

INTERIM GUIDELINES FOR APPROVAL AND PRODUCTION TESTING OF SOLAS HYDROSTATIC  
RELEASE UNITS

1. *Preapproval tests.* These preapproval tests must be conducted by an independent laboratory accepted by the Commandant.

1.1 Two samples of hydrostatic release units must be given a visual and dimensional examination. If the devices conform with the manufacturer's drawings and specifications, they are accepted and assembled for further testing under the technical and performance tests as described in paragraphs 1.2 and 1.3. Each test must include any spring-tensioned gripe which is intended to be used with the hydrostatic release.

1.2 *Technical tests.* Each hydrostatic release unit must undergo all the following technical tests. No parts may be renewed or repaired between the tests. These tests must be repeated whenever a change is made in any of the materials used in the manufacture of a hydrostatic release unit. The tests must be conducted in the following sequence:

1.2.1 *Corrosion resistance test.* Each hydrostatic release unit must be exposed to a salt water spray test (5% sodium chloride solution) at a temperature of 35° plus or minus 3° C for 160 hours without interruption. After completion the hydrostatic release unit must show no corrosion which could effect its efficient functioning and must then be subjected to the following tests after which it must continue to function efficiently.

1.2.2 *Temperature tests.* The hydrostatic release units must be alternately subjected to surrounding temperatures of -30° C and 65° C. These alternating cycles need not follow immediately after each other, and the following procedure, repeated for a total of ten cycles, is acceptable--

--an 8-hour cycle at 65° C to be completed in one day;

--the hydrostatic release units removed from the warm chamber that same day and left exposed under ordinary room conditions until the next day;

--an 8-hour cycle at -30° C to be completed the next day; and

--the hydrostatic release units removed from the cold chamber that same day and left exposed under ordinary room conditions until the next day.

1.2.3 *Submergence and manual release tests.* Each hydrostatic release unit must then be tested by applying a buoyant load equal to its designed capacity while the device is submerged in water or in a water-filled pressure testing tank. It must release at a depth of not more than 4 m. On completion of these tests and resetting, the hydrostatic release unit must be capable of being released manually if it is designed to allow manual release of the unit. It must then be opened for inspection and must show no significant signs of corrosion or degradation.

1.2.4 *Strength test.* After reassembly, the hydrostatic release unit must be subjected to a tensile load of at least 10 kN (2,250 lb) and, if designed to allow manual release, must then be capable of being operated manually.

1.2.5 *Technical tests on the membrane.* The following tests must be carried out on the membrane:

a) *Cold resistance.*

Number of specimens	2 membranes
Temperature	-30° C
Exposure time	30 min
Flex testing	180° with both inside and outside stretched
Requirement:	The membranes must show no visible cracking.

- b) *Heat resistance.*
- |                     |  |
|---------------------|--|
| Number of specimens | 2 membranes                                  |
| Temperature         | 65° C  |
| Exposure time       | 7 days                                       |
| Requirement:        | The membranes must show no visible cracking. |
- c) *Surface resistance to oil.*
- |                     |  |
|---------------------|--|
| Number of specimens | 2 membranes  |
| Temperature         | 18-20° C   |
| Type of oil         | A mineral oil meeting the following requirements:<br>Aniline point: $120^{\circ} \pm 5^{\circ}$ C<br>Flashpoint: minimum 240° C<br>Viscosity: 10-25 cSt at 99.0° C |
- (The following oils may be used: ASTM Oils No. 1 and No. 5, ISO Oil No. 1)
- |                |  |
|----------------|--|
| Testing period | 3 hours on each side                     |
| Requirement:   | The material must show no deterioration. |
- d) *Resistance to sea water.*
- |                     |  |
|---------------------|--|
| Number of specimens | 2 membranes                              |
| Temperature         | 18-20° C                                 |
| Exposure time       | 7 days                                   |
| Requirement:        | The material must show no deterioration. |
- e) *Resistance to detergents.*
- |                                   |   |
|-----------------------------------|---|
| Number of specimens               | 2 membranes   |
| Type of detergent on board ships. | Any type commonly used for general cleaning   |
| Temperature                       | 18-20° C  |
| Exposure time                     | 3 hours   |
| Requirement:                      | The material must show no deterioration when exposed to detergents commonly used aboard ship. |

1.3 *Performance test.* This test must be performed using the smallest and the largest liferafts with which the hydrostatic release unit may be used. If the occupant range between the smallest and largest liferaft exceeds 25 persons then the intermediate size liferaft must also be tested.

1.3.1 The liferaft must be placed horizontally on a rack or platform of sufficient weight to submerge the liferaft. The hydrostatic release unit and painter must be installed as aboard ship.

1.3.2 The following tests must be carried out in a suitable depth of water. The platform on which the liferaft is mounted must be lowered into the water as follows:

- a) horizontally;
- b) tilted 45° and then 100° with the hydrostatic release unit at the upper side;
- c) tilted 45° and then 100° with the hydrostatic release unit at the lower side; and
- d) vertically.

Under these conditions the hydrostatic release unit must release the liferaft at a depth of less than 4 m.

2. *Production tests.* The following tests must be performed under the supervision of a Coast Guard marine inspector or an independent laboratory accepted by the Commandant.

2.1 *Visual and dimensional examination.* A random sample of units must be selected from each assembled lot in accordance with Table I. The selected samples must undergo an examination of visual and dimensional characteristics by comparison to their approved drawings, with their acceptance based upon Table I.

TABLE I--SAMPLING FOR VISUAL AND DIMENSIONAL EXAMINATION

No. of units in production lot (defectives)	No. of units in sample	Rejection no.
15 and under	All	
16 to 25	15	1
26 to 40	25	1
41 to 110	35	2
111 to 180	50	2
181 to 300	75	3
301 to 500	110	2

2.2 *Submergence test.*

2.2.1 *Reusable units.* Each reusable hydrostatic release unit in a production lot must be tested by applying a buoyant load of its designed capacity while the device is submerged in water or in a water filled pressure testing tank. The unit must automatically release the load at a depth of less than 4 m. The unit must then be reassembled and, if fitted with a manual release, must be released manually. Units which do not pass this submergence test must be removed from the production lot as unacceptable, but may be reworked and included in a subsequent lot.

2.2.2 *Disposable units.* A random sample of units must be selected from each assembled lot in accordance with Table II. Each unit selected must be tested in accordance with para. 2.2.1, except it is not required that the unit be reassembled after the test. Any failures shall cause the entire production lot to be rejected.

TABLE II--DISPOSABLE UNIT SUBMERGENCE TEST SAMPLING

No. of units in production lot (defectives)	No. of units in sample	Rejection no.
15 and under	4	1
16 to 25	5	1
26 to 40	7	1
41 to 110	10	1
111 to 180	12	1
181 t 300	16	1
301 to 500	20	1