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NATO STANDARDIZATION AGENCY
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NSA

8 October 2004 NSA/0962-RTIOS/2997

See CNAD AC/327 STANAG distribution

STANAG 2997 RTIOS (EDITION 2) - LIFE JACKETS AND PERSONAL FLOTATION DEVICES

References: a. AC/310-D/514, dated 10 July 2003
b. MAS/225-PPS/2997 dated 3 June 1997 (Edition 1)

1. The enclosed NATO Standardization Agreement, which has been ratified by nations as reflected in the **NATO Standardization Document Database (NSDD)**, is promulgated herewith.

2. The references listed above are to be destroyed in accordance with local document destruction procedures.

3. AAP-4 should be amended to reflect the latest status of the STANAG.

ACTION BY NATIONAL STAFFS

4. National staffs are requested to examine **their ratification status of the STANAG** and, if they have not already done so, advise the Defence Investment Division through their national delegation as appropriate of their intention regarding its ratification and implementation.

J. MAJ
Brigadier General, POL(A)
Director, NSA

Enclosure:
STANAG 2997 (Edition 2)

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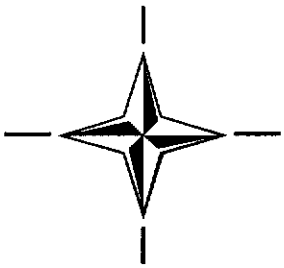
STANAG 2997
(Edition 2)

NORTH ATLANTIC TREATY ORGANIZATION
(NATO)



NATO STANDARDISATION AGENCY (NSA)

STANDARDIZATION AGREEMENT (STANAG)

SUBJECT: LIFE JACKETS AND PERSONAL FLOTATION DEVICES

Promulgated on 8 October 2004

J. MAJ
Brigadier General, POL(A)
Director, NSA

STANAG 2997
(Edition 2)

RECORD OF AMENDMENTS

No.	Reference/Date of amendment	Date entered	Signature

EXPLANATORY NOTES

AGREEMENT

1. This NATO Standardization Agreement (STANAG) is promulgated by the Director NATO Standardisation Agency under the authority vested in him by the NATO Standardisation Organisation Charter.

2. No departure may be made from the agreement without informing the tasking authority in the form of a reservation. Nations may propose changes at any time to the tasking authority where they will be processed in the same manner as the original agreement.

3. Ratifying nations have agreed that national orders, manuals and instructions implementing this STANAG will include a reference to the STANAG number for purposes of identification.

RATIFICATION, IMPLEMENTATION AND RESERVATIONS

4. Ratification implementation and resercation details are available on request or through the NSA websites (internet http://nsa.nato.int; NATO Secure WAN http://nsa.hq.nato.int).

FEEDBACK

8. Any comments concerning this publication should be directed to NATO/NSA, Bvd Leopold III, 1110 Brussels - BE.

STANAG 2997
(Edition 2)

NAVY/ARMY/AIR

NATO STANDARDIZATION AGREEMENT (STANAG)

LIFE JACKETS AND PERSONAL FLOTATION DEVICES

Related Documents: None

AIM

1. The aim of this agreement is to standardize the requirements to achieve functional interchangeability of Life Jackets and Personal Flotation Devices for NATO land forces.

AGREEMENT

2. Participating nations agree to abide by this agreement, to the limit of practicability, in future procurement of flotation devices. Nations are not compelled to procure all types described. This agreement applies to those devices, which are worn on the body to provide to personnel, a reasonable assurance of safety from drowning. Devices such as buoys, rings, floating cushions, floater coats or immersion coveralls, and other devices used for assistance in flotation are excluded from this agreement.

DEFINITIONS

3. The following terms and definitions are used for the purpose of this agreement:

3.a. **Flotation Device**. This term is used to include the following devices:

(1) **Life Jacket**. A device worn as a belt, vest, yoke or collar to provide buoyancy in the event of water immersion.

(2) **Personal Flotation Device (PFD).** This device has the same characteristics as a Life Jacket and, additionally, provides some environmental protection.

3.b. **Buoyancy**. The resultant upthrust of a flotation device when totally submerged in water.

3.c. **Inflatable**. A device whose buoyancy is achieved by inflating a bladder with compressed gas from a cylinder. It can also be inflated through an oral inflation tube.

3.d. **Inherently Buyoant**. A device whose buoyancy is achieved by displacing a mass of water by using low-density material.
3.e. **Partially Inherently Buoyant (Hybrid).** A device whose buoyancy is achieved by using partly low-density material and partly by inflating a bladder.

GENERAL

4. This agreement describes the design and performance requirements of the three types of flotation devices intended for general-purpose use. Other devices, which are used, for special tasks, such as underwater demolition, are not being considered in this STANAG.

DETAILS OF THE AGREEMENT

5. Flotation devices are required by the land forces operating in proximity to water. The operations include tactical and non-tactical moves across water or into wet lands and tactical assaults in, on or near water. The preferred type of flotation device to be used depends on the nature of the operation and the amount of buoyancy necessary to complete a task safely.

TYPES OF FLOTATION DEVICES

6**.** Three types of devices are available to provide the required protection for typical activities.

6.a. **Inherently Buoyant.** Preferred type where large numbers are needed at minimal cost. It requires a minimum of maintenance, is easy to store and is durable. This type requires much bulkiness to provide the necessary buoyancy to meet the performance requirements of this agreement.

6.b. **Inflatable.** Preferred type where maximum buoyancy with minimum bulkiness is required. It is less durable, more costly and requires AV regular maintenance by trained personnel.

6.c. **Partially Inherently Buoyant (Hybrid).** Preferred type where some positive buoyancy with a provision for additional buoyancy is required. The positive buoyancy must be sufficient to keep a person afloat until the additional buoyancy provided by the inflatable bladder is accomplished.

COMMON PERFORMANCE, DESIGN AND INSPECTION REQUIREMENTS

7. All three types of devices shall meet the following requirements:

7.a. **General**. The device shall be simple to don correctly and be reasonably comfortable without restricting vision, breathing and hearing. It shall be worn over the combat clothing (including the flak jacket). It shall give freedom of

movement both in and out of the water and be easy to release and remove in all weather conditions. The wearer shall be capable of fitting the device by adjusting straps and buckles (or other suitable device) and shall remain in place if required to enter the water by jumping from a maximum height of 3000 mm + or – 100 mm.

7.b. **Flotation Performance**. The device shall be capable of turning and holding an unconscious adult in a safe flotation position. For safe flotation, the mouth and face must be kept clear of the water and the trunk of the body inclined backwards at an angle between 30 degree and 60 degree from the vertical position.

7.c. **Buoyancy.** The total buoyancy for each type of device shall be not less than 15.3 kgs (150.0 N) which is considered the minimum buoyancy required to provide a safe flotation position for an unconscious adult. Additional buoyancy shall be provided where heavily laden personnel must be equipped.

NOTE: (1) To enable escape from a vehicle through small hatches, a less bulky flotation device shall be provided. This device may not supply the total required buoyancy, but it shall provide assistance in keeping a person afloat. Such device shall be identified for a specific application.

(2) After 24 hours of being soaked in water, the maximum loss in buoyancy must not exceed 5 %.

7.d. **Materials.** The devices must be manufactured from materials and components that meet the members' national standards. These materials and components shall be capable of withstanding a wide range of climatic and environmental conditions, and:

(1) The fabrics used for protective coverings shall be resistant to flame, organic solvents, grease, oil, petroleum products**,** abrasions and snags.

(2) The metal parts shall be free from burrs and sharp edges and be composed of corrosion resistant material. Stainless steel is the preferred material.

(3) All materials shall be non-irritating, wet or dry. They shall be free of offensive odours and be resistant to the growth of fungi.

7.e. **Sizes**. The devices shall be made available in sufficient sizes and adjustments to fit the 3rd through the 98th percentile of the military population and shall be compatible with the equipment worn or carried.

7.f. **Colour.** The devices used in combat or combat training shall be compatible with the camouflage requirement of the combat clothing.

NOTE: Nations may use international yellow or orange for safety reasons during peacetime operations.

7.g. **Accessories.** Accessories such as toggle line, emergency life light, whistle, sea marker, and cap shall be made available as required.

7.h. **Rescue Lifting Point**. The lifting point shall be easy to locate and grasp to enable the wearer to be lifted from the water safely. It shall be constructed with suitable buckles, straps and beckets and shall be able to sustain a minimum tensile test of 200 kg (440 lbs.)

7.i. **Strength of Assembly**. The assembled device, materials, seams and adhesions, shall meet the members' national standards applicable to flotation devices. The assembly shall be strong enough to allow the wearer to be assisted from the water by grasping any part of the device by hand.

7.j. **Marking and Labelling**. All devices shall have a permanent label, which shall include, but not restricted to, the following information:

(1) Manufacturer's name or code.

(2) Date of manufacture.

(3) Lot number.

(4) Size (when applicable).

(5) Type.

(6) Design buoyancy.

(7) CO2 cylinder's charge (when applicable).

7.k. **Maintenance Instructions.** To ensure that the devices perform properly they shall be inspected regularly and repaired as necessary in accordance with the member nations' orders and instructions. The completion of the maintenance inspections shall be recorded.

SPECIFIC REQUIREMENTS FOR INFLATABLE DEVICES

8. The inflatable devices shall conform to all the requirements specified in paragraph 7 and shall also comply with the following requirements:

8.a. The bladder shall preferably be made from High Frequency (HF) sealable polyurethane coated materials. Other materials may be used where HF sealing is not feasible. The type of material used shall conform to the members' national standards.

8.b. The bladder shall have a single point of gas inflation. The inflation mechanism shall be readily accessible to either hand.

8.c. The bladder shall be fitted with an inflation mechanism consisting of a cylinder of compressed carbon dioxide (CO2) or other suitable compressed gas and either a manual or an automatic release device. An automatic release device shall also have a facility for manual activation. The gas charge shall be sufficient to provide the designed buoyancy over the entire range of environmental conditions in which the bladder may be used.

8.d. The bladder shall be fitted with an oral inflation tube readily accessible to the mouth and to either hand. The tube shall incorporate a non-return valve, which can also be used as a deflation valve.

8.e. During the manufacturing process the bladder shall be tested and be capable of withstanding without evidence of failure or damage to the material:

(1) A design proof test pressure of 55 Kpa for duration of 5 minutes. This test shall be carried out at the start of each production run.

Note: A bladder subjected to this test shall not be released for service use.

(2) A production proof test pressure of 21 Kpa for duration of 10 minutes. Every bladder produced shall be subjected to this test.

(3) A production leakage test pressure of 10.5 Kpa with a pressure drop no greater than 1.75 Kpa after 6 hours. The test pressure shall be adjusted to the original level after standing for 15 minutes. Every device manufactured shall be subjected to this test.

SPECIFIC REQUIREMENTS FOR INHERENTLY BUOYANT DEVICES

9. The inherently buoyant devices shall meet the common design requirements specified in paragraph 7 and shall comply with the following requirements:

9.a. The buoyant materials shall be unicellular foam conforming to the applicable members' national standards.

9.b. The in-water performance of the device shall be checked regularly because this type of device will lose buoyancy over a period of time.

SPECIFIC REQUIREMENTS FOR PARTIALLY INHERENTLY BUOYANT DEVICES (HYBRID)

10. This type of device shall meet the common design requirements specified in paragraph 7 and shall also conform to the specific requirements for the inflatable and the inherently buoyant devices in paragraphs 8 and 9.

IMPLEMENTATION OF THE AGREEMENT

11. This STANAG is considered implemented when a nation has issued the necessary orders and instructions putting the contents of this agreement into effect.