

ANY OTHER BUSINESS

Performance standards for foam fire-fighting appliances for helidecks

Submitted by Japan and International Chamber of Shipping (ICS)

SUMMARY

Executive summary:	This document provides the draft amendment to SOLAS regulation II-2/18 and the draft performance standards for foam fire-fighting appliances for helidecks.
Strategic direction:	5.2
High-level action:	5.2.1
Planned output:	No related provisions
Action to be taken:	Paragraph 7
Related documents:	MSC 92/26, MSC 93/3, MSC 93/3/9 and MSC 93/22

Background

1 The Maritime Safety Committee, at its 92nd session, approved the draft amendments to SOLAS regulation II-2/18 concerning helicopter facilities on new ro-ro passenger ships and requested the Secretary-General to circulate the draft amendment in accordance with SOLAS article VIII, with a view to adoption at MSC 93 (MSC 92/26, paragraph 8.30). The aforementioned draft amendment is set out in paragraph 17 in Annex 2 to MSC 93/3.

2 At MSC 93 Japan, in document MSC 93/3/9, proposed to:

- .1 adopt a new resolution containing the equivalent requirements in MSC.1/Circ.1431, changing the name for mandatory application, e.g., “performance standard for helicopter facility foam fire-fighting appliances”; and
- .2 modify the draft amendment to SOLAS regulation II-2/18 in order to refer to the resolution in the main text, but not in a footnote, and to include the provision on the amendment procedure for the resolution.

3 In considering document MSC 93/3/9, some delegations supported the proposal, while others were of the view that the new performance standards would introduce unintended mandatory requirements, which could affect a large number of ships that occasionally operated with helicopters. In addition, it was noted that if the Committee was to

adopt the amendments to SOLAS regulation II-2/18 as presented in document MSC 93/3, existing mandatory safety requirements would be deleted. After an extensive discussion, the Committee decided to refer the draft amendments to SOLAS regulation II-2/18 and document MSC 93/3/9 to SSE 2 for further consideration under “Any other business”, with one session needed to finalize the draft amendments. In this connection, the Committee, having considered document MSC 93/3/11 (IACS), agreed that the new requirements for helideck should apply to new ships only and instructed SSE 2 to clearly reflect the application requirements in the draft amendments. (MSC 93/22, paragraphs 3.11 to 3.13)

Draft performance standards for foam fire-fighting appliances for helidecks

4 The co-sponsors, after MSC 93, reviewed the draft performance standards for foam fire-fighting appliances for helidecks set out in the annex to MSC 93/3/9. The co-sponsors consider that the SOLAS requirement should apply to helidecks, as defined by regulation II-2/3.26, but not apply to “helicopter landing area”, which is defined in paragraph 2.4 in MSC.1/Circ.1431.

5 Then the co-sponsors prepared the revised draft performance standards as set out in the annex to this document. In the revised draft performance standards, it was clarified that the performance standards are applicable only to foam fire-fighting appliances for helideck, but not applicable to those for helicopter landing area, by deleting unnecessary paragraphs in the annex to MSC.1/Circ.1431.

Draft amendment to SOLAS regulation II-2/18

6 The co-sponsors further considered the draft amendment to SOLAS regulation II-2/18. Then the co-sponsors prepared the draft amendment to the regulation as follows:

“Regulation 18 – Helicopter facilities

5 Fire-fighting appliances

5.1 **On ships constructed on or after [date],** ~~in~~ **in** close proximity to the helideck, the following fire-fighting appliances shall be provided and stored near the means of access to that helideck:

- .1 at least two dry powder extinguishers having a total capacity of not less than 45 kg;
- .2 carbon dioxide extinguishers of a total capacity of not less than 18 kg or equivalent;
- .3 a foam application system in accordance with “performance standards for foam fire-fighting appliances for helidecks under SOLAS regulation II-2/18.5.1.3” as adopted by the Maritime Safety Committee of the Organization by resolution [MSC.XXX(95)], as may be amended by the Organization, provided that such amendments are adopted, brought into force and take effect in accordance with the provisions of article VIII of the present Convention concerning the amendment procedures applicable to the Annex other than chapter I;**
- ~~.3 a suitable foam application system consisting of monitors or foam making branch pipes capable of delivering foam to all parts of the~~

~~helideck in all weather conditions in which helicopters can operate. The system shall be capable of delivering a discharge rate as required in table 18.1 for at least five minutes;~~

Table 18.1-Foam discharge rates

Category	Helicopter overall length	Discharge rate foam solution(l/min.)
H1	up to but not including 15m	250
H2	from 15m up to but not including 24m	500
H3	from 24m up to but not including 35m	800

- ~~.4 the principal agent shall be suitable for use with salt water and conform to performance standards not inferior to those acceptable to the Organization;~~
- ~~.5 at least two nozzles of an approved dual-purpose type (jet/spray) and hoses sufficient to reach any part of the helideck;~~
- .64 in addition to the requirements of regulation 10.10, two sets of fire-fighter's outfits; and
- .75 at least the following equipment shall be stored in a manner that provides for immediate use and protection from the elements:
- adjustable wrench;
 - blanket, fire resistant;
 - cutters, bolt 60 cm;
 - hook, grab or salving;
 - hacksaw, heavy duty complete with 6 spare blades;
 - ladder;
 - lift line 5 mm diameter x 15 m in length;
 - pliers, side cutting;
 - set of assorted screwdrivers; and
 - harness knife complete with sheath.”

Note: The footnote to paragraph 5.1.4 of the existing regulation should also be deleted.

Action requested of the Sub-Committee

7 The Sub-Committee is invited to consider the proposed modification to the draft amendment to SOLAS regulation II-2/18 as set out in paragraph 6 and the draft performance standards for foam fire-fighting appliances for helidecks as set out in the annex and take action as appropriate.

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ANNEX

Draft performance standards for foam fire-fighting appliances for helidecks under SOLAS regulation II-2/18.5.1.3

Note: This annex is developed based on the annex to MSC.1/Circ.1431. Deletion is expressed by ~~striking out~~ and addition is expressed by **bold and underline**.

1 Application

~~These Guidelines apply~~ **These performance standards apply** to foam fire-fighting appliances for the protection of helicopter facilities **helidecks** in accordance with SOLAS regulations II-2/18.5.1.3 to 5.1.5, chapter 9 of the Code for the Construction and Equipment of Mobile Offshore Drilling Units, 2009 (2009 MODU Code) and the Recommendation on helicopter landing areas on ro-ro passenger ships (MSC/Circ.895).

2 Definitions

2.1 *D-value* means the largest dimension of the helicopter used for assessment of the helideck when its rotors are turning. It establishes the required area of foam application.

2.2 *Deck integrated foam nozzles* are foam nozzles recessed into or edge mounted on the helideck.

2.3 *Foam-making branch pipes* are air-aspirating nozzles in tube shape for producing and discharging foam, usually in straight stream only.

~~2.4 Helicopter landing area is an area on a ship designated for occasional or emergency landing of helicopters, for example as referred to in SOLAS regulation II-2/18.2.2 and not designed for routine helicopter operations.~~

~~2.54 Helideck is a purpose-built helicopter landing platform or other deck~~ **area located on a ship** including all structure, fire-fighting appliances and other equipment necessary for the safe operation of helicopters, as referred to in SOLAS regulations II-2/3.26 and 18.5 and the 2009 MODU Code. **This does not include an area where helicopters land or conduct winching operations on an occasional or emergency basis referred to in SOLAS regulation II-2/18.2.2.**

2.65 *Hose reel foam station* is a hose reel fitted with a Foam-making branch pipe and non-collapsible hose, together with fixed foam proportioner and fixed foam concentrate tank, mounted on a common frame.

2.76 *Monitor foam station* is a foam monitor, either self-inducing, or together with separate fixed foam proportioner, and fixed foam concentrate tank, mounted on a common frame.

2.87 *Obstacle free sector* is the take-off and approach sector which totally encompasses the safe landing area and extends over a sector of at least 210°, within which only specified obstacles are permitted.

2.98 *Limited obstacle sector* is a 150° sector outside the take-off and approach sector that extends outward from a helideck where objects of limited height are permitted.

~~2.10 — Winching area is a pick-up area provided for the transfer by helicopter of personnel or stores to or from the ship, while the helicopter hovers above the deck, for example as referred to in SOLAS regulation III/28.~~

3 Principal requirements for the system

3.1 The system ~~should~~ **shall** be capable of manual release, and may be arranged for automatic release.

3.2 For helidecks the foam system ~~should~~ **shall** contain at least two fixed foam monitors or deck integrated foam nozzles. In addition, at least two hose reels fitted with a Foam-making branch pipe and non-collapsible hose sufficient to reach any part of the helideck ~~should~~ **shall** be provided. The minimum foam system discharge rate ~~should~~ **shall** be determined by multiplying the D-value area by 6 l/min/m². The minimum foam system discharge rate for deck integrated foam nozzle systems ~~should~~ **shall** be determined by multiplying the overall helideck area by 6 l/min/m². Each monitor ~~should~~ **shall** be capable of supplying at least 50 per cent of the minimum foam system discharge rate, but not less than 500 l/min. The minimum discharge rate of each hose reel ~~should~~ **shall** be at least 400 l/min. The quantity of foam concentrate ~~should~~ **shall** be adequate to allow operation of all connected discharge devices for at least 5 min.

3.3 Where foam monitors are installed, the distance from the monitor to the farthest extremity of the protected area ~~should~~ **shall** be not more than 75 per cent of the monitor throw in still air conditions.

~~3.4 — For helicopter landing areas, at least two portable foam applicators or two hose reel foam stations should be provided, each capable of discharging a minimum foam solution discharge rate, in accordance with the following table.~~

Category	Helicopter overall length (D-value)	Minimum foam solution discharge rate (l/min)
H1	up to but not including 15 m	250
H2	from 15 m up to but not including 24 m	500
H3	from 24 m up to but not including 35 m	800

~~The quantity of foam concentrate should be adequate to allow operation of all connected discharge devices for at least 10 min. For tankers fitted with a deck foam system, the Administration may consider an alternative arrangement, taking into account the type of foam concentrate to be used.~~

~~3.5 — Winching areas should comply with SOLAS regulation II-2/18.2.2.~~

~~3.6~~ 4 Manual release stations capable of starting necessary pumps and opening required valves, including the fire main system, if used for water supply, ~~should~~ **shall** be located at each monitor and hose reel. In addition, a central manual release station ~~should~~ **shall** be provided at a protected location. The foam system ~~should~~ **shall** be designed to discharge foam with nominal flow and at design pressure from any connected discharge devices within 30 s of activation.

~~3.7~~ 5 Activation of any manual release station ~~should~~ **shall** initiate the flow of foam solution to all connected hose reels, monitors, and deck integrated foam nozzles.

~~3.8~~ 6 The system and its components ~~should~~ **shall** be designed to withstand ambient temperature changes, vibration, humidity, shock impact and corrosion normally encountered

on the open deck, ~~and should be manufactured and tested to the satisfaction of the Administration.~~

3.97 A minimum nozzle throw of at least 15 m ~~should~~ **shall** be provided with all hose reels and monitors discharging foam simultaneously. The discharge pressure, flow rate, and discharge pattern of deck integrated foam nozzles ~~should~~ **shall** be to the satisfaction of the Administration, based on tests that demonstrate the nozzle's capability to extinguish fires involving the largest size helicopter for which the helideck is designed.

3.408 Monitors, foam-making branch pipes, deck integrated foam nozzles and couplings ~~should~~ **shall** be constructed of brass, bronze or stainless steel. Piping, fittings and related components, except gaskets, ~~should~~ **shall** be designed to withstand 925°C.

3.419 The foam concentrate ~~should~~ **shall** be demonstrated effective for extinguishing aviation fuel spill fires and ~~should~~ **shall** conform to performance standards not inferior to those acceptable to the Organization*. Where the foam storage tank is on the exposed deck, freeze protected foam concentrates ~~should~~ **shall** be used, if appropriate, for the area of operation.

3.4210 Any equipment installed within the take-off and approach obstacle free sector ~~should~~ **shall** not exceed a height of 0.25 m. Any equipment installed in the limited obstacle sector ~~should~~ **shall** not exceed the height permitted for objects in this area.

3.4311 All manual release stations, monitor foam stations, hose reel foam stations, hose reels and monitors ~~should~~ **shall** be provided with a means of access that does not require travel across the helideck or helicopter landing area.

3.4412 Oscillating monitors, if used, ~~should~~ **shall** be preset to discharge foam in a spray pattern and have a means of disengaging the oscillating mechanism to allow rapid conversion to manual operation.

3.4513 If a foam monitor with flow rate up to 1,000 l/min is installed, it ~~should~~ **shall** be equipped with an air-aspirating nozzle. If a deck integrated nozzle system is installed, then the additionally installed hose reel ~~should~~ **shall** be equipped with an air-aspirating handline nozzles (foam branch pipes). Use of non air-aspirating foam nozzles (on both: monitors and the additional hose reel) is permitted only where foam monitors with a flow rate above 1,000 l/min are installed. If only portable foam applicators or hose reel stations are provided, these ~~should~~ **shall** be equipped with an air-aspirating handline nozzles (foam branch pipes).

* Refer to the International Civil Aviation Organization Airport Services Manual, part 1, Rescue and Fire-Fighting, chapter 8, Extinguishing Agent Characteristics, paragraph 8.1.5, foam Specifications table 8-1, level "B", or to the Revised Guidelines for the performance and testing criteria, and surveys of foam concentrates for fixed fire-extinguishing systems (MSC.1/Circ.1312).
