
**Ships and marine technology —
Servicing of inflatable life-saving
appliances —**

**Part 4:
Marine evacuation systems**

*Navires et technologie maritime — Entretien des dispositifs
de sauvetage gonflables —*

Partie 4: Systèmes d'évacuation en mer gonflables

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Foreword

ISO (the International Organization for Standardization) is a worldwide federation of national standards bodies (ISO member bodies). The work of preparing International Standards is normally carried out through ISO technical committees. Each member body interested in a subject for which a technical committee has been established has the right to be represented on that committee. International organizations, governmental and non-governmental, in liaison with ISO, also take part in the work. ISO collaborates closely with the International Electrotechnical Commission (IEC) on all matters of electrotechnical standardization.

The procedures used to develop this document and those intended for its further maintenance are described in the ISO/IEC Directives, Part 1. In particular the different approval criteria needed for the different types of ISO documents should be noted. This document was drafted in accordance with the editorial rules of the ISO/IEC Directives, Part 2 (see www.iso.org/directives).

Attention is drawn to the possibility that some of the elements of this document may be the subject of patent rights. ISO shall not be held responsible for identifying any or all such patent rights. Details of any patent rights identified during the development of the document will be in the Introduction and/or on the ISO list of patent declarations received (see www.iso.org/patents).

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For an explanation on the voluntary nature of standards, the meaning of ISO specific terms and expressions related to conformity assessment, as well as information about ISO's adherence to the World Trade Organization (WTO) principles in the Technical Barriers to Trade (TBT) see the following URL: www.iso.org/iso/foreword.html.

This document was prepared by Technical Committee ISO/TC 8, *Ships and marine technology*, Subcommittee SC 1, *Maritime safety*.

A list of all parts in the ISO 18079 series can be found on the ISO website.

Introduction

The IMO International Convention on the Safety of Life at Sea of 1974 (SOLAS 74) Chapter III Regulation 20.8 sets requirements for the annual servicing and inspection of inflatable life rafts, inflatable lifejackets, marine evacuation systems, and maintenance and repair of inflated rescue boats on ships. This regulation refers to the IMO Recommendation on the conditions for the approval of servicing stations for inflatable life rafts Assembly resolution A.761(18).

However, this resolution only provides specific standards for the servicing, maintenance and repair of inflatable life rafts and remains silent for other types of inflatable or inflated life-saving appliances mentioned by SOLAS Chapter III Regulation 20.8 and consequently, the application of this statutory requirement could vary widely in practice.

The ISO 18079 series addresses those areas in which the IMO recommendation is silent, in order to facilitate consistent implementation by maritime Administrations. It is intended for use as a companion to the IMO recommendation and also to encompass all other relevant life-saving appliances covered by the ISO 18079 series and not necessarily regulated by IMO instruments.

The IMO Recommendation on the conditions for the approval of servicing stations for inflatable life rafts Assembly resolution A.761(18) specifies obligations and responsibilities for Administrations, manufacturers and ship owners. While the ISO 18079 series covers the requirements of this resolution, it has been rearranged and reformulated in order to enable a single entity, i.e. a servicing station, to attain certification in accordance with the ISO 18079 series. This does not mean that the specified obligations and responsibilities are lifted, delegated or otherwise transferred by authority from those parties to the single entity being certified.

This document addresses the servicing of marine evacuation systems and it is intended for use as a companion to the IMO recommendation.

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Ships and marine technology — Servicing of inflatable life-saving appliances —

Part 4: Marine evacuation systems

1 Scope

This document, in conjunction with ISO 18079-1, provides provisions for servicing stations for marine evacuation systems referred to in SOLAS III (20.8). This document is applicable to non-SOLAS marine evacuation systems, as appropriate.

2 Normative references

The following documents are referred to in the text in such a way that some or all of their content constitutes requirements of this document. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

ISO 18079-1, *Ships and marine technology — Servicing of life-saving appliances — Part 1: General*

ISO 18079-2, *Ships and marine technology — Servicing of life-saving appliances — Part 2: Inflatable liferafts*

International Convention for the Safety of Life at Sea (SOLAS), 1974

3 Terms and definitions

For the purposes of this document, the following terms and definitions apply.

ISO and IEC maintain terminological databases for use in standardization at the following addresses:

- IEC Electropedia: available at <http://www.electropedia.org/>
- ISO Online browsing platform: available at <http://www.iso.org/obp>

3.1

marine evacuation system

MES

appliance for the rapid transfer of persons from the embarkation deck of a ship to a floating platform or survival craft by means of a *passage* (3.2)

3.2

passage

integral component of a *MES* (3.1) to provide a safe descent of persons from the embarkation station to the floating platform or survival craft

Note 1 to entry: The passage can be an inflatable or rigid slide, a *vertical passage* (3.4) or any other arrangement providing the same function.

3.3

inclined passage

horizontally-angled inflatable or rigid component which provide access for persons to a *floating platform* (3.5) or directly into survival crafts

3.4

vertical passage

vertically-angled *passage* (3.2) providing access for persons to a *floating platform* (3.5) or directly into survival crafts

3.5

floating platform

inflatable component which may be fitted to the bottom of the *passage* (3.2) to hold evacuees awaiting entry to survival craft

3.6

associated survival crafts

survival craft designed to be served by the *marine evacuation system* (3.1)

3.7

stowage container

container that stows the *MES* (3.1) or part of the MES

4 Servicing of marine evacuation systems

4.1 General

The following tests and procedures shall be carried out, except where noted otherwise, at every servicing of a marine evacuation system fitted as life-saving equipment. Servicing of marine evacuation systems shall be carried out in accordance with the appropriate manufacturer's servicing manual. Necessary procedures shall include, but not be limited to, the following.

4.2 Container/stowage arrangement

The container/stowage arrangement shall be visually inspected before performing the tests required according to 4.3 to 4.5.

This visual inspection shall, as a minimum, include the following in accordance with the instructions of the manufacturer's servicing manual.

4.2.1 Inspection of lowering winch (if fitted).

4.2.2 Inspection of the container/stowage arrangement for damage.

4.2.3 Inspection of the interior of the container/stowage arrangement for signs of dampness and corrosion.

4.2.4 Inspection of hydraulic systems, gas cylinders, high pressure hoses, reduction valves, release wires, locking systems for doors, seals for doors and transport safety devices, as appropriate.

4.2.5 Inspection of the required marking on the container/stowage arrangement.

4.3 Bowsing arrangements

The components of the bowsing system, where fitted, shall be inspected in accordance with the manufacturer's instructions. This shall include inspection of all lines, sheaves and winches.

4.4 Passage

4.4.1 Inflatable passage

The inflatable passage shall be subject to the tests described in [4.10.1](#) or [4.10.2](#), as appropriate.

4.4.1.1 While inflated, the surface of the passage shall be subjected to a thorough inspection in accordance with the manufacturer's instructions.

4.4.1.2 Air aspirators shall be checked in accordance with the manufacturer's instructions (if fitted).

4.4.1.3 The seams between the inflatable compartments, as well as any attachment patches, shall be checked for slippage or edge lifting.

4.4.1.4 A check shall be made to ensure that the passage and the atmosphere are dry when the passage is being repacked.

4.4.2 Rigid passage

4.4.2.1 The passage cover of the unfolded passage shall be checked for damage and irregularities.

4.4.2.2 Lines and rubber cords shall be examined for weaknesses and frayings.

4.4.2.3 Fabric seams and reinforcement straps shall be checked and, if provided with zippers, check the zippers for broken teeth.

4.4.2.4 Elasticity and strength of elastic ropes shall be checked in accordance with the instructions of the manufacturer.

4.4.2.5 If the passage is fitted with an evacuation flow indication system, the functionality and attachments shall be checked.

4.5 Floating platform

4.5.1 While inflated, the platform shall be subjected to a thorough inspection in accordance with the manufacturer's instructions.

4.5.2 The floor shall be inflated, checked for broken reeds and tested in accordance with the manufacturer's instructions.

4.5.3 The inflatable platform shall be subject to the pressure holding tests described in [4.10.2](#) or [4.10.3](#), as appropriate. [Table A.1](#) shows the frequency of the relevant tests.

4.5.4 The seams between the floor and buoyancy tube shall be checked for slippage or edge lifting, as described in [4.10.4](#).

4.5.5 A check shall be made to ensure that the platform and the atmosphere are dry when the marine evacuation system is being repacked.

4.6 Inflation system

The inflation system including gas cylinders, inlet valves, relief valves and high pressure hoses shall be thoroughly inspected and serviced in accordance with the instructions of the manufacturer.

4.7 Associated liferafts

Follow the instructions given in ISO 18079-2, noting [7.5](#).

4.8 Additional measures

All items of equipment shall be checked to ensure that they are in good condition and that dated items are replaced at the time of service if their expiry dates occur before the date of the next service.

The required markings and records on the passage and platform shall be checked and updated, as appropriate.

When the evacuation system is being repacked, the serviced inflatable components shall be in dry condition.

4.9 Structural components

Structural components of the marine evacuation system not practical to be removed for servicing at an approved servicing station shall be inspected and serviced in accordance with the manufacturer's instructions.

4.10 Test procedures for inflatable components

4.10.1 General

The following inspections and test procedures shall be included in the manufacturer's instructions and followed for all inflatable components of the marine evacuation system such as inflatable passage and inflatable floating platform. [Annex A](#) shows the frequency of the relevant tests.

4.10.2 Working pressure (WP) test

A working pressure (WP) test shall be carried out by inflation with dry compressed air, after removing the inflatable component from the stowage arrangement, to at least the working pressure or to the pressure required by the manufacturer's servicing manual, if higher.

The inflatable component shall then be subjected to a pressure holding test over a period of not less than one hour, during which the pressure drop will not exceed 5 % of the working pressure.

4.10.3 Necessary additional pressure (NAP) test

Each inflatable component shall be subjected to the necessary additional pressure (NAP) test at intervals per [Annex A](#), unless earlier servicing is deemed necessary as a result of visual inspection.

The passage shall be removed from its stowage box or valise and from its retaining straps, if fitted.

The passage shall then be inflated using dry compressed air to pressure at least equal to the working pressure or to the pressure required by the manufacturer's servicing manual, if higher.

After allowing sufficient time for the inflatable component to regain fabric tension at working pressure, then all pressure release valves shall be blocked. Blocking of pressure relief valves shall only be done using the equipment and methods prescribed by the manufacturer and care shall be taken as to not damage the valves.

The pressure shall then be gradually raised using dry compressed air to a pressure to the lesser of two times the working pressure or that sufficient to impose a tensile load on the inflatable tube fabric of at least 20 % of the minimum required tensile strength, i.e. NAP test pressure.

Manufacturers shall include tables in their servicing manuals of exact NAP test pressures corresponding to their particular liferaft types and/or tube sizes and fabric tensile strength requirements, calculated according to [Formula \(1\)](#):

$$p(\text{N/m}^2) = \frac{\text{tensile strength (N/m)}}{5 \cdot \text{radius (m)}} \quad (1)$$

After 5 min, there should be no seam slippage, cracking, other defects, or significant pressure drop. If cracking in the buoyancy tubes is audible, the passage shall be condemned; if no cracking is heard, the pressure in all buoyancy chambers shall be reduced simultaneously by removing the plugs from the pressure relief valves.

The inflatable component shall then be subjected to a pressure holding test over a period of not less than one hour, during which the pressure drop shall not exceed 5 % of the working pressure.

4.10.4 Floor seam (FS) test

Following the WP or NAP test as applicable, a floor seam (FS) test shall be carried out at yearly intervals after the tenth year of the inflatable components life.

For this test, the inflatable component shall be supported by a system which leaves the platform floor/passage track seams unsupported, at a suitable height above the service floor as shown in [Figure B.1](#) (see [Annex B](#)).

Then, a person weighing not less than 82,5 kg shall walk or crawl the entire perimeter and thereafter the floor seams should be checked again.

Manufacturers may substitute this test with another test which will determine the integrity of the floor seam until the next inspection is due.

5 Servicing records

5.1 Overview

Records of servicing shall be prepared and maintained for at least 5 years after the date of service. Items of the records shall include, but not be limited to the following.

5.2 General information

- a) Identification of servicing station and certified technician.
- b) Name and IMO number of ship, if applicable.
- c) Flag state of ship or port of registration.
- d) Date of manufacture.
- e) Manufacturer, type, serial number and capacity of marine evacuation system.
- f) Approval.
- g) Date when last serviced.
- h) Name and place of servicing station where it was last serviced.

5.3 Information about marine evacuation system condition when received

If a non-conformity has to be raised, information about the findings and name of the previous servicing station shall be submitted to the manufacturer without delay.

5.4 Test documentation to be recorded

- a) Result of rotational deployment test.
- b) Result of necessary additional pressure test (NAP test).
- c) Result of floor seam test (FS test).
- d) Result of working pressure test (WP test).

5.5 Condemnation documentation for marine evacuation systems

When condemning a marine evacuation system or part thereof, the following information shall be recorded and forwarded to the manufacturer:

- a) manufacturer, type, capacity and serial number of marine evacuation system;
- b) shipowner;
- c) name and IMO number of ship, if applicable;
- d) flag state of ship or port of registration, if applicable;
- e) type of ship;
- f) cause and date of condemnation.

[Annex C](#) shows an example of a condemnation form.

5.6 Control objects to be included in the inspection schedule

The following objects shall be indicated and addressed in the inspection schedule.

- a) Container/stowage arrangement.
Gas cylinders, high pressure hoses and connections, reduction valves, hydraulic systems, release wires, entrance and exit sealing, corrosion, transport safety devices, marking.
- b) Bowsing arrangement, if fitted.
Lines, sheaves, winches and connecting points on platform and/or associated liferafts.
- c) Passage.
Passage fabric, connections between passage, stowage container and platform, re-inforcement straps and patches, aspirators, high pressure hoses, marking.
- d) Platform.
Buoyancy tubes and floor fabric, lifelines and fastening, relief valves, inflation hoses and fittings, safety knives, mooring arrangements for associated liferafts, marking.
- e) Associated liferafts.
Refer to ISO 18079-2 and, in addition, retrieval and connecting arrangements fitted to the life rafts.
- f) Hydrostatic release unit.
Make and type of HRU, serial number, expiry date, test of HRU, release pressure, weak link.

6 Deficiency records

Records shall be prepared on marine evacuation systems serviced where the required servicing frequency is violated, defects found, repairs carried out and units condemned and withdrawn from service. Such records shall be submitted without undue delay to the manufacturer and subsequently be made available to the Administration as and when requested.

7 Rotational deployments of marine evacuation systems

Rotational deployment of each marine evacuation system shall be carried out in accordance with SOLAS Chapter III paragraph 20.8.2. The following procedure shall be followed.

7.1 The manufacturer, or his accredited servicing station, shall conduct an assessment to include thorough visual inspection and any pre-deployment checks necessary to evaluate MES readiness for safe deployment.

7.2 Rotational deployment is a test of installed equipment. However, such deployment shall normally be conducted by competent ship's staff in accordance with officially documented procedures. If completed by a combination of crew and service personnel, clear roles shall be established and agreed.

7.3 Records for the deployment of each MES, including any spare MES, shall be maintained and will include the dates of deployment. Companies shall incorporate spare MES into their deployment program such that, as far as practicable, all MES are subject to equal periods between deployments.

7.4 The servicing station shall submit a deployment report to the manufacturer containing details of the deployment including any deviations away from the manufacturer's launching instructions. [Annex D](#) shows an example of a template for a deployment report.

7.5 Associated liferafts deployed and successfully inflated in conjunction with a rotational deployment shall be deemed to have satisfied the gas inflation test required for inflatable liferafts by ISO 18079-2:2018, 4.3.2.

7.6 To avoid unnecessary damage from exposure to salt water, etc., it is important to recover the marine evacuation system and associated liferafts immediately after the test and, where practical, rinse with fresh water before deflation and transport to the servicing station.

Annex A
(normative)

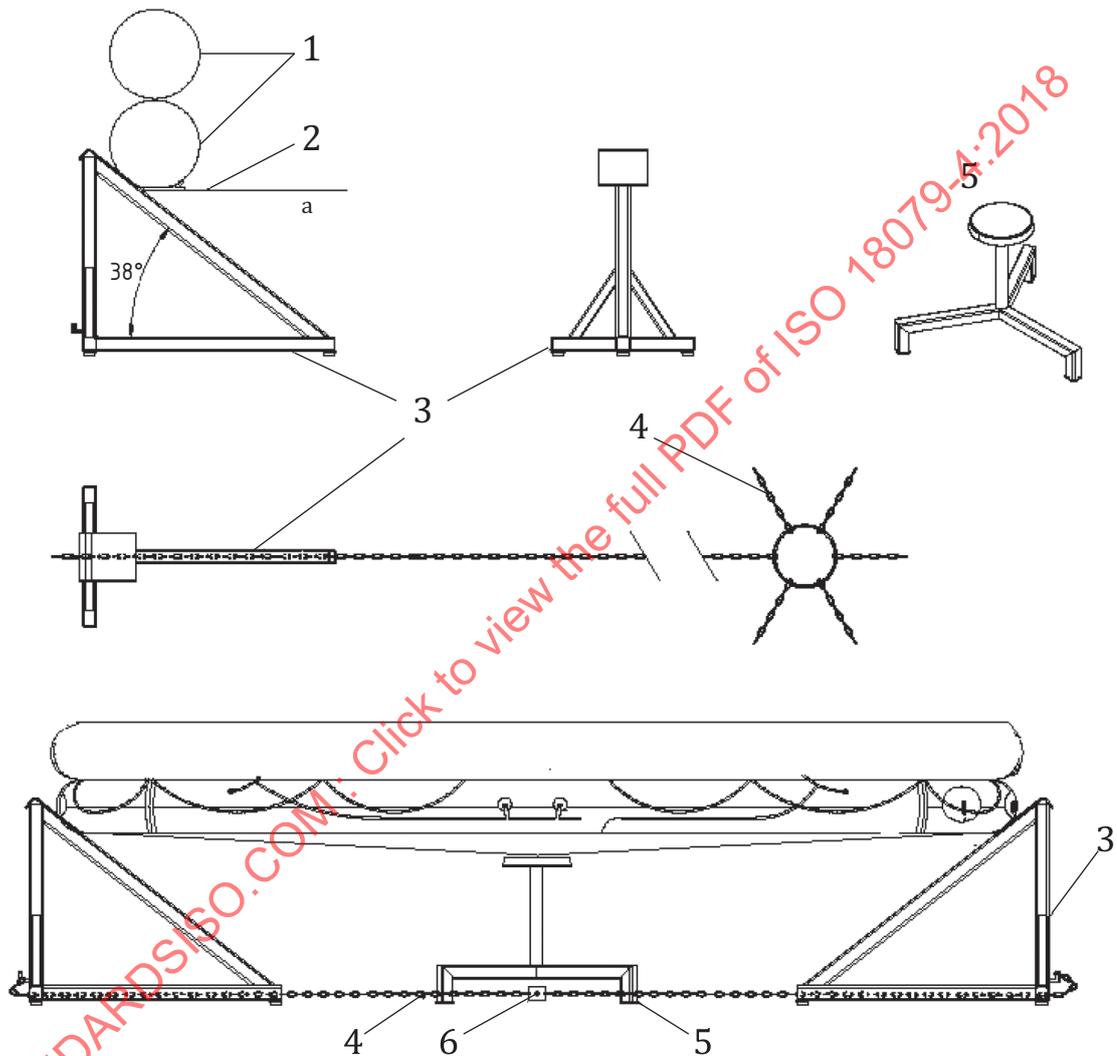
Frequency of NAP tests, working pressure (WP) and floor seam strength (FS)

Table A.1 — Frequency of tests to be performed during servicing of MES systems

Servicing intervals	Test methods		
End of first year	WP		
End of second year	WP		
End of third year	WP		
End of fourth year	WP		
End of fifth year	WP		
End of sixth year	WP		
End of seventh year	WP		
End of eighth year	WP		
End of ninth year	WP		
End of tenth year	WP		FS
End of eleventh to fourteenth year		NAP	FS
End of fifteenth year		NAP	FS
End of sixteenth to nineteenth year		NAP	FS
End of twentieth year		NAP	FS
End of twenty-first to twenty-fourth year		NAP	FS
End of twenty-fifth year		NAP	FS
<p>WP Working pressure (see 4.10.2).</p> <p>NAP Necessary additional pressure (see 4.10.3).</p> <p>FS Floor seam testing (see 4.10.4).</p> <p>MES older than 25 years shall follow the test frequencies applicable from end of years 15 and onwards.</p> <p>In the Servicing intervals column, "End of ..." shall be understood to be the periodic service dates in accordance with SOLAS Chapter III Regulation 20.</p>			

Annex B
(informative)

Guidelines for floor seam (FS) test supports



Key

- 1 buoyancy tubes
- 2 raft floor
- 3 support
- 4 chain
- 5 centre support for platforms having a capacity of more than 35 persons
- 6 centre ring
- a Floor seam is unsupported.

Figure B.1 — Typical support arrangement for floor seam (FS) testing

Annex C
(informative)

Condemnation form for inflatable marine evacuation systems

Manufacturer:	Type:	Capacity:	Serial No.:
Ship owner:	Name of ship:	Flag state of ship:	IMO No. of ship:
STATISTICAL INFORMATION [Mark (X) in all appropriate boxes in the column farthest to the right]			
TYPE OF SHIP	Passenger ship (stowage height of liferaft >4 m)	code	(x)
	Passenger ship (stowage height of liferaft <4 m)		
	Ro ro passenger ship		
	High Speed Craft Passenger Ship		
	Cargo vessel		
	Mobile offshore unit (MOU)		
	Tanker		
	Offshore supply vessel or standby vessel		
	Fishing vessel		
	Pleasure boat/yacht		
CAUSE OF CONDEMNATION	Oxidation (copper oxidation)–beyond economical repair		
	Leakage–beyond economical repair		
	Wear/chafing		
	Condemned after vessel casualty		
	Customer's request (describe reason under remarks)		
	Damaged during demonstration		
	Damaged by strong heat (e.g. fire on board)		
	Vandalism		
	Water damage (water in the container/valise)		
	Damaged by mould		
	NAP test negative		
	Floor seam test (FS) negative		
Separation of adhesive, or welded seams			
Other causes (describe them under remarks)			
Remarks concerning the condemnation.		Servicing station:	
		Date:	
		Signature:	