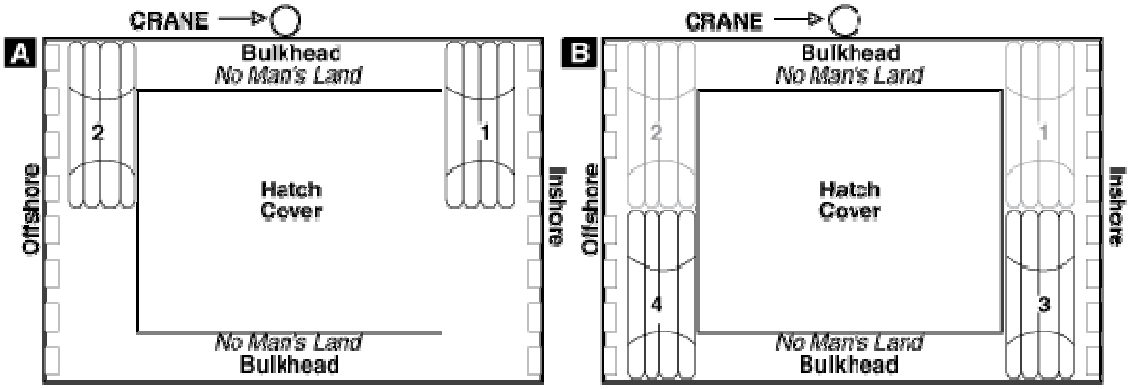
8.1.3 Lashing chains should be piled no more than 3 meters apart along both sides of the ship. The chains should have been examined and certificated before use.

8.1.4 The gangs should avoid working in close proximity to one another so that each gang can concentrate on their own work safely.

8.1.5 When using a Pedestal crane, each gang should place the side deck load in such a way as to permit the adjacent crane to place its side deck load on the butt. The loads should be positioned with due consideration to the derrick’s limit and range.

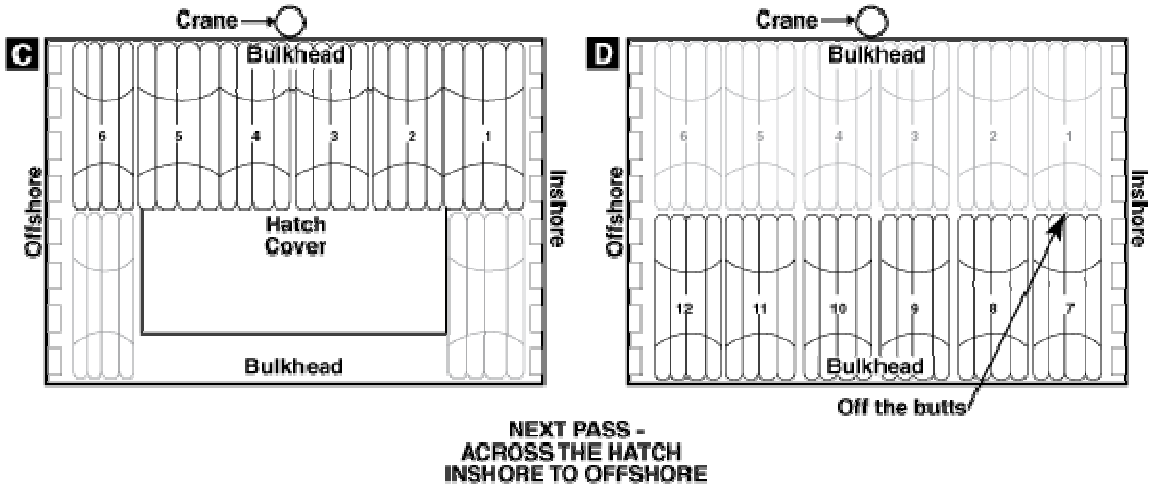
8.1.6 When using a single swing stick crane, because of its limited slewing range, the longest possible logs should be loaded on the deck sides so that the adjacent crane is able to butt out that load within its safe boomed down limits.

© ICHCA International Ltd.



FIRST PASS -
LEVEL WITH THE HATCH COVER
INSHORE TO OFFSHORE

© ICHCA International Ltd.

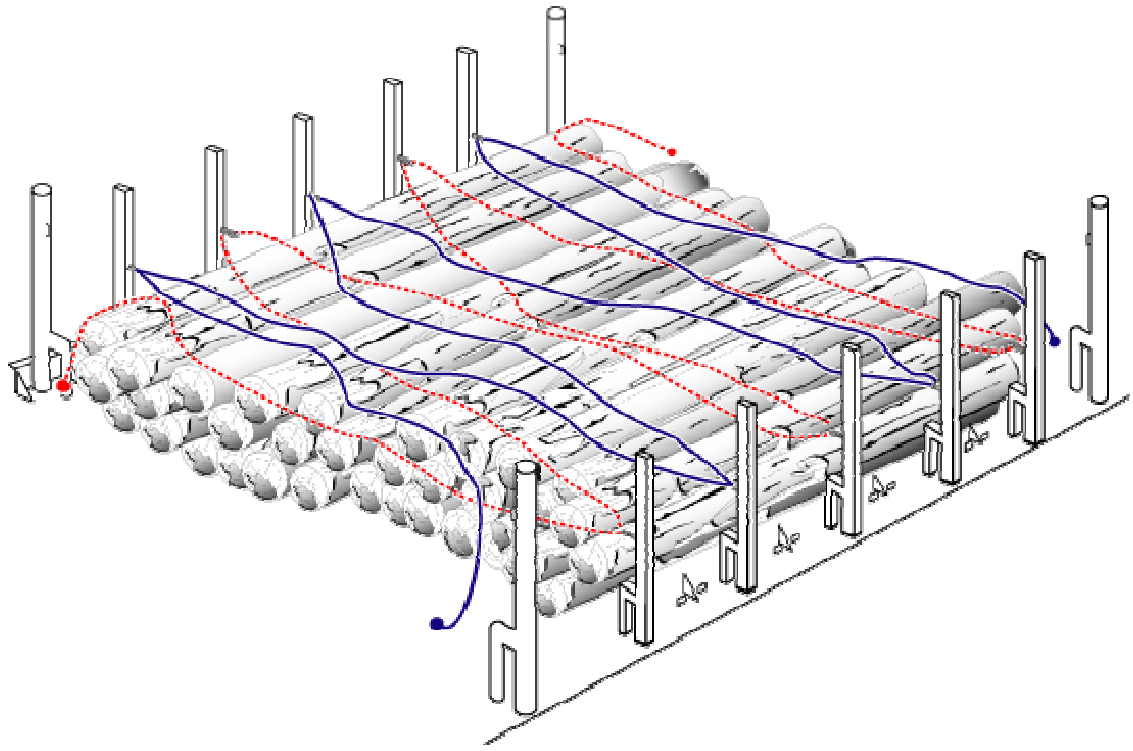


8.1.7 Until all deck surfaces have been loaded, it is of course necessary to walk on steel with caulked footwear. Spikes on the steel are very slippery and great care should be taken when walking around the deck.

8.1.8 During deck loading, shorter slings without dumping bells attachment are used to facilitate pulling the slings. However when pulling slings from loads that are stowed away from the crane, it is impossible to pull the slings evenly as the crane's derrick must be boomed up off centered of the load. This causes violent swinging of the bridle with one sling becoming loose before the other. All personnel must stand far away from such operation.

8.1.9 After two passes have been loaded on deck, a Hog Lashing wire is laced diagonally from one upright stanchion across the deck to the next upright stanchion on the other side until the entire hatch area has been laced. It is than hand tightened only. Further loading on top tightens the wire thus forcing the upright stanchions inward. Another set of Hog Lashing is usually needed after the next two passes.

© ICHCA International Ltd.



8.1.10 When loading the deck's sides, care must be taken that no logs protrude past the upright stanchions. All loads should be tight to the butt of the adjacent load.

8.1.11 Boom workers should be warned when working near the side of the vessel.

8.1.12 There should be a staggering of the butt ends from one pass to the other for greater stability as in building a brick wall.

8.1.13 Sometime before the last pass is loaded, a roll test is conducted to determine the stability of the vessel. This is done by each crane lifting a full load from the water in unison. During this procedure, all personnel, except the crane drivers and coordinator(s) of the test, should stand at a stable and safe area of the vessel.

8.1.14 When the last pass has been loaded, it is usually necessary to "cherry pick" and reposition some logs to form an evenly crowned stow.

8.1.15 The forward end is usually one or two passes lower to ease head winds during voyage.

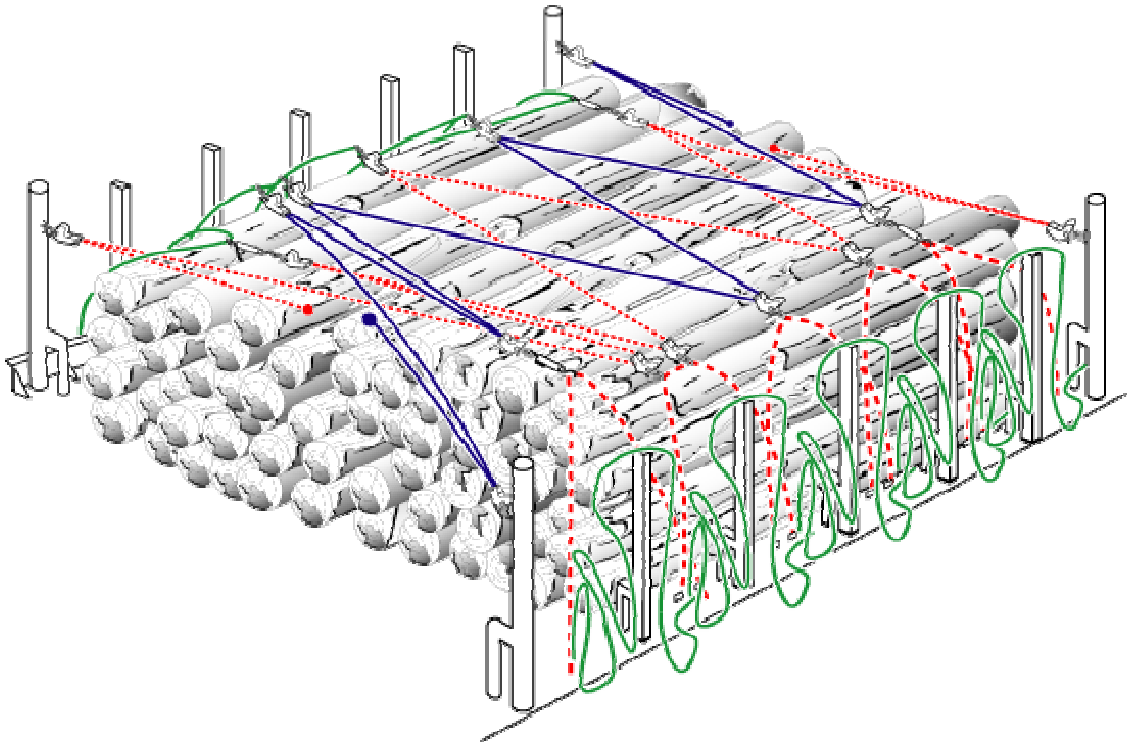
© ICHCA International Ltd.

9 DECK LASHING AND CATWALK CONSTRUCTION:

9.1 Deck Lashing:

9.1.1 Wiggle Wire Lashing:
The first procedure is to install the Wiggle wire lashing to a pad eye lug on the upright stanchions and pass the wire diagonally across each hatch area like the hog lashing; however the wire goes through a series of pulley blocks shackled at each upright stanchion. The wire is then tightened using the crane's derrick boomed up to its limit.

9.1.2 All personnel should be standing away from the entire area during the process as the tightening happens very abruptly. A person inadvertently standing on top of the wire would be propelled.



9.1.2 Chain Lashing:
This is a high risk procedure. A workable fall restraint system has not been found yet to eliminate the inherent danger.

9.1.3 A worker is required to walk on the deck's railing to access the chains at the foot of each upright stanchion. From the top, a small hook at the end of a line is lowered for him to hook up the free end of the chain.

9.1.4 When the chain is secured to the hook the worker should stand clear in case the chain should fall.

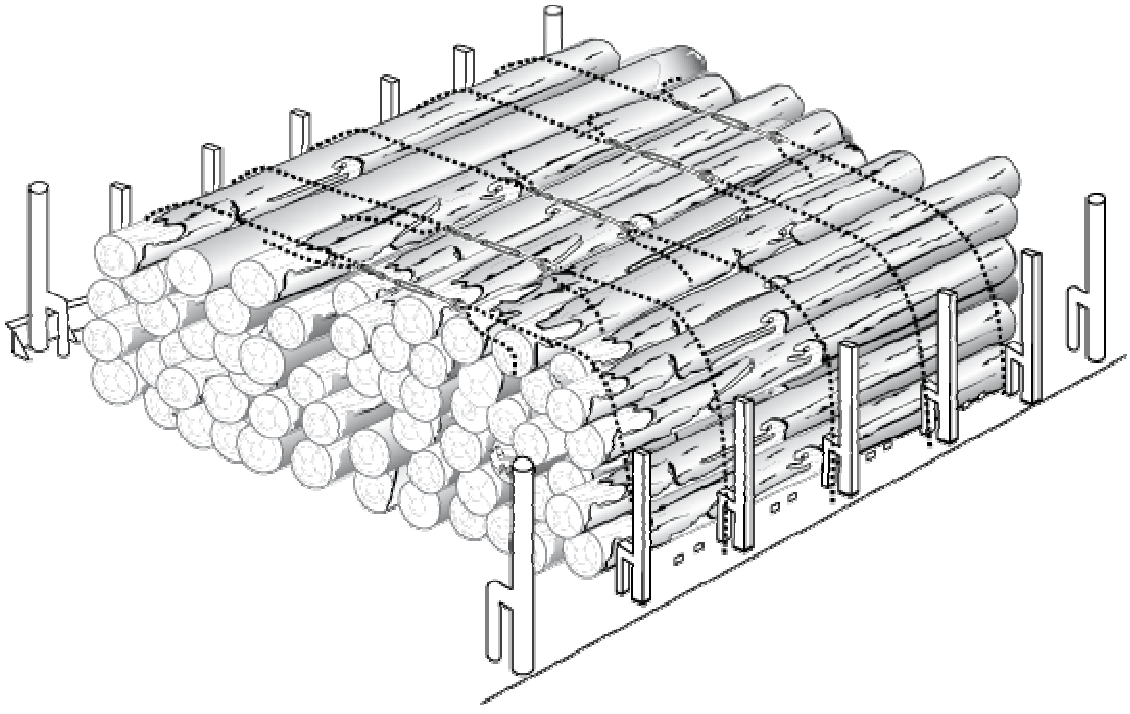
9.1.5 The worker should ensure the other end is securely shackled to a deck's pad eye.

© ICHCA International Ltd.

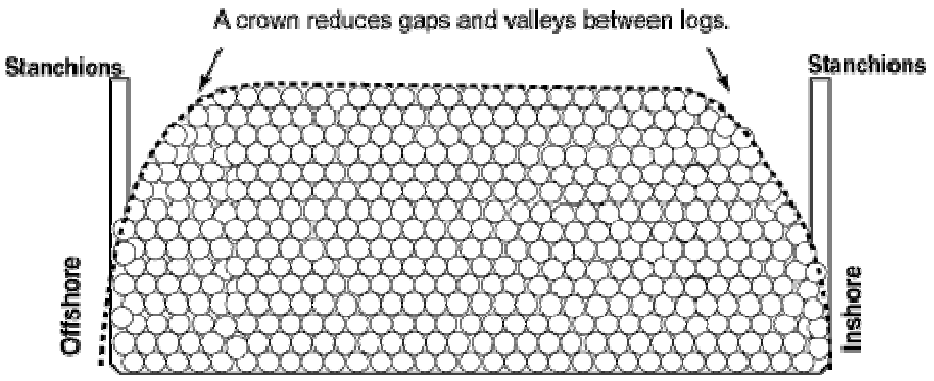
9.1.6 The worker at the top, standing over the edge of the deck load, hoists the chain. Once the chain is lifted, 4 to 6 workers grab on the chain and walk it towards mid- ship. This is done each side of the vessel along its entire length. Everyone's attention should be on their footing as they do this.

9.1.7 Laid down at mid-ship is a turnbuckle for each pair of chains. Pear Links are attached at each end of the turnbuckle. Each chain is passed through the pear link and manually tightened as much as possible and locked to the pear link. The turnbuckle screws should be completely paid out to ensure there are enough threads left after tightening to allow the crew to further tighten during voyage as the load naturally settles.

9.1.8 A motorized chain tightener is now used to tighten the chain as tight as possible. Whilst the chain is being tightened two workers using peaveys keep the chains from twisting by spiking the peaveys through the pear links.



© ICHCA International Ltd.



9.2 **Catwalk Construction:**

9.2.1 It is necessary to provide a safe walkway with proper railing and footing for the crew to access the bow of the vessel and the cargo areas. Crew must often re-tighten the chains during voyage. A catwalk is therefore built for them.

9.2.2 The catwalk is made of pre fabricated uprights made of sawed 2X4 Lumber studs spread apart every 5 meters. The walkway is made of 2 2X6 planks side by side. Top and middle handrails are nailed to every upright.

9.2.3 All the materials should be securely landed.

9.2.4 The lumber is cut to size using a chainsaw. Only a qualified worker should be allowed to operate it. A face visor and a body protector should be provided.

9.2.5 A staircase is also built to facilitate access from the vessel's super structure to the catwalk.

9.2.6 In British Columbia, the lashing and catwalk is inspected by a government port warden before the vessel is allowed to sail.

10 High Wind Conditions:

10.1 Deck work, whether loading, lashing or catwalk constructing, should not be carried out during high wind conditions. Because of other weather conditions that may be prevailing at the time, snow, ice etc. it is difficult to make a precise wind speed limit.

© ICHCA International Ltd.