

SUB-COMMITTEE ON SHIP DESIGN AND
CONSTRUCTION
11th session
Agenda item 8

SDC 11/8/2
21 November 2024
Original: ENGLISH
Pre-session public release: ☒

**REVISION OF SOLAS CHAPTERS II-1 (PART C) AND V, AND RELATED INSTRUMENTS
REGARDING STEERING AND PROPULSION REQUIREMENTS, TO ADDRESS BOTH
TRADITIONAL AND NON-TRADITIONAL PROPULSION AND STEERING SYSTEMS**

Comments on document SDC 11/8/1

Submitted by Japan, the Republic of Korea, ICS and ASEF

SUMMARY

<i>Executive summary:</i>	This document comments on document SDC 11/8/1, containing part 2 of the report of the Correspondence Group on the Revision of SOLAS Chapters II-1 (part C) and V, and related instruments, with regard to draft new SOLAS regulations for steering and propulsion, in particular, heading-keeping tests.
<i>Strategic direction, if applicable:</i>	2
<i>Output:</i>	2.9
<i>Action to be taken:</i>	Paragraph 13
<i>Related documents:</i>	MSC 105/18/1; SDC 10/8; SDC 11/8/1 and resolutions MSC.64(67) and MSC.137(76)

Introduction

1 This document is submitted in accordance with the provisions of paragraph 6.12.5 of the *Organization and method of work of the Maritime Safety Committee and Marine Environment Protection Committee and their subsidiary bodies* (MSC-MEPC.1/Circ.5/Rev. 5), and includes comments on document SDC 11/8/1 (Japan).

2 SDC 10 established the Correspondence Group on the Revision of SOLAS Chapters II-1 (part C) and V, and related instruments, regarding steering and propulsion requirements, to address both traditional and non-traditional systems. The Group considered issues related to trials on manoeuvrability and prepared the draft new SOLAS regulation II-1/29-1, as set out in annex 2 of document SDC 11/8/1, for further consideration by the Sub-Committee.

3 In the draft amendments to resolution MSC.137(76) proposed in document MSC 105/18/1 (Austria et al.), a new test method called "heading-keeping test" is suggested, and it is also proposed to introduce a mandatory requirement on this issue through an amendment to the SOLAS Convention.

4 This document discusses issues related to the heading-keeping test and points out the inappropriateness of its inclusion in resolution MSC.137(76).

Discussion

5 The draft new SOLAS regulation II-1/29-1.5.2 requires the heading-keeping test instead of the zig-zag test specified in resolution MSC.137(76).

6 The heading-keeping test, unlike the zig-zag test, is not intended to observe the vessel's motion response by applying specified rudder angles outlined in the test procedure in resolution MSC.137(76). Rather, this test is simply intended to confirm whether straight-line sailing is possible with arbitrary steering (manual or automatic), without evaluating the ship's inherent manoeuvring characteristics.

7 Due to the nature of the test procedure, the results of the heading-keeping test inevitably depend on external factors, such as the skill of the helmsman or the control capability of the autopilot system. This dependency on external control systems fundamentally prevents the test from providing an objective evaluation.

8 Therefore, while the zig-zag test appropriately evaluates course-keeping ability and yaw-checking ability as inherent manoeuvring characteristics of a ship under resolution MSC.137(76), the heading-keeping test's reliance on external control systems makes it unsuitable for assessing the ship's natural response characteristics that are essential for safety.

9 The co-sponsors understand the necessity of the heading-keeping test as an element for evaluating course-keeping performance. On the other hand, the co-sponsors consider that this test should be classified as a test for performance verification of autopilot systems. Hence, the heading-keeping test should be required for ships in which the installation of autopilot systems is mandated.

10 Paragraph 14 of document SDC 10/8 (IACS) is transcribed:

"14 For the heading-keeping test of the proposal for resolution MSC.137(76), the following are suggested:

- .1 the test should be only applicable to ships where the installation of an auto pilot for keeping course is mandatory;
- .2 a revision for the test duration from "30 minutes" to "10 minutes"; and
- .3 a modification for the yaw deviation criteria from "The maximum yaw deviation should not exceed 2 degrees during..." to "Yaw motion should not cause significant deviation during..."

11 The co-sponsors support the aforementioned proposal, in principle, but believe that the heading-keeping test should be incorporated in the *Recommendation on performance standards for heading control systems* set out in annex 3 of resolution MSC.64(67) instead of resolution MSC.137(76).

Proposal

- 12 Based on the discussions in paragraphs 5 to 11, the co-sponsors propose:
- .1 to assess yaw-checking and course-keeping abilities by the zig-zag test;
 - .2 not to incorporate the heading-keeping test in resolution MSC.137(76); and
 - .3 to specify the heading-keeping test in the *Recommendation on performance standards for heading control systems* (resolution MSC.64(67), annex 3) as a performance verification test procedure for autopilot systems.

Action requested of the Sub-Committee

- 13 The Sub-Committee is invited to consider the proposal in paragraph 12 and to take action, as appropriate.
-