



# Loading Cargo Transport Units

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# Background documents

- MAIB Reports Annabella and MSC Napoli
- International Chamber of Shipping Guidelines on Safe Transport of Containers by Sea
- MAIB Report – Riverdance
- HSE Research report RR662 Load security on curtain sided lorries





## Container collapse

## Cargo breaches



# Road

- Vertical shock – rough roads etc
- Vibrations – road conditions, speed, vehicle characteristics
- Longitudinal Shocks - braking-acceleration
- Lateral Shocks and Sway – changing direction, camber etc



# The cargo may not reach the port



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# Sea

- Cargo vessels operate 365 days a year in differing climates and sea conditions
- A ship at sea may move in six directions at once due to wave action e.g. rolling, swaying, yawing, surging, pitching and heaving
- Two more common combination movements are slamming and pounding









# Forces Acting on Cargo

- Forces exerted on cargo during the transport supply chain are not appreciated by those who have not experienced a sea or lorry journey
- Load restraint is not the same as load containment
- Loads must be secured so they do not move during transport



# Why?

- **Goods packaged correctly;** classified and hazards communicated (if appropriate), stowed correctly – even load distribution, and secured to prevent movement, **are normally transported safely and without damage**
- If not stowed correctly, the following slides illustrate the consequences to the cargo with potential risk to persons and the ship





**Evenly Distributed Weight ?**



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Worker safety



# Plan the loading

1. Consideration of type & shape of load including method of loading into or onto CTU.
2. Consideration of method of restraint.
3. Consideration of load balance & even weight distribution.
4. Select appropriate CTU for total load weight.
5. Availability of appropriate restraint material.
6. Availability of trained staff.



# Loading into CTUs



Packages of flammable solid not secured – loaded as per a static warehouse



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# Loading into containers and onto vehicles



Layers of drums not separated – loaded as per static warehouse – drums had moved and become deformed



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# Loading into containers and onto vehicles



Use of board to separate layers to prevent damage from movement



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# Individual Package types - Drums



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Before...



...after



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# Follow loading instructions- unlike examples shown below



Way up



Fragile,  
heavy



# Awareness and Training

DO NOT  
STACK  
ON TOP



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# Strapping – use edge protection



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# Guidance on load securing

- Numerous publications in existence for many years
- IMO/ILO/UNECE Guidelines for Packing Cargo Transport Units (CTUs)
- UK DfT Code of Practice on Safety of Loads on Vehicles)
- HSE Report on Load security on curtain sided lorries RR662
- Modal, National and Industry Codes of Practice



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