



Marine notice 02/ 2022

Supersedes 03/2018

## Proper stowage and securing of cargo containers

### Purpose

The purpose of this notice is to remind vessel owners, operators and masters of:

- the importance of stowing and securing cargo containers in accordance with Chapter VI of the International Convention for the Safety of Life at Sea, 1974 (SOLAS) as amended and
- the potential danger to container ships navigating in the vicinity of intense low-pressure systems that occur off the east coast of Australia.

AMSA encourages ship owners and masters to familiarise themselves with the approved cargo securing manual for their vessel and Marine Order 42, which gives effect to Chapter VI of SOLAS in Australia.

---

### Background

Investigation of recent container losses in Australian waters found avoidable contributing factors, including:

- container stacks exceeding the mass limits of the approved Cargo Securing Manual
- vertical mass distribution of containers contravening the approved Cargo Securing Manual
- heavy corrosion of fixed and portable container securing points
- Masters failing to avoid (or reduce the impact of) severe weather and sea conditions.

Container losses cause significant harm to the environment, damage to ships and pose a danger to crew. AMSA's recent focused inspection campaign on proper stowage and securing of cargo containers found ships that:

- exceeded the maximum permissible container stack weights
- exceeded maximum permissible weight distributions within stacks
- did not secure cargo appropriately throughout the voyage to prevent loss of cargo overboard.



*Collapsed containers on board a ship off the Australian coastline*

## Cargo containers and severe weather

Regulation 5.1 of Chapter VI of SOLAS stipulates cargo shall be loaded, stowed and secured to prevent damage or hazard to the ship, persons and loss of cargo overboard. Regulation 5 is given effect in section 14 of Marine Order 42.

Cargo shall be carried in accordance with the Code of Safe Practice for Cargo Stowage and Securing (CSS Code). The CSS Code General Principles state:

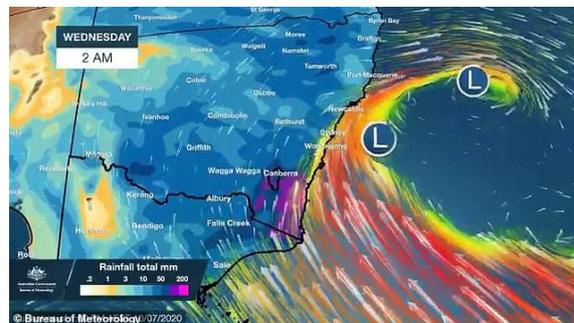
*“Decisions taken for measures of stowage and securing cargo should be based on the most severe weather conditions which may be expected by experience for the intended voyage.”*

Severe weather conditions may be experienced at any time of the year off the Australian coast and cargo should be stowed and secured accordingly.

The majority of recent container loss incidents in Australian waters have occurred during an East Coast Low event.

## The effects of East Coast Lows

East Coast Lows are intense low-pressure weather systems that occur off the east coast of Australia. These systems are also referred to as complex lows or Tasman lows.



East Coast Low Australia – Satellite Image (NASA Worldview) Graphic (Bureau of Meteorology, Australia)

Strong southerly winds, when combined with an easterly swell, can create extreme wave conditions where container ships are at risk of losing cargo overboard. In such incidents, swell size and interval may lead to excessive or even parametric rolling resulting in extreme acceleration forces on container stacks.

Guidance for avoidance of parametric rolling is provided in MSC.1/Circ.1228 *Revised guidance to the master for avoiding dangerous situations in adverse weather and sea conditions*.

Chapter 6.3 of the CSS states:

*“One way of reducing excessive accelerations is for the master, as far as possible and practicable, to plan the voyage of the ship carefully so as to avoid areas with severe weather and sea conditions. The master should always consult the latest available weather information.”*

The Australian Government Bureau of Meteorology (BoM) provides weather forecasts and high seas warnings to GMDSS equipped ships in Australian waters, these are received by Inmarsat C or Iridium Terminals configured to NAVAREA X<sup>1</sup>.

## Cargo Securing Manual

<sup>1</sup> Also known as NAVAREA 10, METAREA X or METAREA 10

Masters and deck officers must be familiar with the contents of the Cargo Securing Manual including container securing requirements, maximum container stack masses and permissible vertical sequences of masses within container stacks.

Exceeding the mass limits defined in the Cargo Securing Manual may result in the destruction of lashings and fittings or the collapse of individual containers due to excessive acceleration forces in heavy weather.

#### Maintenance of securing devices and arrangements

Using heavily corroded fixed or portable cargo securing devices increases the risk of container loss as this diminishes the Maximum Securing Load (MSL).



*Heavily corroded container securing socket and lashing point*

SOLAS chapter IX, regulation 3 requires certain companies and ships to comply with the requirements of the International Safety Management Code (ISM). Section 10 of the ISM code states:

*“The Company should establish procedures to ensure that the ship is maintained in conformity with the provisions of the relevant rules and regulations...” and*

*“The Company should identify equipment and technical systems the sudden operational failure of which may result in hazardous situations. The SMS should provide for specific measures aimed at promoting the reliability of such equipment or systems.”*

#### Correct application of securing devices

AMSA has recently found instances of twistlocks designed for vertical layering between containers used as base locks even though they were colour coded (Base locks have a larger seat to eliminate lifting forces).



*Mixed locks at base of stack*

On other occasions, AMSA inspectors have found loose or insufficient lashing arrangements. SOLAS requires cargo to be secured 'throughout the voyage' to prevent loss of cargo overboard.

The Cargo Securing Manual specifies the types and correct application of cargo securing devices provided on board the ship. The master is ultimately responsible for verifying securing arrangements and should ensure that officers delegated to carry out this important task are fully aware of the contents of the Cargo Securing Manual.

It should be noted that overtightening can cause damage to lashing points and lashing rods.

### Expectations

Australia expects cargo to be carried in full compliance with the vessel's approved Cargo Securing Manual and in accordance with the requirements of the SOLAS Convention.

Due to the risk to Australia's marine environment AMSA will continue to direct additional focus on container stowage and securing arrangements during forthcoming port State control (PSC) inspections in Australia.

If, during a PSC inspection, evidence is found that:

- the weight distribution or stack weights are not in compliance with the approved Cargo Securing Manual or
- crew are unfamiliar with the approved Cargo Securing Manual or
- the securing arrangements are not in accordance with the approved Cargo Securing Manual (throughout the voyage) or
- the securing arrangements are not maintained or not in accordance with the approved Cargo Securing Manual or
- the Cargo Securing Manual does not adequately cover the cargo being carried,

AMSA will take the necessary steps to bring the ship into compliance.

### Further Information

East Coast Lows:

<http://www.bom.gov.au/weather-services/severe-weather-knowledge-centre/eastcoastlows.shtml>

Australia high seas weather forecast information:

<http://www.bom.gov.au/marine/radio-sat/bureau-inmarsat.shtml>

<http://www.bom.gov.au/marine/radio-sat/marine-radio-sat.shtml>

18 January 2022

Australian Maritime Safety Authority

GPO Box 2181 CANBERRA ACT 2601

File No. 2021/105