INTERNATIONAL MARITIME ORGANIZATION

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SUB-COMMITTEE ON SHIP DESIGN AND EQUIPMENT
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IMPROVED THERMAL PROTECTION

Guidelines for periodic inspection of immersion suits by ships' crews

Submitted by the United States

SUMMARY

Executive summary:	This document proposes guidance for periodic inspection of immersion suits by ships' crews to ensure that their operational readiness is maintained in service.
Action to be taken:	Paragraph 5
Related documents:	DE 43/INF.12; DE 43/18, paragraphes 9.3-9.6

1 At its last session, the Sub-Committee noted document DE 43/INF.12 submitted by Japan, which provided results of research illustrating the deterioration with age of fundamental functions of immersion suits. The United States has reached similar conclusions based on its own research. Consequently, we believe that to adequately address the issue of improved thermal protection, it is important that in addition to considering guidelines for potential new and improved thermal protective life-saving appliances, the Sub-Committee also address the operational readiness of existing equipment, to ensure that it continues to provide the thermal protection for which it was designed.

2 SOLAS regulation III/20.7 requires ships' crews to carry out monthly inspections of life-saving appliances-- to include immersion suits—using the checklist required by regulation III/36.1. However, the requirement in regulation III/36.1 is a general one, and there are currently no established consistent procedures for inspection of immersion suits. A simple visual inspection, as is often done, is generally not sufficient to determine whether the suit continues to provide the prescribed thermal protective performance. It is in fact not practicable to quantitatively measure the buoyancy and thermal protection of an immersion suit during a shipboard inspection. However, it is certainly possible to qualitatively evaluate the condition of the suit materials, and to inspect and test the various components of the suit which have been demonstrated in many casualties to be potential problem areas.

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3 With the goal of improving the operational readiness of immersion suits, manufacturers in the United States have developed a booklet on care and inspection of immersion suits, which includes a seven-step inspection process for immersion suits in service. We believe this inspection process could form the basis for an MSC Circular on procedures for shipboard inspection of immersion suits by ships' crews, as a recommended component of the checklist required by regulation III/36.1. The substance of the process is attached at Annex, in the form of a draft MSC Circular.

4 Although thorough and consistent shipboard inspections of immersion suits by ships' crews may be effective in identifying many potential problem areas, there are some important aspects of immersion suit performance which cannot be adequately evaluated based on shipboard inspection. Primary among these is the watertight integrity of the seams in the suit, which can be tested by pressurizing the suit with air at a suitably equipped facility. In addition to procedures for shipboard inspections, the Sub-Committee is invited to consider whether immersion suits should be subjected to periodic servicing at an appropriate facility capable of testing the watertight integrity of the seams in the suit, and equipped to make repairs in accordance with the manufacturer's recommendations. Five years is suggested as an appropriate interval for such servicing.

Action requested of the Sub-Committee

5 The Sub-Committee is invited to consider the draft MSC Circular attached at annex, and the proposal in paragraph 4 above, and to take action as appropriate.

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ANNEX

DRAFT MSC CIRCULAR

GUIDELINES FOR PERIODIC SHIPBOARD INSPECTION OF IMMERSION SUITS BY SHIPS' CREWS

When inspecting immersion suits in accordance with SOLAS regulation III/20.7, the following procedure is recommended:

1 Check closures on storage bag as well as general condition of bag for ease of removal of suit. Ensure donning instructions are legible. Confirm that suit is the type and size identified on the bag.

2 Lay the suit on a clean, flat surface. Make sure the suit is dry inside and out. Visually check for damage. Small rips, tears, or punctures can be repaired by a suitable repair station*. Major rips, tears, or punctures should be referred to the suit manufacturer for inspection and repair.

3 Check the zipper by sliding it up and down to check for ease of operation. Using lubricant recommended by the manufacturer, lubricate the front and back of the zipper and the slide fastener. If the zipper is not functional, the suit must be removed from service and discarded or returned to the manufacturer for repair.

4 If installed, check inflatable head support and/or buoyancy ring for damage and ensure that it is properly attached. Check inflation hose(s) for deterioration or leaks. Ensure that locking screw of oral inflation tube is in the open position. At least quarterly, the head support/buoyancy ring should be inflated and tested for leaks. This can be done using one of the following two methods:

a. Inflate the bladder, then immerse it in water and check for bubbles. (Ensure that suit is completely dry inside and out before returning it to its bag.)

b. Inflate the bladder, then let stand for 24 hours and check for firmness.

Minor leaks can be repaired by a suitable repair station. Major leaks should be evaluated and repaired by the manufacturer.

5 Check retro reflective tape for condition and adhesion. Replace if necessary. For best adhesion, repair should be completed by a suitable repair station.

6 Check whistle and light for proper operation.

7 Check for expiration date of light or battery.

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* A "suitable repair station" is one authorized by the suit manufacturer, or a station experienced in repair of similar type suits (*e.g.*, diving suits).