
**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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Published in Switzerland

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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/>

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.

4.2.3 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.

4.6.2 Process

4.6.2.1 Level 2 in-field competence assessments carried out on the equipment identified in [Table B.1](#) shall be completed no longer than 12 months after the issuing date of the level 1 certificate. If the candidate was unable to demonstrate competence within 12 months, the level 1, stage 2 assessments shall be completed again. The candidate shall only have to complete the level 1, stage 2 assessments on the equipment that the candidate was unable to demonstrate competence on.

4.6.2.2 The in-field workplace experience and competence assessment meets the IMO Requirements^[5] in section 6 and section 8, paragraphs 8.2.2 and 8.2.3.

4.6.2.3 The workplace experience and competence assessment should be carried out over a minimum of three interventions for each specific system type (as shown in Table B.1) for which the candidate will be certified, e.g. three interventions carried out on a totally enclosed lifeboat with a sprinkler and air system.

4.6.2.4 The assessor shall complete the candidate's personnel training logbook to record the activities that take place during interventions.

4.6.2.5 The candidates shall be supervised and mentored during the first two interventions; the overall objective is to create an environment that is conducive to continued professional development, so candidates are able to reach their maximum potential. The assessor shall give constructive feedback, clearly identifying areas that went well or require improvement. The third intervention shall be conducted with the candidate taking the lead role; the assessor should only intervene or give advice if safety protocols are breached. If the candidate demonstrates competence, a level 2 certificate shall be issued.

4.7 Level 2 competence re-assessment requirements

4.7.1 Over the three-year validation period of the level 2 certificate, personnel shall record work activities during interventions in their personnel logbooks.

4.7.2 The interventions work activities for each year shall cover the systems identified in [Table B.1](#), supporting the procedures identified in the IMO Requirements^[5], section 6.2 and 6.3.

4.7.3 To be eligible for level 2 competence re-assessment, there needs to be sufficient evidence documented within the personnel logbook over the 3 years that reflects personnel has carried out the procedures stated in the IMO Requirements, sections 6.2 and 6.3, on the range of equipment identified in [Table B.1](#).

4.7.4 In lieu of evidence within the personnel logbook over a three-year period, a competence assessment shall take place on the equipment for which interventions have not been recorded (e.g. no interventions carried out for a fixed outrigger davit with gravity-launched electric hoisting winch). A candidate deemed "not yet competent" for a specific system, shall require retraining and only for the criteria for which they are deemed "not yet competent" (e.g. retraining needs to take place for a fixed outrigger davit with gravity-launched electric hoisting winch).

4.7.5 Level 2 competence re-assessment can be carried out either in-field or in a controlled environment.

4.7.6 Experienced service technicians can be certified by successfully completing a competence assessment providing they have supporting evidence of completing service technician initial and level 1 training or initial refresher and a manufacturer's established certification programme accompanied

by sufficient in-field work experience. Supporting evidence may include training logs, previous reports, photographs, or videos covering the range of systems identified in [Table B.1](#).

5 Resources for service technician training

5.1 General

For the training to be delivered successfully, it is essential that the correct personnel, facilities, and equipment be available to support the programme. Organizations shall ensure that candidates receive well-structured and effective training with a fair, standardized, and reliable assessment processes. The training shall be conducted in an appropriately equipped safe environment. The organization delivering the training shall ensure that there are formally documented procedures reflecting this.

The resource's required to deliver the training shall only reflect the equipment for which personnel are certified. For example, if a company only requires freefall lifeboat training, the equipment and training resources to deliver and assess candidates can be limited to reflect certification requirements on this equipment.

Training providers shall continuously review and update the equipment when new technologies are introduced to the market. Training providers also need to review any new relevant information, especially regarding accidents and incidents.

5.2 Staff resources

5.2.1 General

Organizations delivering the training shall ensure there are sufficient approved trainers and assessors to carry out the training and assessment activities described in the modules. All staff shall have the appropriate competencies and qualifications to conduct/assist with the element of training being undertaken.

5.2.2 Requirements for trainers and assessors

Trainers shall meet the requirements of the training establishment. The selection and approval process shall ensure that trainers are:

- a) trained in instructional/lecture techniques and/or have proven instructing/teaching experience;
- b) incorporated in an ongoing training programme, which includes visits to vessels or offshore oil and gas installations, to enable them to maintain and update skills;
- c) hold the appropriate level of experience for the element of training they are delivering.

5.2.3 Assessors and internal verifiers

Organizations delivering the training shall ensure there are sufficient assessors and internal verifiers with the appropriate training, qualifications, and competencies to monitor and evaluate the complete assessment process of the candidate, along with the trainers and assessors themselves.

5.2.4 Trainer/assessor candidate ratio

The recommended maximum number of candidates attending this programme is eight. The following ratios indicate the maximum number of candidates to be supervised by one instructor at any one time during each activity:

- a) theory, 1:8;
- b) demonstration and practical, 1:4.

5.3 Physical resources

5.3.1 General

The training establishment shall provide adequate resources and documented procedures to ensure that training and assessment can be consistently and safely delivered in accordance with this document.

5.3.2 Resources for training and assessment

The following training and reference materials are required to meet the stated content within the initial and level 1 training programmes:

- a) timetabled programme that outlines the content of the training;
- b) detailed lesson and exercise plans that reflect the contents of the initial and level 1 documents which are clearly referenced against the learning outcomes and module elements of the training programme;
- c) candidate assessment plan for issue to each candidate;
- d) illustrations of rigs, platform, ships, lifeboats, rescue boats, fast rescue boats, davit-launched life rafts and their associated launching appliances types, typically found in the maritime and offshore oil and gas industry;
- e) illustrations of the various release mechanisms identified in the scope of this document;
- f) electronic and/or hard copy examples of relevant legislation and guidance documentation as they are discussed in each module;
- g) examples of risk assessments and a risk matrix;
- h) example of work permits for different types of controlled work on ships, mobile offshore drilling units and fixed installations;
- i) examples of material safety data sheets and assessment(s) for the control of substances hazardous to health;
- j) examples of company-specific lifesaving/golden rules;
- k) manufacturer maintenance manuals and associated technical information for equipment used for training, as identified in [Table B.1](#);
- l) checklists 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;
- m) 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.

Due to the variety of forms, records, plans and schedules, used within the offshore and maritime industries, the examples used for training purposes can differ from those of said industries. Training examples should represent the range of documents available and should be as typical and current as possible.

5.3.3 Facilities

It is important that the full range of facilities be made available to ensure candidates get the most out of their training. The following features shall be in place:

- a) administration arrangements to support candidates through registration and assessment to certification;
- b) designated room or area to deliver theory sessions that is not used simultaneously for any other activity, is equipped with suitable equipment for candidates to view training material such as visual aids, and is arranged in a manner that is conducive to a positive learning experience;
- c) designated area with sufficient space and equipment for candidates to practice and demonstrate competence during the practical exercises;
- d) facilities which are maintained and, where appropriate, inspected and tested in accordance with the relevant documents; legislation can be applicable;
- e) risk assessments to cover all learning and assessment activities that are fit for purpose and regularly reviewed.

5.4 Equipment

5.4.1 General

All equipment shall be maintained and, where appropriate, inspected and tested in accordance with the relevant documents, guidance and manufacturer's recommendations. Legislation can be applicable. Risk assessments shall be conducted and documented for all training equipment. The equipment in [5.4.2](#) and [5.4.3](#) shall be available for training and assessment purposes.

5.4.2 Equipment required for initial training

The following equipment shall be available for initial service technician training:

- a) minimum of two variants of on-load and offload release mechanism;
- b) example of a winch with examples of its main components;
- c) examples of a risk intervention card;
- d) physical examples of PPE to include coveralls, boots, hard hat and gloves;
- e) examples of respiratory protective equipment.

5.4.3 Equipment required for level 1 service technical training

5.4.3.1 The following survival craft and rescue boat types shall be available for level 1 service technician training:

- a) totally enclosed lifeboats with sprinkler and air systems;
- b) single fall rescue boat or fast rescue boat.

5.4.3.2 The following survival craft propulsion system types shall be available for level 1 service technician training:

- a) inboard diesel engine;
- b) outboard engine;

- c) propeller drive;
- d) jet drive.

5.4.3.3 The following davit types shall be available for level 1 service technician training:

- a) gravity single or twin fall outrigger;
- b) hydraulic pivoting/luffing;
- c) gravity roller track;
- d) gravity free fall primary and hydraulic secondary;
- e) single arm slewing (manual, electric).

5.4.3.4 The following winch types shall be available for level 1 service technician training:

- a) twin drum;
- b) single drum;
- c) gravity-lowering/electric hoisting with the following braking systems:
 - 1) holding/static brakes with mechanically operated multiple disks,
 - 2) holding/static brakes with friction pads,
 - 3) centrifugal brakes with friction pads,
 - 4) holding/static brakes multiple disks, hydraulically operated, and
 - 5) hydraulic pump lowering brake;
- d) hydraulic lowering and hoisting.

5.4.3.5 The following release gear types shall be available for level 1 service technician training:

- a) lifeboat on-load/offload (load not over centre) hook assembly locking devices with:
 - 1) flat to flat cams,
 - 2) curve to curve cams,
 - 3) curve to flat cams,
 - 4) up and down pins,
 - 5) amplification arms, intermediary hooks, arresting levers, and
 - 6) hydrostatic interlock with diaphragms and floats;
- b) lifeboats offload (load over centre);
- c) lifeboat on-load/offload release (load over centre);
- d) freefall hydraulic;
- e) rescue boats, including fast rescue boat offload;
- f) rescue boats, including fast rescue boat automatic;
- g) davit-launched life raft automatic.

6 Administration and certification

6.1 Course administration

Each candidate attending the service technician training should be registered at course commencement. Each candidate shall receive a training programme, course notes appropriate to the training, and a candidate assessment plan.

6.2 Certification

6.2.1 General

Authorizing bodies can request the training establishment to provide details and copies. Training establishments shall make every effort to ensure training records are adequately protected from destruction from unforeseen situations and readily available on request.

The training establishment shall issue a certificate directly to the candidate completing the programme and retain a copy on file. Each certificate shall indicate that the candidate has been assessed against and met the required learning outcomes. The expiry date shall clearly be written on the certificate (if applicable). The certificate shall contain the following information:

- a) establishment name;
- b) full title stating the equipment and the procedures for which the candidate is certified;
- c) photograph of candidate;
- d) candidate's name;
- e) course dates;
- f) expiry date;
- g) unique certificate number (UCN);
- h) training establishment signatory.

6.2.2 Initial certificate

Candidates assessed as competent shall be issued a certificate that states the qualification and range of the procedures that the certificate covers. The interval between the initial training and the assessment and subsequent re-assessment/refresher training shall be three years (see [Figure D.1](#) — Example 1).

6.2.3 Level 1 certificate

Candidates assessed as competent shall be issued a certificate that states the qualification, range of the equipment and procedures that the certificate covers. The level 1 certificate shall not have an expiry date. The level 2 training should be completed no longer than 12 months after the issuing date of the level 1 certificate (see [Figure D.2](#) — Example 2).

6.2.4 Level 2 certificate

A competency assessment shall be conducted to issue or renew certification. In cases where a refresher training is found necessary, a further assessment shall be carried out after its completion. The level 2 certificate shall be valid for three years for each specific make, type, model and series of equipment for which the personnel is certified [see [Figure D.3 b](#)] — Example 3 survival craft types items a) to c)].

NOTE The process of listing specific makes, types and models of equipment applies to all items a) to k) in [Figure D.3 b](#)] — Example 3.

6.2.5 Criteria for changing the scope of the certificate

The scope of the certificate may be changed if:

- a) there is not a requirement for the certified person to be deemed competent for specific types of the equipment identified in [Table B.1](#);
- b) the certified level 2 person has been inactive or not exposed to specific types of equipment identified in [Table B.1](#) due to operational requirements, and this is reflected in the certified person's personnel logbook; and/or
- c) new equipment is identified or introduced to the market that is not listed in [Table B.1](#) for which certification is required. In this case, the level 1 and level 2 training and certification processes shall encompass the new equipment in order to change the scope of the certificate.

6.2.6 Criteria for suspending the certificate

6.2.6.1 The validity of any certificate shall be suspended or withdrawn in the event of:

- a) any shortfall in performance or inability to fulfil the competence requirements of the certification process;
- b) a violation of the code of conduct.

6.2.6.2 The certified persons certificate shall only be revalidated in case:

- a) a further competency assessment is carried out where the certified person is able to demonstrate competency; or
- b) an investigation is carried out that concludes that the certified person has been vindicated of a breach of the code of conduct.

7 Code of conduct

7.1.1 The training establishment shall require its personnel to sign a document by which they commit themselves to comply with the rules defined by the training establishment, including those relating to confidentiality, impartiality and conflict of interests. This requirement should be reflected in the training establishment's quality management system.

7.1.2 The training establishment shall ensure that the code of conduct shall not be violated by a certified service technician. Minimum requirements of the code of conduct are:

- a) service personnel shall not attempt to work on equipment for which they have not been certified;
- b) service personnel shall report incidents where they have been forced to carry out procedures on equipment for which they are not certified;
- c) service personnel shall comply in respect of health, safety and environment instructions and procedures established by the company, by service personnel carrying out maintenance, thorough examination, operational testing overhaul and repair as described in the IMO Requirements^[5], paragraphs 4.2 and 4.3, certified by an authorized service provider meeting the requirements in section 8.

Annex A (informative)

Service technician competence progression

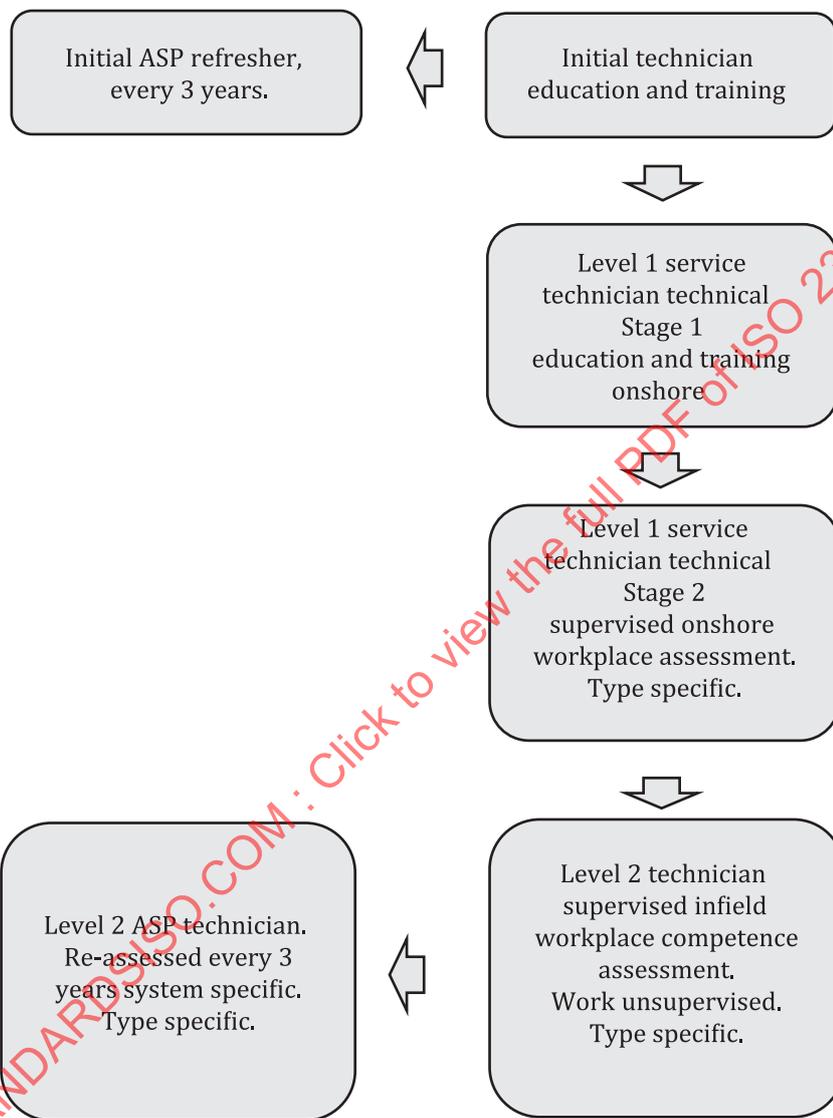


Figure A.1 — Overview of service technician competence progression

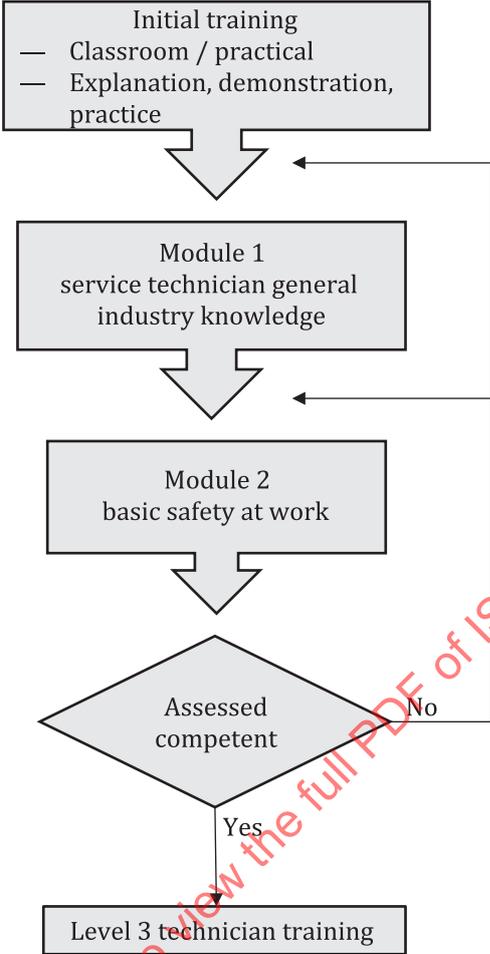


Figure A.2 — Initial technician’s competence progression

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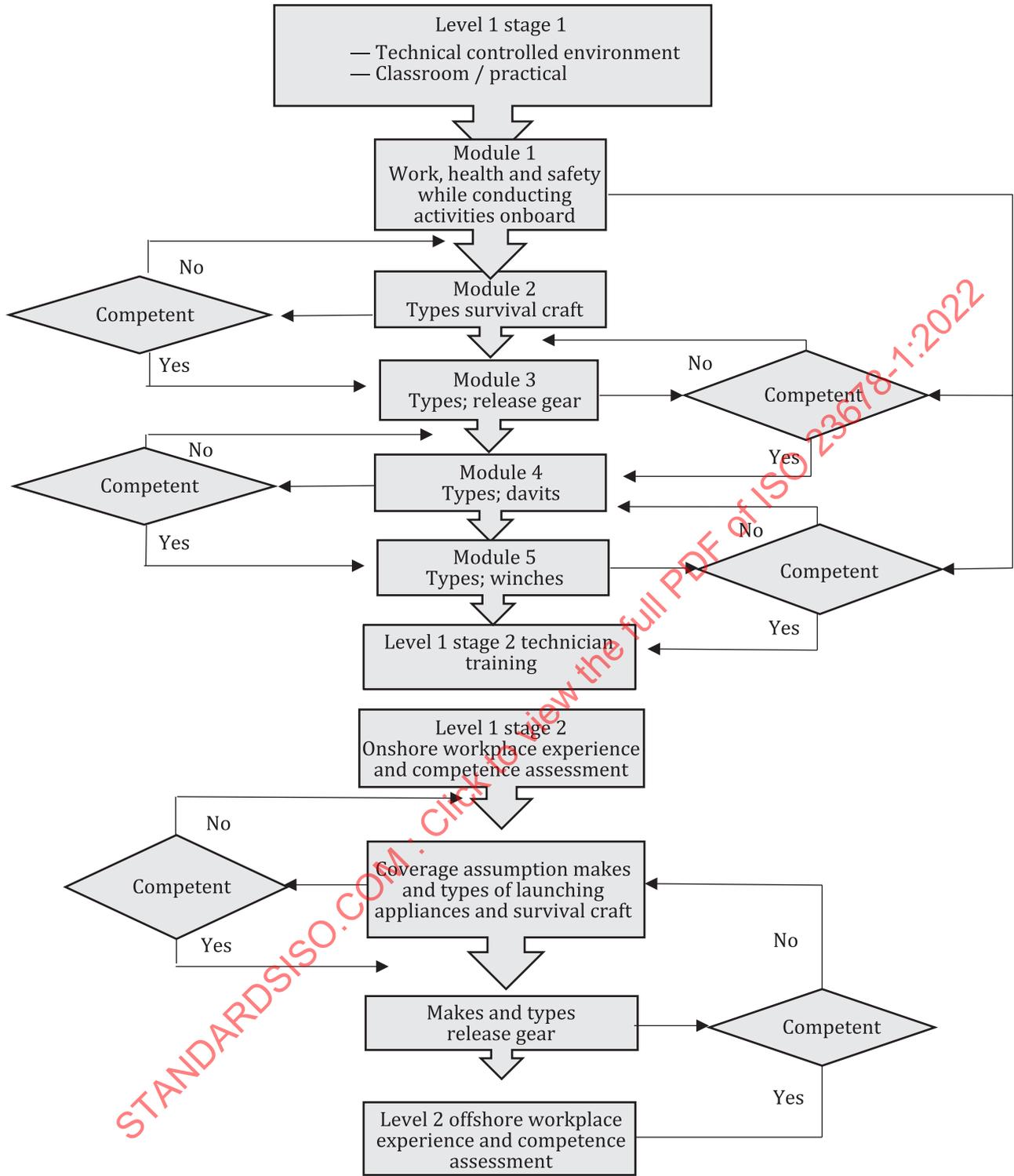


Figure A.3 — Service technician’s technical level 1 stage 1 and stage 2 competence progression

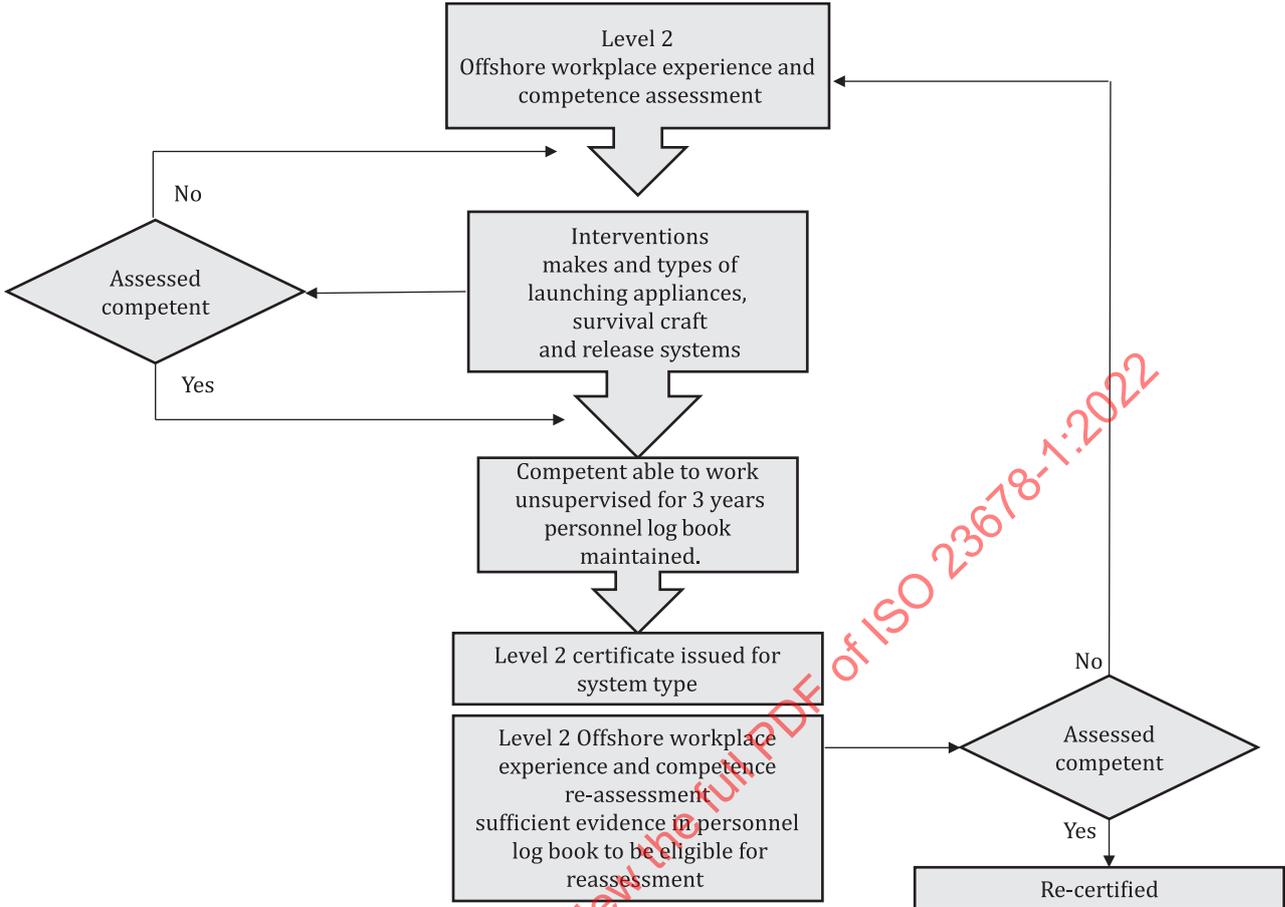


Figure A.4 — Level 2 in-field service technician's competence progression

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Annex B
(informative)

Equipment covered by the training

Table B.1 — Exercise assessment system-type breakdown

Survival craft types	Davit types	Winch types	Release gear types
Lifeboat a) with sprinkler and air system Lifeboat a) Single fall or b) Twin fall or c) Free fall Lifeboat a) Open or b) Partially enclosed Rescue boats a) Single fall rescue boat or b) Fast rescue boat	a) Fixed outrigger b) Free fall ramp c) Free fall A-frame d) Roller track gravity e) Hydraulic/luffing gravity-lowering f) Single arm slewing	Twin drum a) Gravity-lowering/ electric hoisting 1) Holding/static brakes with friction pads 2) Holding/static brakes with mechanically operated multiple disks. 3) Holding / static brakes, multiple disks, hydraulically operated 4) Hydraulic pump lowering brake 5) Centrifugal brakes with friction pads 2) Gravity-lowering hydraulic hoisting Single drum a) Gravity-lowering/ Electric hoisting 1) Holding/static brakes with friction pads 2) Centrifugal brakes with friction pads b) Hydraulic lowering and hoisting	Hook assemblies a) Off load/on load – lift not over centre release gear 1) Flat to flat rotating cams 2) Forward or reverse curve to curve rotating cams 3) Curve to flat rotating cams 4) Up and down pins b) On load/Off load – lift over centre release gear c) Free fall hydraulic d) Automatic – lift over centre e) Off load – lift over centre Devices for activating release a) Central release units. b) Hydrostatic interlock with diaphragm c) Hydrostatic interlock with float d) Electronic sensors

Annex C (informative)

Level 1 technician stage 2 controlled environment experience and assessment exercise criteria

Exercise scenarios include:

- a) intervention pre-brief, including:
 - 1) scope of the intervention,
 - 2) tooling requirements,
 - 3) manufacturer's technical documentation and bulletins;
- b) work, health and safety issues while conducting activities onboard, including:
 - 1) completion of work permits,
 - 2) identifying and following the relevant risk assessments,
 - 3) identifying and following the relevant method statements,
 - 4) a tool box talk,
 - 5) selecting on donning appropriate PPE,
 - 6) applying company specific lifesaving rules,
 - 7) carry out relevant safety checks prior to commencing work;
- c) practical application of relevant rules and regulations, including international conventions;
- d) practical application of the 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 on the equipment identified in [Table B.1](#), including the following:
 - 1) the required documents as listed in the IMO Requirements^[5], section 6.1,
 - 2) annual thorough examination and operational test supporting the IMO Requirements, Section 6.2,
 - 3) one exercise including the requirements of the five-year thorough examination, overhaul and overload operational tests, supporting the IMO Requirements, section 6.3;
- e) identification and replacement of expired, worn or defective parts, as identified in the manufacture's manuals.

All reports and checklists are completed and signed by the person who carries out the inspection and maintenance work and countersigned by the company's representative or the ship's master (simulated).

When thorough examination, operational testing, overhaul and repair are completed, a statement is issued confirming that the lifeboat arrangements remain fit for purpose.

Annex D
(informative)

Examples of certificates

This is to certify that		Delegate
«FirstName» «LastName»		
Has successfully completed		
Initial Technician Training		
The candidate is assessed competent in relation to the training outcomes within ISO 23678—2		
Approved by		
Held at		
«Training establishment name»		
«Certificate Number»		
Course Date:		
Training establishment signatory.....		Training establishment
Expiry Date		Stamp

a) Front of certificate

The holder of this certificate has received introductory and familiarization training only in relation to IMO Resolution MSC 402(96)

Section 8: Paragraph 8.2.1

- .1 relevant rules and regulations, including international conventions;
- .2 design and construction of lifeboats (including free-fall lifeboats), rescue boats and fast rescue boats, including on-load release gear and launching appliances;
- .3 causes of lifeboat and rescue boat accidents;
- .4 education and practical training in the procedures specified in section 6 for which certification is sought
- .5 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;
- .6 procedures for issuing a report of service and statement of fitness for purpose based on paragraph 5.3; and
- .7 work, health and safety issues while conducting activities on board

b) Rear of certificate

Figure D.1 — Example 1