Box Clever: Tackling the basic working practises on container ships that when ignored cause big problems!

Computer says NO!

Guidance on the importance of correctly using computer programs for container stowage

Most modern container ships are equipped with loading computers. These can prove invaluable in preventing stowage-related issues, such as exceeding stack or tier weights and calculating the lashing acceleration forces. But as with all computer programs, they must be used properly.

Problems can arise when these loading computers are incorrectly set up or improperly used. Here we look at key problems and how to avoid them.

THE LOADING COMPUTER

All container ships need an approved cargo securing manual (CSM). The CSM contains many things, but some of the more important aspects relating to safe stowage are the maximum stack or tier weights and the maximum individual slot weights for a given maximum metacentric height (usually referred to as the GM).

However, a vessel's stability condition does not stay the same. So, loading computers are used to allow the crew to quickly and easily calculate these maximum weights for all conditions and GMs. Used properly, the loading computer will identify any excessive weights and alert the user.

SYSTEM APPROVAL

The CSM is approved by the vessel's Flag state, or a classification society on its behalf. However, the loading computer only has the stability requirements of the vessel approved. This is why the programs have test conditions that crews should check at regular intervals to ensure the base approved data is still the same.

The cargo lashing modules and CSM-related sections of the software are not usually approved. Therefore, these aspects of the loading computer could be open for misuse or misinterpretation.

SYSTEM MISUSE

If the users of the loading computer have access to its settings, important parameters and alarm levels can be changed. This has led to vital stowage issues going undetected, such as excessive stack weights or lashing acceleration forces.

In some cases, the complexity of the system has meant the crew simply did not understand the issues being reported and subsequently ignored the warnings.

An example of this is the container vessel YM Efficiency, which lost 81 containers in poor weather on passage by the Australian coast. The Australian Transport Safety Bureau (ATSB) findings included the following:

- The loading of hi-cube containers exceeded the tier height limit.
- Some stack weight limits were exceeded.
- The weight of many containers exceeded the weights specified in the CSM (stack weight tables) for their allocated slots.
- There were many instances of heavy containers being stacked above lighter ones
- The ship's officers did not use the ship's loading computer system and its lashing calculation program to check if the stowage arrangement complied as they probably did not have an adequate understanding of the system.

Computer says NO! (cont).

WHAT CAN BE DONE?

Here are some recommendations for container ship operators to help reduce problems using loading computers:

- **Standardise:** Try to standardise the software in use across the fleet. If different vessels have different software, an officer moving within the fleet needs to re-familiarise themselves with the system on board that vessel.

- **Train:** Those in charge of using the software should undergo appropriate training. Some software providers will provide training courses, but if not, set one up internally. Add this to the training matrix for the relevant officers.

- **Check:** Make sure that the crew are aware what they should always check, including the following ship inputs where appropriate:
  - Ship's condition, including GM
  - Route and weather specific settings.

  Ensure the system warnings are activated for the following outputs where applicable:
  - Excessive stack weights
  - Excessive tier weights
  - Diagonal and vertical lashing forces
  - Vertical and horizontal forces
  - Racking forces
  - Wind forces.

- **Mentor:** Junior officers are the Chief Mates of tomorrow! Actively encourage junior officers to learn how to use the system from those in charge of it.

- **Simulator:** If you have a spare computer on board, add the software and allow juniors to upload conditions and practise.

- **SMS:** Your SMS should clearly state what settings are to be used and how to check that these are correct. Where variable settings apply (e.g. if the vessel has a seasonal notation allowing different settings dependant on the voyage and expected weather), the SMS should provide strict instruction in its use to avoid any misuse or misunderstanding.

Remember, the SMS is there for the crew to use and should be easily understandable - simply copying the software user manual into the SMS may not be clear for the crew.

- **Feedback:** Set up a feedback communication line for the crew to report issues with the software, this will help improve its usability. Remember to act on this feedback from the crew to make sure they stay engaged in it.

If the crew can understand and set up the loading program and be able to interpret the information, it can help prevent cargo incidents on container vessels.

USEFUL LINKS

North's container stowage 'Quickfacts': www.nepia.com/publications/container-stowage-poster
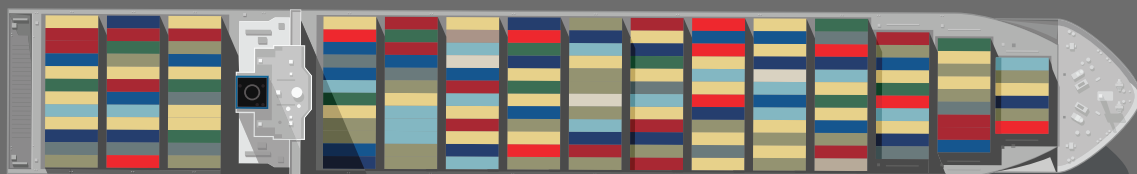
North's container stowage briefing: www.nepia.com/publications/carriage-of-containers-stowage-and-securing-briefing

ATSB Accident Report for YM Efficiency: www.atsb.gov.au/publications/investigation_reports/2018/mair/344-mo-2018-008

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