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WORK PROGRAMME

Specific ship stability requirements for ro-ro passenger ships

Submitted by Austria, Belgium, Bulgaria, Cyprus, the Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, the Netherlands, Poland, Portugal, Romania, Slovakia, Slovenia, Spain, Sweden, the United Kingdom and the European Commission

SUMMARY

<i>Executive summary:</i>	This document proposes a new work programme item for the Sub-Committee on Stability and Load Lines and on Fishing Vessels Safety with a view to incorporating specific ship stability rules for ro-ro passenger ships into SOLAS
<i>Strategic direction:</i>	2 and 5
<i>High-level action:</i>	2.1.1; 5.1.1; and 5.2.1
<i>Planned output:</i>	Not applicable
<i>Action to be taken:</i>	Paragraph 21
<i>Related documents:</i>	Resolution MSC.216(82), annex 2; resolution 14 of the 1995 SOLAS Conference; and SLF 45/3/3

General

1 The co-sponsors of this document propose the inclusion of a new agenda item “Damage stability regulations for ro-ro passenger ships” in the work programme of the Sub-Committee on Stability and Load Lines and on Fishing Vessels Safety (SLF). This proposal is submitted in accordance with the Guidelines on the organization and method of work of the MSC and the MEPC and their subsidiary bodies (MSC-MEPC.1/Circ.1), sections 2.9-2.23, concerning content and formats for proposals for new work programme items.

Scope of the proposal

2 The revised SOLAS chapter II-1, parts A, B and B-1 (hereafter referred to as the SOLAS 2009 stability regulations) will replace the current SOLAS 74 stability regulations, as amended, when they enter into force on 1 January 2009. At the same time, the current footnote in regulation 8-1 allowing for a regional requirement facilitated by IMO resolution 14 – Regional

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Agreements on specific stability requirements for ro-ro passenger ships – relating to damage stability and ingress of water on ro-ro passenger ship car decks (the 1996 Stockholm Agreement) will disappear from the regulation.

3 In practice, the calculation methods used in the new SOLAS 2009 and the regional Stockholm Agreement regulations seem to be incompatible. A direct comparison of levels of safety between the two sets of rules is therefore difficult. However, certain issues have led to concerns over the level of safety intrinsic in the new rules specifically for ro-ro passenger ships (see paragraph 7 below). As a result, it is proposed to revisit the new SOLAS 2009 regulatory framework to ensure that the issue of water on deck, which is a specific safety concern for ro-ro passenger ships, is adequately addressed within the new rules.

4 The above-mentioned submitting Member States and the European Commission propose the addition of a new work programme item for the Sub-Committee on Stability and Load Lines and on Fishing Vessels Safety with a view to considering and possibly then incorporating specific damage stability regulations for ro-ro passenger ships into SOLAS.

Compelling need

5 Ro-ro passenger ships require special attention in terms of damage stability. Ingress of water to ro-ro spaces can make the vessel list immediately to one side. According to experiments, a list of 20 degrees or more makes the movement of people inside the vessel very difficult and the proper evacuation of the passengers impossible. Computer simulations indicate that such a list may occur on a large ro-ro passenger vessel in less than 20 minutes.

6 During IMO discussions on SOLAS 2009 stability regulations, the principles associated with the ingress of water to ro-ro spaces were incorporated in the calculations at the evaluation stage of the new rules but were subsequently omitted from the final version.

7 The concerns with the new SOLAS 2009 stability regulations based on recent further analysis are as follows:

- .1 The EU-sponsored HARDER project involved only a few (3) ro-ro passenger ships in the checking process, all taken from cases of collision accidents.
- .2 Model tests performed by the HARDER project determined that a GZ_{max} value of 0.25m for ro-ro vessels and a GZ_{max} value of 0.12m for conventional vessels would provide acceptable resistance to capsize for up to 30 minutes in 4 m Significant Wave Height (H_s). These findings were reported in document SLF 45/3/3.
- .3 The Static Equivalent Method of damage stability assessment developed within the HARDER project was substituted as an alternative to the GZ_{max} method of assessment of ro-ro stability, which involved submerging the hull on an even keel only; however this proved cumbersome to apply. Another alternative, the freeboard method, which involved assessment in trimmed conditions, was not sufficiently investigated and both methods were subsequently discarded and no further alternatives were offered. The final formulation of the 's' (survivability) factor using GZ_{max} of 0.12 m was applied to all ships, thereby making no distinction between damage stability characteristics of ro-ro passenger ships and other ships and therefore there is no specific recognition made of the water on deck problem within the SOLAS 2009 stability regulations.

- .4 Subsequent studies which have compared the impact of the current SOLAS regulations plus the Stockholm Agreement with the new regulatory framework have indicated that ro-ro passenger ships may be less safe close to their maximum draught (with a maximum load of passengers/vehicles).

8 The co-sponsors of this document have examined this problem in depth including questions such as:

- .1 the compatibility of the Stockholm Agreement rules and SOLAS 2009, as they represent two different mathematical approaches;
- .2 if ro-ro passenger ships are continuously as safe as the current arrangements in terms of the provision for water on deck – and specifically the level of safety provided by SOLAS 2009 for ropax ships;
- .3 the accuracy and reliability of the new designer software required;
- .4 how administrations could verify the stability of such ships; and
- .5 whether old and new rules could co-exist.

This has shown the need to revisit the specific damage stability rules within the new SOLAS 2009 framework that pertain to ro-ro passenger ships, to ensure the above-mentioned concerns are adequately addressed.

Analysis of the issues involved, having regard to both the costs to the maritime industry, and global legislative and administrative burdens

9 Within the European Union, some Member States are already requiring a combination of the new SOLAS 2009 framework with the relevant combined SOLAS 90 and Stockholm Agreement requirements. The European Community Shipowners Association has indicated that it is placing orders for ro-ro passenger ships that comply with both sets of regulations, pending a resolution of any concerns about the new SOLAS 2009 framework. Such a combination will obviously limit the design possibilities inherent in the new rules and prevent a maximization of potential carriage on board new ships.

Benefits that would accrue from the proposal

10 There are several benefits to reviewing the specific ship stability regulations for ro-ro passenger ships. It would provide clarity and reassurance to the industry; address fundamental concerns identified in terms of safety particularly present for ro-ro passenger ships; and allow the unhindered commercial optimization of such ships, a concept inherent in SOLAS 2009 to be fully realized.

Priority and target completion date

11 The SOLAS 2009 stability regulations are due to come into operation for new ships from 1 January 2009. Formerly resolution MSC.194(80), the rules have already, exceptionally, been subject of a re-adoption at MSC 82 as resolution MSC.216(82). It is not proposed to seek a postponement of the effective operating date of these SOLAS 2009 regulations.

12 However, within the wider passenger ship safety field, a number of related work programme items are already being considered and have a completion target date of 2008, so already with an entry-into-force date after 2009, namely (1) stability and sea-keeping characteristics of damaged passenger ships in a seaway when returning to port by own power or under tow; and (2) time-dependent survivability of passenger ships in damaged condition.

13 The issue raised in this submission has different aspects to it and addresses specifically ro-ro passenger ships, which deserves consideration as a separate item, but one which needs to be examined with urgency. It might be appropriate therefore to envisage a target completion date of 2010.

14 Considering the benefits obtained by the proposal (see paragraph 10), all the sponsors of this submission are of the opinion that this issue should be given high priority. It is expected that at least two sessions will be needed to properly deal with this issue. The item should be placed on the SLF Sub-Committee's agenda with a view to starting discussions in 2008.

Specific indication of the action required

15 The SLF Sub-Committee should consider the possibilities of revising SOLAS regulation II-1/8 and the calculation of the factor s_i in the SOLAS regulation II-1/7-2 to satisfactorily address the issue of water on deck for ro-ro passenger ships. Initial discussions should be supplemented by an intersessional correspondence group.

Is the subject of the proposal within the scope of IMO's objectives?

16 The proposal is within the scope of the objectives, as it aims to enhance technical standards for ship stability and thereby to ensure the safety of human life at sea.

How is the proposed item related to the scope of IMO's strategic plan and how does it fit into the high-level action plan?

17 This work programme item will contribute to two IMO strategic objectives, namely Strategic Direction (SD) 2: fostering global compliance and uniform implementation of IMO instruments, by rendering redundant the need for any additional regional agreement on ro-ro passenger ships; and SD 5 ensuring human safety at sea through enhanced technical standards. It links into three high-level action plan items flowing from these two objectives, namely 2.1.1, the improvement of conventions, etc.; 5.1.1, reviewing the adequacy of passenger ship safety provisions; and finally, keeping under review the technical and operational safety aspects of all types of ships.

Do adequate industry standards exist?

18 Current SOLAS regulations do exist, supplemented, in the case of the above-mentioned sponsors, by specific additional regional rules.

Do the benefits justify the proposed action?

19 Yes, see paragraphs 9 and 10.

Identification of the subsidiary bodies essential to complete the work

20 The SLF Sub-Committee would be the appropriate body to carry out the work. It is expected that at least two sessions will be needed to properly deal with this issue.

Action requested of the Committee

21 The Committee is invited to include a new high-priority item on “Damage stability regulations for ro-ro passenger ships” to the work programme and agenda of the SLF Sub-Committee.
