



**UNITED STATES DEPARTMENT OF COMMERCE**  
National Oceanic and Atmospheric Administration  
NOAA Marine and Aviation Operations  
7600 Sand Point Way NE Bldg-3  
Seattle, WA 98115

**12 December, 2011**

## **VESSEL INSPECTION BULLETIN 04-10 (Amendment 1)**

### **Guidance for the inspection and testing of immersion suits**

#### **1. BACKGROUND:**

VIB 04-10 requires testing of immersion suits by an authorized facility determined by the age and condition of the device. Since the availability of a commercially produced immersion testing device is now available from UNITOR, NOAA facilities may now test their immersion suits using this device if they choose to do so, provided that the requirements below are strictly adhered to.

#### **2. ACTION:**

Effective immediately, all immersion suits used for the NOAA small boat program may be self-tested in accordance with U.S. Coast Guard Navigation Inspection Circular (NVIC) 01-08 and the International Maritime Organization (IMO) Marine Safety Committee Circular 1114 (attached). The suits must be tested in accordance with the manufacturers' procedures for each type of immersion suit. The SBP has manufacturer test procedures available for most immersion suits which can be found at [www.sbp.noaa.gov](http://www.sbp.noaa.gov) or by contacting this office directly.

Suits found to be deficient by air testing shall be referred to an authorized servicing facility for repair or removed from inventory and disposed of.

VOC's may continue to use authorized servicing facilities if they choose to in lieu of self testing.

Records shall be kept of all immersion suit tests for presentation at annual inspections regardless of if they are self-tested or commercially tested by an authorized facility.

#### **3. SUMMARY:**

The UNITOR test kit may be purchased by any authorized UNITOR distributor found at <http://www.wilhelmsen.com/services/maritime/companies/buss/Pages/buss.aspx>

#### **4. REFERENCES:**

- a. [USCG Navigation and Inspection Circular 01-08](#)
- b. Title 46 of the Code of Federal Regulations (46 CFR) Parts 28, and 199.
- c. International Maritime Organization (IMO), Maritime Safety Committee (MSC)

Circulars 1047 and 1114.  
d. UNITOR Test Kit Brochure.



IMO

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Ref. T4/3.01

MSC/Circ.1114  
25 May 2004

**GUIDELINES FOR PERIODIC TESTING OF IMMERSION SUIT AND  
ANTI-EXPOSURE SUIT SEAMS AND CLOSURES**

1 The Maritime Safety Committee, at its seventy-eighth session (12 to 21 May 2004), recognizing that shipboard inspections of immersion suits and anti-exposure suits carried out in accordance with SOLAS regulation III/20.7 and MSC/Circ.1047 may not be adequate to detect deterioration of seams and closures of the suits due to adhesive ageing, and having considered the recommendation made by the Sub-Committee on Ship Design and Equipment at its forty-sixth session, approved the Guidelines for periodic testing of immersion suit and anti-exposure suit seams and closures, as set out in the annex.

2 Member Governments are invited to bring the annexed Guidelines to the attention of all parties concerned.

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**ANNEX****GUIDELINES FOR PERIODIC TESTING OF IMMERSION SUIT AND ANTI-EXPOSURE SUIT SEAMS AND CLOSURES**

- 1 Research performed by several Member Governments has demonstrated that the seams and closures of immersion suits and anti-exposure suits experience deterioration over time. The rate and severity of deterioration may vary widely, depending upon the specific components and procedures employed in the manufacture of the suit and the conditions under which the suit is stored. However, even under ideal conditions, the materials and adhesives used have a finite service life and will inevitably experience a reduction in strength and/or loss of watertightness with age.
- 2 The Guidelines for monthly shipboard inspection of immersion suits and anti-exposure suits (MSC/Circ.1047) are very helpful in identifying obvious problems with a suit, but do not adequately address deterioration of seams and closures (zippers, etc.) which may not be readily apparent by visual inspection. Such deterioration can be detected by pressurization of the suit with air, and testing of the seams and closures for leaks with a soapy water solution.
- 3 To ensure the maintenance of adequate strength and watertightness of seams and closures of immersion suits and anti-exposure suits with age, it is recommended that each suit be subjected to an air pressure test such as the following, at intervals not exceeding three years, or more frequently for suits over ten years of age:
  - .1 A suitable head piece, fitted with a means to inject air into the suit, should be inserted into the face orifice of the suit and secured so as to minimize leakage around the face seal. A low-pressure monitoring device, either integral to the fitting for air injection or as a separate device, should also be inserted. If the suit is fitted with detachable gloves and/or boots, the wrists and/or cuffs should be sealed by inserting a short length of suitable diameter plastic pipe and securing the gloves and/or boots with suitable wire ties or hose clamps. The zipper should be fully zipped, and any face flap closed. The suit should then be inflated to a pressure of 0.7 to 1.4 kPa (0.1 to 0.2 psi). If an auxiliary inflatable means of buoyancy is provided, it should be inflated through the oral valve to a pressure of 0.7 kPa (0.1 psi) or until firm to the touch.
  - .2 Each seam and closure of the suit - and each seam, oral tube and attachment points and joint or valve of any auxiliary inflatable means of buoyancy - should then be covered with a soapy water solution containing enough soap to produce bubbles (if leakage is noted at a foot valve to the extent that air pressure cannot be maintained, the valves should be sealed for the test).
  - .3 If leaks are revealed by the propagation of bubbles at seams or closures, the leaking areas should be marked and, after cleaning the suit thoroughly with fresh water and drying it, repaired in accordance with the suit manufacturer's recommendations.

4 It is recommended that the air pressure test be performed at a suitable shore-based facility equipped to make any necessary repairs in accordance with the manufacturer's recommendations. In view of the wide variety of materials and adhesives used in immersion suits and anti-exposure suits, it is strongly recommended that any repairs to a suit be carried out by a facility which has access to the original manufacturer's recommended servicing instructions, parts and adhesives, and suitably trained personnel. The air pressure test may be carried out on board ship if suitable equipment is available.

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# UNITOR IMMERSION SUIT TEST KIT

**Air pressure testing of immersion suits may be carried out on board a ship if suitable equipment is available.**

IMO/MSB 1114 guidelines for the periodic testing of immersion suits provide the possibility for air pressure tests to be carried out on board. This can be a convenient option and the Unitor air pressure test kit is easy-to-use and easy-to-store.



## THE TEST KIT CONSISTS OF THE FOLLOWING COMPONENTS:

- PVC face insert with outer neoprene lining for airtight fit
- Nylon strap to tighten the suit onto the face piece
- Hose with valve and pressure gauge for air supply
- Rigid plastic box for storage
- Instruction manual

## YOUR BENEFITS:

Product number: 758201

- Pressure gauge for mbar reading
- Flange to fit face opening
- Easier testing where and when you want
- Can be attached to air line if regulated
- Portable and easy to store

MSC/Circ. 1114 guidelines state that monthly shipboard testing of immersion suits can be helpful in identifying obvious problems with a suit. However, to properly address the deterioration of seams and closures, which may not be obvious from a visual inspection, a pressurisation of the suit with air is recommended.

It is recommended that each suit be subjected to an air pressure test, at intervals not exceeding three years, or more frequently for suits over ten years of age. In addition, it is recommended that the air pressure test be performed at a suitable shore-based facility equipped to make any necessary repairs in accordance with the manufacturer's recommendations.

Wilhelmsen Ships Service has a global network of approved service stations able to carry out air tests in accordance with these guidelines. To find out more information please contact your local Wilhelmsen Ships Service representative.



Wilhelmsen Ships Service has more than 4000 marine professionals at your service, all around the world. We make sure that your vessels operate smoothly at sea and cut down your turnaround time in port.

We mind your business when it matters most to you.

#### **Wilhelmsen Ships Service**

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