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SHIP SYSTEMS AND EQUIPMENT

Comments on the draft regulations and guidelines for onboard lifting appliances and anchor handling winches

Submitted by IMCA

SUMMARY

Executive summary:	This submission provides comments on the report of SSE 5, in particular, the development of draft goal and function-based SOLAS regulations and draft guidelines supporting the goals and functional requirements contained in the report of the Working Group on Onboard Lifting Appliances. The document provides information in respect of onboard lifting appliances installed on offshore construction ships and requests the Committee to agree that such lifting appliances are already highly regulated and, therefore, should not be included within the scope of the new SOLAS regulations.
Strategic direction, if applicable:	Other work
Output:	OW 34
Action to be taken:	Paragraph 22
Related documents:	DE 57/18/5, DE 57/18, SSE 5/17, SSE 5/WP.1 and MSC 83/20/2

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 the Marine Environment Protection Committee and their subsidiary bodies* (MSC-MEPC.1/Circ.5), and comments on document SSE 5/17 (Report of SSE 5), in particular, on the SSE Sub-Committee's progress with the development of draft goal and function-based SOLAS regulations and draft guidelines for onboard lifting appliances and anchor handling winches.

2 This document provides information in respect of the regulatory environment which applies to onboard lifting appliances installed on offshore construction ships and requests the Committee to agree that lifting appliances installed on offshore construction ships are already highly regulated and, therefore, should not fall within the scope of the new SOLAS regulations.

Background

3 At MSC 83, New Zealand (MSC 83/20/2) proposed developing relevant guidelines or convention requirements for onboard lifting appliances and lubrication mechanisms based on accident analyses and examination results concerning lifting appliances applicable to cargo handling operations carried out in ports. The Committee's attention is drawn to the fact that the accidents which triggered the particular regulatory discussion related to lifting appliances used for working cargo, installed on bulk carriers, general cargo, containers and refrigerated cargo ships.

4 Subsequently, MSC 89, after considering a proposal for developing relevant requirements for onboard lifting appliances submitted by Chile, Japan, New Zealand, Norway and the Republic of Korea (MSC 89/22/12), agreed to include a new output in the post-biennial agenda of the Committee on "Development of requirements for onboard lifting appliances and winches", assigning the former Sub-Committee on Ship Design and Equipment (DE) as the coordinator. Again, the reported accidents resulted from mechanical failures of cargo lifting appliances in general shipping, as opposed to lifting appliances used offshore.

5 At DE 57, IMCA submitted document DE 57/18/5 to provide information on specialized lifting appliances employed in the offshore sector to highlight the fact that a "one-size-fits-all" approach to design requirements was not appropriate.

6 After several rounds of discussions, MSC 95 agreed that draft goal and function-based SOLAS regulations and draft guidelines for onboard lifting appliances and winches should be developed. SSE 4 re-established a correspondence group in order to further develop the draft goal and function-based SOLAS regulations and draft guidelines. The report of the Correspondence Group (SSE 5/10) contains relevant proposals from Member States and international organizations as well as relevant draft amendments.

7 At SSE 5, the Sub-Committee could not reach consensus regarding the scope of application of the new requirements. Consequently, interested Member Governments and international organizations were invited to submit proposals to MSC 100 for guidance on how to define the application scope of the new requirements. It is in this context that IMCA submits this proposal.

Discussion on the draft SOLAS regulations II-1/3-13.1.2 and II-1/3-13.1.3 with regard to the list of inclusions and exclusions (SSE 5/10, annex 1)

Differences between the uses of offshore cranes compared to cranes on bulk carriers/other cargo ships

8 Bulk carriers/other cargo ships rarely use their onboard cranes. In practice, dockside cranes usually perform the work of loading and unloading the ship. Dockside cranes are more suited to loading/unloading and are substantially faster. Ship cranes are only used if loading/unloading takes place in a port without any craneage, which is uncommon. Focus on crane maintenance is generally not high, as this is ancillary to the ships' main purpose. Crane drivers in general have a main role onboard, a small part of which is also operating the crane. The same applies to the engineers who maintain the crane, if there are any specific crane engineers at all.

9 This is in strong contrast to the way in which the offshore industry operates. Offshore construction ship lifting appliances are fundamental to the ships' operation and being able to effectively carry out the work. These appliances operate in a dynamic environment and lift much heavier loads than in a harbour context. Loads well in excess of 200 tonnes are typical and can be up to 7,000 tonnes in tandem lift situations. Another requirement is to lower loads to the seabed in extreme water depths of up to 3,000 m.

10 Offshore lifting appliances are generally used 24 hours a day, 365 days a year and operate on the ocean instead of in sheltered, harbour conditions. The offshore construction industry is dependent upon the operation of its' lifting appliances which are intrinsic to its work, without which the industry would be unable to operate.

11 For this reason, robust standards for the design, maintenance, testing, inspection and certification already apply to this equipment to ensure that it is fit for purpose and that the ship can safely and effectively carry out the offshore work.

12 Furthermore, the operators of the equipment are also highly regulated to ensure that their level of competency is of the highest standard.

13 The following paragraphs serve to highlight some of these requirements.

Onboard lifting appliances installed on offshore construction ships

14 There are a variety of different offshore construction ships, for example, pipe layers, cable layers, diving support vessels and heavy lift ships all of which have specialist lifting equipment onboard critical to the ship's industrial mission, such as installing offshore production platforms and subsea facilities. As identified in document DE 57/18/5 (IMCA), onboard lifting appliances exist in many different lifting configurations according to their function. The photographs below have been provided for illustrative purposes.

Design criteria

15 Lifting equipment installed on offshore construction ships is designed to specific offshore international standards which reflect its unique application in an offshore environment, such as transferring payloads during offshore construction and service activities. In addition to meeting the rigorous demands for efficiency and safety, the design criteria reflect the fact that an offshore lifting appliance is in a completely different league to a general cargo ship lifting appliance. This is because general cargo lifting appliances have been designed solely to lift their cargo in harbour conditions and are not designed to take account of sea conditions and the anticipated large dynamic forces caused by operation in an offshore environment.

16 All lifting appliances intended to be used in an offshore environment are built to recognized International Standards and are well maintained, inspected and tested by competent persons to ensure that the ship can remain fully operational. Any offshore energy company, (including Oil & Gas and Renewable Energy), that employs an offshore construction ship to carry out a specific task needs assurance that the ship is able to carry out the work safety, effectively and efficiently. Offshore construction ships are rigorously vetted by the client company to ensure that the equipment is tested, operational and well maintained.

Maintenance

17 The ongoing inspection, repair and maintenance of this specialist equipment is carried out by highly qualified technicians supported by onshore specialists and Original Equipment Manufacturers (OEMs) who follow a strict planned maintenance regime which is monitored by the ship's chief engineer offshore and onshore management, and also forms an integral part of the ships Safety Management System (SMS) which is subject to both internal and external audit.

Operational execution

18 One of the issues which separates offshore lifting operations from general cargo lifting is that they are subject to strict pre-planning and risk assessment by a competent person(s) in advance of the lift which is executed by a competent and fully trained lifting team. This is often referred to in the Industry as the Hazard Identification and Risk Analysis (HIRA) process.

Lifting team

19 Rigorous procedures are in place to ensure that only suitably qualified and experienced personnel are involved in conducting lifting operations who have experience of and have demonstrated competency in the safe use and operation of the equipment and techniques required to perform the lift in the prevailing situation and conditions. Pre-lift meetings are always conducted ahead of any lifting operation at which the lifting team carry out pre-use inspections of the lifting equipment. Examples of issues which need to be considered by the team include:

.1 implications of environmental/meteorological conditions including ship motion and subsea visibility;

.2 hydrodynamic forces on behaviour of loads being deployed and recovered from subsea which include slack lines, shock loading, seabed suction, slamming and air entrapment;

.3 loads imparted into the lifting appliance as a result of the ship's change in position;

.4 allowance for changes in the centre of gravity of the lifted object caused by positive and negative buoyancy effects; and

.5 visibility and communications during lifting operations, especially related to subsea lifts in support of manned diving operations.

Applicable international standards

20 Offshore lifting appliances are built to multiple different standards depending upon what type of appliance is involved as they must be able to deal with the dynamic environment when operating offshore. They are fitted with overload protection systems, active heave compensation systems and are operated by certificated offshore lifting appliance operators who need to pass rigorous offshore lifting appliance operator training before being able to work independently. There are a number of existing standards to which the offshore Industry is subject, for example:

.1 ISO 2408:2004: Steel wire ropes – Minimum requirements;

.2 ISO 4309:2017: Cranes – Wire ropes – Care and maintenance, inspection and discard;

.3 EN 13852 – Part 2;

.4 API RP 2D [Operation and Maintenance of Offshore Cranes];

.5 API Spec 2C [Offshore Pedestal-Mounted Cranes];

.6 BS 7121-11:1998 [Code of Practice for Safe Use of Cranes. Offshore Cranes]; and

.7 Class Rules such as DNVGL-ST-0378 (formerly known as DNV 2.22) or the Lloyd's Code for Lifting Appliances and Material Handling.

Conclusions

21 Onboard lifting appliances installed on offshore construction ships are fundamental to the purpose of the ship and, as a result, are designed and maintained to rigorous international standards as they are required to operate in a dynamic environment. IMCA recognizes that the drive for the development of new SOLAS requirements, by IMO, has been based on accident analyses and examination results concerning lifting appliances involved in cargo handling operations carried out in ports. Given the fact that lifting appliances operating in the offshore industry are already subject to a strict regulatory regime, IMCA is of the view that such appliances should be excluded from the scope of application of any new SOLAS regulations, as shown in paragraph 1.2.8 of the attached annex.

Action requested of the Committee

22 The Committee is invited to consider the information provided, in particular the conclusions in paragraph 21 above, and take action as appropriate.

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ANNEX

DRAFT AMENDMENTS TO THE INTERNATIONAL CONVENTION FOR THE SAFETY OF LIFE AT SEA (SOLAS), 1974, AS AMENDED

CHAPTER II-1
CONSTRUCTION – STRUCTURE, SUBDIVISION AND STABILITY, MACHINERY AND ELECTRICAL INSTALLATIONS

PART A-1
STRUCTURE OF SHIPS

The following new regulation is added after existing regulation 3-12:

"**Regulation 3-13 – Onboard lifting appliances and anchor handling winches**

1 Application

1.1 Unless expressly provided otherwise, this regulation shall apply to onboard lifting appliances and anchor handling winches [and loose gear], which have a Safe Working Load (SWL) of [1,000] [500] kg or greater and are installed on or after [date].

1.2 Notwithstanding the description in paragraph 1.1 above, this regulation does not apply to:

.1 life-saving appliances complying with the LSA Code;

.2 escalators;

.3 personnel lifts/elevators and escalators;

.4 dumb waiters;

.5 conveyors;

.6 appliances on ships complying with the MODU Code;

.7 cargo elevators; and

.8 lifting appliances installed on offshore construction ships, such as pipe/cable laying/repair or offshore installation vessels, including ships for decommissioning work, which comply with international standards acceptable to the Administration.