

For discussion on

22 May 2017

Legislative Council Panel on Economic Development

Incorporating in Local Legislation the Latest Standards of the International Maritime Organization

Merchant Shipping (Safety) Ordinance (Cap. 369)

Purpose

This paper seeks Members' comments on the proposed legislative amendments to incorporate in local legislation the latest requirements set out in the International Convention on Load Lines ("Load Lines Convention") and the International Convention for the Safety of Life at Sea ("SOLAS") adopted by the International Maritime Organization ("IMO").

Background

Load Lines Convention

2. To prevent marine accidents arising from overloading of ships, load lines are marked on the surface of a ship's hull. These lines indicate the draft of a ship and the legal limit which the ship may be loaded. There may

be a few load lines on a ship as a ship may be loaded to a greater and lesser degree in different zones and seasons¹. Ships on international voyages are required to comply with the requirements of the Load Lines Convention, which was adopted by IMO in 1966 and entered into force in 1968. Locally, the requirements are implemented through the Merchant Shipping (Safety) Ordinance (Cap. 369) (“the Ordinance”) and its subsidiary legislation².

3. In accordance with the Load Lines Convention, the relevant load lines have to be marked on each side of a ship, depending on its intended zone and season to operate³. These load lines are calculated and verified by classification societies⁴. The marks are punched or welded, as well as painted, on the surface of a ship’s hull to make them easily visible. To keep international standards in relation to load lines in tandem with the new shipping technological and operational practices, IMO adopts resolutions from time to time to amend the Load Lines Convention. This legislative exercise aims to implement its latest standards.

¹ For example, temperature will affect the load line level because warm water, being less dense than cold water, provides less buoyancy. The same is the case with salinity, because fresh water is less dense than salty seawater.

² There are four pieces of subsidiary legislation for the Load Lines Convention: (i) Merchant Shipping (Safety) (Load Line) Regulations (Cap. 369AD); (ii) Merchant Shipping (Safety) (Load Lines) (Deck Cargo) Regulations (Cap. 369AE); (iii) Merchant Shipping (Safety) (Load Lines) (Length of Ship) Regulations (Cap. 369AF) and (iv) Merchant Shipping (Safety) (Load Lines) (Particulars of Depth of Loading) Regulations (Cap. 369AG).

³ Summer Load Line, Winter Load Line, Winter North Atlantic Load Line, Tropical Load Line, Fresh Water Load Line and Tropical Fresh Water Load Line are marked on the ships’ hull for ships operating in the corresponding zones and seasons.

⁴ Classification societies are organisations recognised by flag state to perform statutory certification and service under mandatory IMO instruments and national legislation.

SOLAS — IGC Code

4. SOLAS, which governs the standards for the construction, equipment and operation of ships to ensure maritime safety, was adopted by IMO in 1974 and entered into force in 1980. Different aspects of maritime safety are covered under different chapters of SOLAS⁵.

5. To provide an international standard for the safe transport of ships carrying liquefied gases in bulk, IMO has made the International Code for the Construction and Equipment of Ships Carrying Liquefied Gases in Bulk (“IGC Code”) mandatory under Chapter VII of SOLAS since 1 July 1986 and the IGC Code is applied to all gas carriers constructed thereafter. The IGC Code is implemented in Hong Kong through the Merchant Shipping (Safety) (Gas Carriers) Regulations (Cap. 369Z), which was last amended in 1996. We propose to incorporate the latest requirements in the IGC Code into our legislation.

⁵ SOLAS covers different aspects of maritime safety, as follows—

Chapter I:	Survey of ships and issue of certificates;
Chapter II-1:	Construction of ships covering subdivision and stability, machinery and electrical installations;
Chapter II-2:	Fire protection, fire detection and fire extinction;
Chapter III:	Life-saving appliances and arrangements;
Chapter IV:	Radiocommunications;
Chapter V:	Safety of navigation;
Chapter VI:	Carriage of cargoes and oil fuels;
Chapter VII:	Carriage of dangerous goods;
Chapter VIII:	Nuclear ships;
Chapter IX:	Management for the safe operation of ships;
Chapter X:	Safety measures for high-speed craft;
Chapter XI-1:	Special measures to enhance maritime safety;
Chapter XI-2:	Special measures to enhance maritime security;
Chapter XII:	Additional safety measures for bulk carriers;
Chapter XIII:	Verification of compliance; and
Chapter XIV:	Safety measures for ships operating in polar waters.

Proposed Amendments

Load Lines Convention

6. We propose to incorporate requirements adopted by IMO after 2000. As ocean-going vessels have to call at different ports around the world, they should already be in compliance with these requirements. Some of the major amendments are highlighted below —

- (a) ***Improving the accuracy in freeboard calculations*** — A ship should have sufficient freeboard (i.e. the vertical distance between the main deck and the waterline) at all times, otherwise it will become unstable and unsafe. IMO has introduced technical amendments to improve the accuracy in the calculation of freeboard, with a view to enhancing the stability and safety of ships.
- (b) ***Strengthening hatch covers to withstand greater wave loads*** — Hatch covers are used on ships to prevent water from entering the cargo holds of ships, act as a barrier to ships' internal structures, and endure wave loads in extreme weather. A hatch cover to a ship can be understood as a lid to a box. IMO has tightened its requirements on ships to have stronger hatch covers to withstand greater wave loads so that ships can be water-tight in severe sea conditions.
- (c) ***Improving drainage of water on deck*** — Freeing ports are openings in the lower part of the bulwarks or the sides of a ship

to drain accumulated water on the deck. As rapid drainage of water on deck is essential for the safety of crew working on deck, IMO has increased the minimum freeing port area on each side of a ship.

- (d) ***Ensuring that ships have adequate stability*** — When a ship is designed, stability calculations are performed for the intact and damaged states of it. Intact stability refers to the stability of a ship in an undamaged condition. To better ensure that ships have a robust hull which can withstand severe sea conditions and have adequate stability for loading and operating conditions, IMO has mandated that all ships constructed on or after 1 July 2010 must comply with requirements stipulated in Part A of the 2008 International Code on Intact Stability (“2008 IS Code”). The 2008 IS Code details criteria for fulfilling the intact stability, as well as requires the master of a ship to take general precautions including obtaining weather forecast before voyages to ensure safe operation and reduce the risk of capsizing.

SOLAS

Ships carrying liquefied gases in bulk

7. IMO made major changes to the IGC Code in 2014 to update requirements in respect of the design, the electrical system and the cargo handling and operation of gas carriers. These changes mainly apply to gas carriers constructed on or after 1 July 2016. As at 3 April 2017, there were 48 Hong Kong-registered gas carriers. As these gas carriers were constructed prior to 1 July 2016, we do not expect any compliance issues

from them. The amendments we propose to incorporate from the IGC Code include the following —

- (a) ***Increasing the separation distance between gas tanks and side shell*** — Severe collisions or stranding could lead to cargo tank damage and uncontrolled release of liquefied gases, which could cause brittle fracture of a ship's hull in some cases. To minimise the risk of gas leakage in case of collision, the updated standards require more separation distance (from 760mm to a range between 800mm and 2 000mm depending on the gross volume of individual tanks) between gas tanks and the side shell. This requirement applies to gas carriers constructed on or after 1 July 2016.
- (b) ***Mandating the carriage of an approved stability instrument*** — Gas carriers will be required to carry an approved stability instrument which is capable of verifying compliance with the applicable stability requirements of the ship in intact and damaged states. Gas carriers constructed on or after 1 July 2016 will need to comply on delivery, and existing gas carriers will need to comply no later than 1 July 2021.
- (c) ***Enhanced design in electrical system*** — Electrical system must be designed such that failure of a single component will still allow the system to maintain cargo tank pressure and temperature within design range. This requirement applies to ships constructed on or after 1 July 2016.

Consultation

8. The Shipping Consultative Committee has been consulted on the legislative proposals. Members supported the proposals.

Advice Sought

9. Members are invited to comment on the above proposals. We aim at introducing the legislative amendments into the Legislative Council in the 2017-18 legislative session.

Transport and Housing Bureau

Marine Department

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