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Ships and marine technology — Service personnel for the maintenance, thorough examination, operational testing, overhaul and repair of lifeboats and rescue boats, launching appliances and release gear —

Part 1:
General requirements for training providers

Navires et technologie maritime — Personnel de maintenance pour l'entretien, l'examen approfondi, la mise à l'essai en cours d'exploitation, la révision et la réparation des embarcations de sauvetage et des canots de secours, des engins de mise à l'eau et des dispositifs de largage —

Partie 1: Exigences générales pour les prestataires de formation

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Contents

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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).

Any trade name used in this document is information given for the convenience of users and does not constitute an endorsement.

For an explanation of 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 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.*

This first edition cancels and replaces ISO/PAS 23678-1:2020, which has been technically revised.

The main changes are as follows:

— in Clause 3, definitions of make, model and series have been added;

— in 4.6.1, a requirement has been added for an authorized service provider to undertake a technical evaluation regarding lifesaving appliance equipment;

— text has been editorially revised in accordance with the ISO/IEC Directives, Part 2, 2021.

A list of all parts in the ISO 23678 series can be found on the ISO website.

Any feedback or questions on this document should be directed to the user's national standards body. A complete listing of these bodies can be found at www.iso.org/members.html.

Introduction

A major objective of the maritime industry is to prevent accidents and incidents from occurring. A global network of competent personnel employed by authorized service providers is vital for lifesaving appliances to remain fit for purpose, sustaining crew confidence and contributing to the prevention of incidents and accidents.

The need to develop an International Standard for this objective is evident from the new requirements in IMO Resolution MSC.402 (96)[5], entitled "requirements for maintenance, thorough examination, operational testing, overhaul and repair of lifeboats and rescue boats, launching appliances, and release gear"(henceforth referred to as the "IMO Requirements") adopted 19 May 2016 and entering into force 1 January 2020, as per paragraph 7.1.1.

This document and the associated documents ISO 23678-2, ISO 23678-3 and ISO 23678-4 have been developed to achieve three key objectives:

— develop training documents that would support the IMO Requirements, section 7, paragraph 7.1.1;

— provide a consistent, reliable, and standardized approach to training and provide a clear auditable trail for interested parties to grant authorization supporting the IMO Requirements, section 3, to service providers;

— establish a competency framework that would enable personnel certified by service providers to develop and maintain competencies identified by industry experts to a level that enables them to competently work unsupervised on equipment covered by this document.

This document has been developed by identifying common training objectives in relation to survival craft, davits, winches and release gear makes and types for which service is to be provided. This has been achieved by conducting professional discussions with disciplined experts to obtain the appropriate information to develop a training programme that is fit for purpose. Successfully completing the service technician training in ISO 23678-2, ISO 23678-3 and ISO 23678-4 enables personnel certified by an authorized service provider to meet the IMO Requirements, section 7, paragraph 7.1.1., and section 8.

Ships and marine technology — Service personnel for the maintenance, thorough examination, operational testing, overhaul and repair of lifeboats and rescue boats, launching appliances and release gear —

Part 1: General requirements for training providers

1 Scope

This document establishes a uniform, safe and consistent approach to training personnel to enable them to establish and maintain the required competencies in relation to maintenance, thorough examination, operational testing, overhaul and repair of lifeboats and rescue boats, launching appliances and release gear.

It also provides the necessary information for interested parties to grant authorization and effectively evaluate and audit training, supporting the IMO Requirements[5], section 3.

It describes the competence route, resources, facilities and certification requirements for personnel trained by a manufacturer or by an authorized service provider to carry out maintenance, thorough examination, operational testing, overhaul and repair of lifeboats (including free-fall lifeboats) and rescue boats (including fast rescue boats), launching appliances and release gear. This document also sets out the competence route of the candidate, and the resources that the training provider needs to deliver the training.

This document is intended to be used in conjunction with ISO 23678-2, ISO 23678-3 and ISO 23678-4.

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 23678-2, *Service personnel for the maintenance, thorough examination, operational testing, overhaul and repair of lifeboats and rescue boats, launching appliances and release gear — Service personnel initial training*

3 Terms, definitions and abbreviated terms

3.1 Terms and definitions

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

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

— ISO Online browsing platform: available at https://www.iso.org/obp

— IEC Electropedia: available at https://www.electropedia.org/

1

3.1.1
authorized service provider
ASP
entity authorized by the administration, meeting sections 3 and 7 of the IMO Requirements

3.1.2
company
owner of the ship or any other organization or person such as the manager, or the bareboat charterer, who has assumed the responsibility for operation of the ship from the owner of the ship and who on assuming such responsibility has agreed to take over all the duties and responsibilities imposed by the International Safety Management Code

[SOURCE: SOLAS Regulation IX:2010, 1.2]

3.1.3
competent person
person having such knowledge and experience of as is necessary for that person to carry out maintenance, thorough examination, operational testing, *overhaul* (3.1.15) and *repair* (3.1.17) of *equipment* (3.1.6), assess the condition of a *complete system* (3.1.4) and make a judgement as to whether it can remain in service

3.1.4
complete system
survival craft (3.1.20) or rescue boat and associated *equipment* (3.1.6), release gear and *launching appliance* (3.1.9)

3.1.5
disciplined expert
expert that has proven competence in design, manufacturing, inspection, maintenance, training and certification of personnel for *equipment* (3.1.6)

3.1.6
equipment
lifesaving appliances to which the IMO Requirements apply

3.1.7
intervention
activity that includes maintenance, thorough examination, operational testing, *overhaul* (3.1.15) and *repair* (3.1.17) of lifeboats (including free-fall lifeboats) and rescue boats (including fast rescue boats), *launching appliances* (3.1.9) and release gear

3.1.8
interested party
entity with the ability to grant authorisation, meeting the IMO Requirements

3.1.9
launching appliance
means of transferring a *survival craft* (3.1.20) or *rescue boat* (3.1.16) from its stowed position safely to the water

3.1.10
make
original *manufacturer* (3.1.11) of the *model* (3.1.12) and *series* (3.1.18) of equipment as referred to on the approval certificate and ID plate as appropriate

3.1.11
manufacturer
original *equipment* (3.1.6) manufacturer or any entity which has taken legal and legitimate responsibilities for equipment when the original equipment manufacturer no longer exists or supports the equipment

3.1.12
model
specific make and version of a particular *type* (3.1.21) of lifeboat (including freefall lifeboat), rescue boat (including fast rescue boat) launching appliance or release gear as referred to on the approval certificate and ID plate as appropriate

3.1.13
offload release mechanism
release device that releases the *survival craft* (3.1.20), *rescue boat* (3.1.16) or fast rescue boat when it is waterborne or when there is no load on the hooks

3.1.14
on-load release mechanism
on-load release gear
release device that releases the *survival craft* (3.1.20), *rescue boat* (3.1.16), or fast rescue boat with load on the hooks

3.1.15
overhaul
periodical activity defined by the *manufacturer* (3.1.11) that proves continued fitness for purpose for a defined period subject to correct maintenance

3.1.16
rescue boat
craft designed to rescue person in distress and to marshal survival craft

[SOURCE: SOLAS Regulation III:2003, 3.19]

3.1.17
repair
activity requiring disassembly of *equipment* (3.1.6), or any other activity outside the scope of the instructions for on-board maintenance and for emergency mending of lifesaving appliances meeting the requirements of SOLAS Regulations III/36.2 and III/35.3.18, respectively

3.1.18
series
specific *makes* (3.1.10) and *models* (3.1.12) as referred to on the approval certificate and the ID plate as appropriate that have comparable design characteristics and maintenance requirements that can be categorised into a particular *type* (3.1.21) of lifeboat (including free fall lifeboat), rescue boat (including fast rescue boat) launching appliance and release gear

3.1.19
service technician
person that is trained and certified by a *manufacturer* (3.1.11) or an *authorized service provider* (3.1.1) to carry out maintenance, thorough examination, operational testing, *overhaul* (3.1.15) and *repair* (3.1.17) of lifeboats (including free-fall lifeboats) and rescue boats (including fast rescue boats), *launching appliances* (3.1.9) and release gear

3.1.20
survival craft
vessel capable of sustaining the lives of persons in distress from the time of abandoning the ship

[SOURCE: SOLAS Regulation III:2003, 3.23]

3.1.21
type
category of *equipment* (3.1.6) having common characteristics, including lifeboats (including free-fall lifeboats) and rescue boats (including fast rescue boats), launching appliances and release gear

3.2 Abbreviated terms

MSC   maritime safety committee

LSA   lifesaving appliances

PPE   personal protective equipment

SOLAS   International Convention for the Safety of Life at Sea, 1974, as amended

4 Service technician competence progression

4.1 General

The training of service technicians may not be limited to the training programme described in this document. Specific operations may require additional competencies of trained and certified personnel. These additional competencies are not addressed in this document as being part of the training for certified personnel.

Service technician training, competence assessment, and re-assessment comprises five key stages. The key stages given in 4.2 to 4.7 shall be followed (see Figures A.1 to A.4).

4.2 Initial training — Introductory education and training

4.2.1 General

The initial training comprises three modules that are predominantly theory based to address in part the IMO Requirements[5], section 8, at a basic entry level. The modules introduce and familiarize the candidates with the organizations, legislative framework, rules, regulations, terminology, procedures, health and safety and equipment associated with manufacturer/ authorized service provider (ASP) operations. Candidates shall follow the learning objectives found in ISO 23678-2, in order to be awarded an Initial Service Technician certificate.

4.2.2 Module 1

Service technician general industry knowledge, cover the IMO Requirements[5], section 8.2.1, paragraphs 8.2.1.1-8.2.1.6, as follows:

a) 0,1 theory; relevant rules and regulations, including international conventions;

b) 0,2 theory; design and construction of lifeboats (including free-fall lifeboats), rescue boats and fast rescue boats, including on-load release gear and launching appliances;

c) 0,3 theory; causes of lifeboat and rescue boat accidents;

d) 0,4 theory; education in the procedures specified in the IMO Requirements, section 6, for which certification is sought;

e) 0,5 theory familiarization; detailed procedures for thorough examination, operational testing, repair and overhaul of lifeboat (including free-fall lifeboats), rescue boats and fast rescue boats, launching appliances and on-load release gear, as applicable;

f) practical operation of release gear;

    NOTE   This is outside the IMO Requirements, section 8.

g) 0,6 theory; procedures for issuing a report of service and statement of fitness for purpose based on the IMO Requirements, paragraph 5.3.

4

4.2.3 Module 2

Basic safety at work (IMO Requirements, 8.2.1.7)[5]: theory practical; work, health and safety issues while conducting activities onboard.

4.2.4 Module 3

Risk management (IMO Requirements, 8.2.1.7): risk management while conducting activities onboard.

4.3 Initial refresher training

This training was developed to support the IMO Requirements[5], section 8, paragraphs 8.2.1.1, 8.2.1.2, 8.2.1.3 and 8.2.1.7. The refresher training shall update personnel with any changes to legislation, rules and regulations associated with manufacturer/ASP operations. The initial refresher training shall be undertaken by all persons certified within the ISO 23678 series competency framework regardless of previous experience. The training and assessment activities shall ensure personnel's underpinning knowledge is current and maintained at the required level to carry out their role in a safe and effective manner. Candidates shall follow the learning objectives found in ISO 23678-2, in order to be awarded an Initial Service Technician certificate.

4.4 Level 1 stage 1 technician-controlled environment education and training

4.4.1 The level 1 training shall be split into two stages. Stage 1 shall have five modules that should be comprised of classroom-based theory lessons followed by practical sessions. The five modules shall cover the equipment identified in 5.4.3 and support the IMO Requirements[5], section 8, paragraphs 8.1, 8.2.1.4, 8.2.1.5, 8.2.1.6, 8.2.2, and 8.2.3. The classroom training shall identify and develop the required underpinning knowledge to examine, overhaul, maintain, test and repair the individual parts that make up a complete system. The practical sessions shall focus on developing the skills required to examine, overhaul, maintain test and repair the components that make up a complete system. The practical sessions shall contain repetitive exercises that incorporate and practically apply the underpinning knowledge gained during the initial and level 1 theory sessions. The practical exercises shall give the candidates the opportunity to practice and demonstrate competence in relation to the skills and knowledge required to carry out their role.

4.4.2 The assessment process shall be continuous, if successful candidates continue onto level 1, stage 2 "controlled environment experience and assessment**."**

The level 1, stage 1 modules are as follows:

a) module 1: work, health and safety issues while conducting activities onboard;

b) module 2: types; survival craft;

c) module 3: types; release systems;

d) module 4: types; davits;

e) module 5: types; winches.

4.4.3 The modules are type-specific as identified in Table B.1, supporting the IMO Requirements[5], section 8, paragraphs 8.2.1.4 to 8.2.1.6:

a) 0,4 theory/practical; education in the procedures specified in IMO Resolution MSC.402 (96)[5], section 6, for which certification is sought;

b) 0,5 theory/practical; detailed procedures for thorough examination, operational testing, repair and overhaul of lifeboat (including free-fall lifeboats), rescue boats and fast rescue boats, launching appliances and on-load release gear, as applicable;

c)   0,6 theory/practical procedures for issuing a report of service and statement of fitness for purpose based on IMO Resolution MSC.402 (96), paragraph 5.3.

4.5   Level 1 stage 2 technician-controlled environment experience and assessment

4.5.1   The candidates shall undertake supervised scenario-based practical exercise assessments covering the range of type specific complete systems as identified in Table B.1. The purpose of the exercises is to enable the candidates to carry out annual and five-year inspections on a complete system.

4.5.2   The practical exercises shall incorporate and put into practice the relevant underpinning knowledge and practical experience gained during the initial and level 1, stage 1 training.

4.5.3   Each exercise supports the procedures specified in the IMO Requirements[5], sections 6.1 and 6.2, with only one exercise covering the procedures identified in section 6.3. The exercises also cover the requirements of sections 8.2.1.1 to 8.2.1.7 and 8.2.2.

4.5.4   The candidates should be supervised and mentored through the exercises to assist candidates to develop competencies; the overall objective is to create an environment that is conducive to continued professional development.

4.5.5   The practical exercise scenarios shall be designed to simulate a real working environment. Assessment activities shall include the procedures candidates would undertake to carry out a "real" intervention (see Annex C).

4.5.6   The assessment process shall be continuous throughout the exercises. The assessor shall use direct observation supplemented by oral questions (where necessary), to establish competence.

4.6   Level 2 in-field supervised workplace experience and competence assessment requirements

4.6.1   General

Training establishments shall provide supervised in-field work place experience and assessment to produce an in-field competent person.

It is the responsibility of the authorized service providers training establishment to carry out a technical evaluation regarding the makes, types, models and series of equipment to be included within the level 2 assessment and level 2 re-assessment process. The purpose of the technical evaluation is to establish which specific makes, models and series of equipment can be categorized into a type listed within Table B.1.

The technical evaluation process shall be embedded within the authorized service provider's quality management system, supported by the appropriate level of documentation that clearly identifies how the categorization process was undertaken regarding comparable design characteristics and maintenance requirements for each specific make model and series of equipment related to assessment activities. Supporting documentation shall include written procedures describing the evaluation process accompanied by supporting evidence which may include; manufacturers technical documentation, photographs of specific components that clearly identifies the make, type, model and series of equipment. The technical evaluation process shall be made available for third party verification.

The makes, types, models and series of equipment for which the candidate has been assessed competent, supporting the procedures identified in the IMO Requirements[5], sections 6.2 and 6.3, shall be listed in the level 2 assessment documentation (see example in ISO 23678-4:2022, Table C.2). This process shall be followed for all units excluding unit one.