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LONDON BRANCH

Car carriers – operational challenges

→ Another large audience gathered on board *HQS Wellington* for a technical meeting on the operation of large car carriers. In the wake of several incidents over the last few years, a panel of speakers discussed the challenges to stability, cargo securing, fire detection and other operational issues as these vessels get larger. The panel comprised John Southam, Marine Consultant, Braemar; Ole Jørgen Eikanger, Chief Business Development Officer, Norwegian Hull Club and Mark Fysh, a Chief Officer sailing on car carriers.

The chairman, John L David FNI, Marine Professionals, opened the meeting with a slide show of some of the accidents and incidents occurring on car carriers in recent years. John Southam then presented a case study of the *Hoegh Osaka* incident, highlighting the circumstances causing the accident analysed in the MAIB report. The vessel's schedule was changed to make Southampton the first port of loading instead of the last, but the loading plan was not changed accordingly and the vessel sailed with the Southampton cargo in the same situation as if it had been the final load port. This made the vessel very top heavy with an excessively high Centre of Gravity (COG) on departure. A 7° list when the vessel's ramp was lifted should have alerted the crew to the poor stability. However, an attempt was made to correct the list by transferring ballast. John pointed to the findings of the MAIB modelling to determine the vessel stability leaving Southampton. This showed substantial differences between the declared and actual weights, and although the vessel had a positive GM, it did not comply with IMO stability conditions. In addition, all the ballast gauges bar one were inoperative and the ballast conditions on departure bore no resemblance to reality. The Chief Officer was unfamiliar with the loading computer, and there was no evidence of stability calculations being made. Additionally the communications between ship planners and the vessel was poor.

Ole Jørgen Eikanger presented statistics for hull and machinery claims from ro-ro vessels, noting that there were a growing number of fire casualties in this sector, especially over the last two years. In particular, there had been an increase in claims over US\$ 500,000. Ole Jørgen noted that the insurance industry

was working with the owners of ro-ro vessels and car carriers and with class societies to mitigate these claims. Schemes have been mooted to increase crew awareness regarding fire preventative measures, technical equipment and training. Hot topics include inspection and testing of equipment; marking and grouping of vehicles; lockable sockets when connecting to ship systems, early fire detection and extended fire training.

Loading challenges

Mark Fysh talked of the challenges posed when loading a car carrier, the commercial pressures and stability calculations. Advance stowage plans need to be viewed with a modicum of scepticism and it is essential to maintain close contact with the port captain or planner to find out changes to load plan. Mark said he allowed a healthy 10% safety margin for stability and used that figure as a guideline when discussing alterations to loading plans.

The vertical centre of gravity (VCG) is a critical factor, particularly with high and heavy cargo. Short turnarounds mean it is impossible to account for every individual unit loaded. However, the distribution of high and heavy cargo must be checked more carefully. Declared weights of units are usually correct when loading new from the manufacturer, but second hand unit weights are more problematic – particularly high and heavy units. Shippers like to fill trailers with cars, scrap and other equipment, and tipper trucks can have rain water filling up the load bed. Again, Mark says he allows a safety margin on these units.

Another problem for stability is that due to height restrictions, only cars can be loaded on the lowest decks. Mark concluded with an observation that second hand high and heavy cargo is generally in poor condition, and can leak all manner of fluids causing slip hazards. Further, there is a potential for fire when leaking oil drips on to a hot engine or exhaust.

Firefighting on board

As usual, the floor was open for comment and questions. One member asked whether we have reached a point where minimum manning doesn't work. We need well-trained crew in sufficient numbers to fight fires and to monitor the loading on such vessels, he said. The biggest challenge is the enormous

deck space and smoke/fire detectors have to cover a large area. Firefighting capability should be taken into consideration when designing the car decks.

Another member asked why fires on ro-ros had such high cost consequences. It was pointed out that the statistics presented only covered hull/machinery claims – not cargo claims. Vehicles are high value cargo, and cargo value claims were enormous compared to hull/machinery claims. Most of the cargo on car carriers involved in an accident will be written off to protect the manufacturer's reputation, although some of the vehicles on *Hoegh Osaka* were refurbished and resold by the manufacturer after inspection and testing.

Another point raised was the industry-wide problem of stability calculations and the difficulty of staying on top of them. Asked at what point the discrepancy between calculated versus actual draft and trim is so great as to require loading to be stopped, Mark said the Port Captain/Planner should be contacted when the discrepancy approached his 10% safety margin. He remarked that continuous stability calculations were carried out as each deck was loaded. Ballasting was also carried out carefully and usually only the heeling tanks and the fore and aft peaks were used, mainly to keep the ramp in position on the quayside.

The presentations can be accessed through the members' section of the NI website, <http://www.nautinst.org/en/membership/members-area/presentations/car-carriers--operational-challenges.cfm>

Harry Gale FNI