



Maritime and Coastguard Agency

Research Project 592: Investigation into the Safety of Ro-Ro Passenger Ships fitted with Long Lower Holds - Phase II

Notice to all Shipowners, Certifying Authorities, Shipbuilders, Shiprepairers, Ship Masters, Surveyors and Consultants

This MIN expires 25 May 2010

PLEASE NOTE:-

Where this document provides guidance on the law it should not be regarded as definitive. The way the law applies to any particular case can vary according to circumstances - for example, from vessel to vessel and you should consider seeking independent legal advice if you are unsure of your own legal position.

Summary

On 1 January 2009 new probabilistic damage stability regulations (the SOLAS '09 amendments) came into force. This research, jointly commissioned by the MCA and the Netherlands Ministry of Transport, assesses the level of survivability of ro-ro passenger ships fitted with long lower holds (LLH) which are minimally compliant with these regulations.

Two new 1000 passenger ro-ro ships were designed each with different internal subdivision arrangements within the same external hull, but optimised to have as low a freeboard and as large a LLH space as possible. One was fitted with B/5 longitudinal bulkheads in way of the LLH and the other with B/10 bulkheads. The damage stability characteristics of each ship were compared through numerical analysis techniques covering a wide range of damage scenarios and sea-states. The research concluded that it would be advisable to consider revising the SOLAS '09 convention amendments.

1. Background and Methodology

- 1.1 The MCA and Netherlands Ministry of Transport have for some time shared concerns that the new regulations on stability in a damaged state for dry cargo and passenger ships may not fully take into account the special vulnerability of ro-ro passenger ships.
- 1.2 Many member states at International Maritime Organization (IMO) and the EU considered that the new SOLAS '09 regulations already incorporated sufficient safeguards to allow for the water on deck (WOD) effect, and that continued application of the Stockholm Agreement (ref. MSN 1790 and EU Directive 2003/25/EC) was therefore unnecessary. RP 592 was designed to test the accuracy of this assertion and to inform the UK and Netherlands' contributions to the debate at COSS and IMO.

1.3 Building on experience gained from an earlier research project (ref. RP 564, phase 1), layouts for 2 ships were established according to standard design practice and to reflect current market trends. Both were developed and optimised for compliance with the SOLAS'09 regulations. An analysis of the stability in a damaged state for each vessel was then performed along with advanced statistical analyses of "time-to-capsize".

2. Conclusions and Recommendations

2.1 It was found that the instrument for stability provision, SOLAS '09, allows for consistent provision of survivability. It was also confirmed that the requirements of SOLAS '95, which include provisions for water accumulation on the enclosed vehicle decks of ro-ro passenger ships, remain the most stringent regulations on damage stability, especially at deepest draughts. It was found, however, that the level of survivability implied in SOLAS '95 is not consistent for different ship designs.

2.2 The research concluded that the MCA should advise revisions to SOLAS 2009 to try to eliminate (or substantially reduce) the worrying vulnerability of ro-ro passenger ships particularly where straightforward, feasible damages resulting in rapid capsize and very heavy casualties are entirely permissible. The MCA are currently coordinating a new correspondence group investigating the issues raised in the project to report to IMO in January 2010.

3. Project output

3.1 A full report and executive summary can be downloaded from the MCA website:

Full Report: http://www.mcga.gov.uk/c4mca/final_report-2.pdf

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