INTERNATIONAL STANDARD

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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 2: Service personnel initial training

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 2: Formation initiale du personnel de maintenance

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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 23678-2:2020, which has been technically revised.

The main changes are as follows:

— 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. This necessity is based on the IMO Requirements, paragraph 7.1.1.

This document and associated documents ISO 23678-1, 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 standardised 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 2: Service personnel initial training

1 Scope

This document establishes a uniform, safe and consistent approach to training and assessment of personnel to enable them to establish and maintain the required competencies in relation to maintenance, thorough examination, operational testing, overhaul and repair of lifeboats, 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, section 3.

It specifies the initial training programme for personnel certified 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 specifies the training requirements for initial service technician training only.

This document is intended to be used in conjunction with ISO 23678-1, ISO 23678-3 and ISO 23678-4.

This document is applicable to the following types of lifeboats (including free-fall lifeboats), rescue boats (including fast rescue boats), launching appliances and release gear.

— Survival craft types:

a) single fall totally enclosed lifeboats with sprinkler and air systems;

b) twin fall totally enclosed lifeboats with sprinkler and air systems;

c) partially enclosed lifeboats;

d) tender lifeboats;

e) freefall lifeboats;

f) open lifeboat;

g) inflatable rescue boats;

h) rigid rescue boats;

i) semi-ridged inflatable rescue boats;

j) rigid fast rescue boats;

k) rigid inflatable fast rescue boats.

— Survival craft propulsion system types:

a) inboard diesel engines;

b) outboard engines;

c) propeller drives;

d) jet drives.

— Davit types:

a) gravity single and twin fall outrigger;

b) hydraulic single pivoting/luffing;

c) hydraulic multi pivot/luffing;

d) telescopic;

e) gravity roller track;

f) gravity free fall primary;

g) free fall hydraulic secondary;

h) A-frame hydraulic;

i) single arm slewing (manual, electric);

j) davits with stored power systems.

— Winch types:

a) twin drum;

b) single drum;

c) gravity lowering, electric hoisting;

d) gravity lowering, hydraulic hoisting;

e) hydraulic hoisting and lowering.

— Hook release system types:

a) on-load/off load (load not over centre);

b) on-load/offload (load over centre);

c) off load;

d) freefall hydraulic;

e) automatic off load.

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 23678-1, *Service personnel for the maintenance, thorough examination, operational testing, overhaul and repair of lifeboats and rescue boats, launching appliances and release gear — General requirements for training providers*

3 Terms and definitions

For the purposes of this document, the terms and definitions given in ISO 23678-1 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/

4 Initial service technician training

4.1 General

This programme is designed to meet the initial training and assessment requirements for all prospective service technicians. The initial service technician training explains how competence shall be assessed and certified.

4.2 Candidate pre-requisites

Candidates shall hold or be working towards a nationally recognized qualification in engineering or mechanics, but not unduly excluding similar qualifications.

4.3 Aims and objectives

4.3.1 Aim

The aim of this programme is to give individuals who have little or no experience as a service technician the theoretical and practical knowledge of the operations of the manufacturer or the authorized service provider (ASP) at an entry level that enables them to progress through the level 1 and level 2 service technician training.

4.3.2 Key objectives

The key objectives are to ensure candidates:

a) have been introduced to and are familiarized with the terminology and equipment;

b) have an awareness of the functions and roles of the various organizations within the maritime and offshore industry, in relation to manufacturer/ASP operations;

c) can identify the types, components, role, function, design and construction requirements for lifeboats (including free-fall lifeboats), rescue boats and fast rescue boats, including on-load release gear and launching appliances;

d) can identify and explain the key causes of lifeboat and rescue boat accidents;

e) understand the roles and responsibilities of a manufacturer/ASP service technician;

f) can identify, interpret and apply to their role key legislation, industry guidelines, rules, regulations and conventions applicable to ASP/manufacturer operations;

g) can identify the procedures for maintenance 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;

h) can identify the requirements for reports and records;

i) understand and can demonstrate in their working environment basic safety and awareness.

5 Learning outcomes of initial service technician training

5.1 General

During the training programme, candidates shall be required to demonstrate they have the skills and understanding required to be deemed competent in relation to the learning outcomes.

5.2 Theory learning outcomes

5.2.1 Module 1 — Service technician general industry knowledge

To successfully complete the initial service technician training programme, candidates shall be able to:

a) identify the organizations and regulatory bodies associated with the maritime and oil and gas industry, and their roles and functions;

b) understand the legislative framework and industry guidelines applicable to manufacturers and ASPs;

c) identify and interpret the relevant rules and regulations, including international conventions related to the maintenance, thorough examination, operational testing, overhaul and repair of lifeboats and rescue boats, launching appliances and release gear;

d) explain the key roles and responsibilities of a service technician;

e) identify the different types of lifeboats, rescue boats, fast rescue boats and davit-launched life rafts, and explain their key roles and functions;

f) identify and interpret the design and construction requirements for lifeboats (including free-fall lifeboats), rescue boats and fast rescue boats and davit-launched life rafts;

g) identify the various types of launching appliances for lifeboats, rescue boats and davit-launched life rafts;

h) identify the individual components that make the various types of launching appliances for lifeboats, rescue boats, fast rescue boats and davit-launched life raft, and explain their role and how they function;

i) identify the characteristics of mechanical restraints, and explain their function;

j) identify the various types of on-load release gear, and interpret their design and construction requirements;

k) identify the common causes of lifeboat and rescue boat accidents, and the measures to mitigate risks and to stop accidents from occurring;

l) identify and interpret procedures for the inspection, maintenance, thorough examination, operational testing, overhaul and repair of lifeboats, rescue boats, launching appliances and release gear;

m) identify and interpret procedures for issuing a report of service and statement of fitness for purpose.

5.2.2 Module 2 — Basic safety at work

To successfully complete the initial service technician training programme, candidates shall be able to:

a) identify and explain health and safety legislation in the work environment, including specific requirements while conducting activities on-board;

b) identify diverse types and uses of personal protective equipment (PPE);

c) explain the basic principles of manual handling techniques;

d) explain the requirements of the control of substances hazardous to health (COSHH) and its application in the workplace;

e) identify typical workplace hazards, including pressure systems in lifeboats;

f) explain procedures to follow and identify the equipment required for working at height;

g) identify and explain relevant lifesaving rules associated with the typical workplace hazards;

h) identify and explain company specific lifesaving/golden rules;

i) explain basic lifesaving appliance safety.

5.2.3 Module 3 — Risk management

To successfully complete the initial service technician training programme, candidates shall be able to:

a) explain the difference between hazard, risk and control;

b) explain the concepts of risk assessment and techniques used;

c) explain the risk assessment process and the use of a risk matrix;

d) explain how to apply control to bring the risk down to "as low as reasonably practicable" (ALARP);

e) identify the need for dynamic risk assessment;

f) explain the function of a risk intervention system and how to carry out an intervention.

5.3 Practical learning outcomes

5.3.1 Module 1 — Service technician general industry knowledge

To successfully complete the initial ASP service technician training programme, candidates shall be able to demonstrate:

a) ability to identify and interpret the relevant information in relation to the rules, regulations and international conventions in relation to manufacturer/ASP operations;

b) safe operation of on-load release gear.

5.3.2 Module 2 — Basic safety at work

To successfully complete the initial ASP service technician training programme, candidates shall be able to demonstrate the elements of a good individual lift, a team lift with appropriate communications, and correct loading/unloading methods for using a trolley.

5.3.3 Module 3 — Risk management

To successfully complete the initial ASP service technician training programme, candidates shall be able to demonstrate how to:

a) conduct an effective risk assessment using a risk matrix;

b) participate in an effective toolbox talk;

c) conduct an effective risk intervention and complete a risk intervention card.

6 Initial service technician training — Candidate performance assessment

6.1 General

6.1.1 Candidates attending initial service technician training shall be given a series of explanations and demonstrations identifying what they are expected to know and to do. Candidates shall have a 100 % course attendance of the recommended contact time (see 7.2). The training provider shall ensure they have procedures within their quality management system to deal with absence and demonstration of competence.

6.1.2 At the end of each module, candidates shall be given a short test allowing them to demonstrate their knowledge and understanding of the course content. A pass mark of 80 % is required for each test.

6.1.3 Two modules also have practical components in which the candidates shall take an active part. These exercises shall be checked for accuracy by the trainer/assessor, and the results shall be fed back to the candidates. (These exercises form an integral part of the modules and shall be reviewed/corrected by the trainer/assessor where required).

6.1.4 Any candidate failing to meet the training outcomes during the course can be given additional training. Candidates shall show, through repeating tests and practice sessions, that they have bridged the gap in their knowledge and understanding and can demonstrate competence.

6.1.5 If a candidate is deemed "not yet competent" (NYC) in the opinion of the trainer/assessor after reasonable tuition, and is unable to meet the learning outcomes of any individual module, only the training outcomes that the candidate has not been able to achieve competence in shall be repeated.

6.1.6 All candidate assessment forms (see Table A.1 to Table A.3) and test documentation shall be retained for audit purposes.

7 Duration and timing of initial service technician training

7.1 General

The modules can be delivered individually, if necessary, in which case the training programme shall be completed in full within 30 days of commencement.

7.2 Contact time

7.2.1 The optimum recommended minimum contact time for the complete training programme is 30 h. Contact time includes instruction and assessment activities. Contact time does not include course administration, lunch and refreshment breaks.

7.2.2 The optimum recommended minimum contact time for the individual modules are as follows:

a) module 1: 18,75 h;

b) module 2: 7,5 h;

c) module 3: 3,75 h.

7.2.3 It is suggested that a ratio of 80 % theory to 20 % practical is appropriate.

8 Initial service technician training programme

8.1 General

The training programme is designed to help candidates achieve the stated learning outcomes specified in Clause 5. To make efficient use of time and ensure effective learning, there should be, wherever practicable, an integration of the three phases of explanation, demonstration, and practise. Full use should be made of visual aids and course handout material.

Candidates shall be issued with course notes relevant to the initial service technician training. These notes shall be suitable for use as a reference manual during the course.

Prior to the start of each module, the following shall be included as part of the course introduction by training staff:

a) aim – the main purpose of the module;

b) learning outcomes – what the candidates are expected to learn and how the learning outcomes shall be achieved;

c) timetable – training module duration and timing;

d) assessment – how candidates shall be assessed and what they shall be assessed against;

e) staff – who shall be delivering the training and carrying out the assessments, and the roles of training and support staff.

8.2 Overview of training modules

8.2.1 Module 1 — Service technician general industry knowledge

a) element 1.1 – manufacturer/ASP operations;

b) element 1.2 – the legislative framework and industry guidelines, regulations and conventions applicable to manufacturers and ASP;

c) element 1.3 – types, function, roles, design and construction of lifeboats, rescue boats and fast rescue boats, their launching appliances and release gear within the offshore and maritime industry;

d) element 1.4 – the causes of lifeboat and rescue boat accidents;

e) element 1.5 – the procedures for thorough examination, operational testing, overhaul and repair of lifeboats and rescue boats, launching appliances and release gear.

8.2.2 Module 2 — Basic safety at work

a) element 2.1 – general health and safety legislative requirements;

b) element 2.2 – workplace hazards;

c) element 2.3 – lifesaving rules.

8.2.3 Module 3 — Risk management

a) element 3.1 – risk assessment;

b) element 3.2 – risk intervention systems.

8.3 Module 1 — Service technician general industry knowledge

8.3.1 Element 1.1 — Manufacturer/ASP operations

Training staff shall give an overview of the legislative framework, organizations and regulatory bodies associated with the maritime industry, including:

a) the role and function of the IMO;

b) the role and function of flag administrations and their jurisdiction, including:

   1) the definition of flags of convenience,

   2) port state control,

   3) the role and function of a recognized organization (RO) and class;

c) definition of a manufacturer;

d) definition of an ASP role and function of International Life-saving Appliance Manufactures' Association (ILAMA)

e) overview of the organizations and regulations within the offshore industry, including:

   1) operator organizations/associations,

   2) duty holder,

   3) the role and jurisdiction of government health and safety bodies,

   4) the role and jurisdiction of flag state control in relation to fixed installations and mobile offshore drilling units (MODU);

f) roles and responsibilities of a service technician.

8.3.2 Element 1.2 — Industry guidelines, rules, regulations and conventions applicable to manufacturer/ASP operations

8.3.2.1 Training staff shall give an overview of the relevant rules and regulations, including international conventions, related to the maintenance, thorough examination, operational testing, overhaul and repair of lifeboats, rescue boats, launching appliances and release gear, including:

a) SOLAS Convention [7];

b) SOLAS Regulation III/20 – Operational readiness, maintenance and inspections[7];

c) SOLAS Regulation III/36 - Instructions for on-board maintenance[7];

d) IMO MSC Circulars 1392[10], 1206 rev.1[8], 1277[9];

e) IMO Resolution MSC.402 (96)[5];

f) administration notices/bulletins;

g) codes: Lifesaving appliances (LSA) [11], MODU, International safety management (ISM).

8.3.2.2 Training staff shall explain and demonstrate. Candidates will then be allowed to practice how to identify and interpret the relevant rules, regulations and international conventions related to the maintenance, thorough examination, operational testing, overhaul and repair of lifeboats, rescue boats, launching appliances and release gear.

8.3.3 Element 1.3 — Types, design and construction of lifeboats, rescue boats and fast rescue boats, their launching appliances and release gear within the offshore and maritime industry

8.3.3.1 Training staff shall explain the different types of lifeboats, rescue boats, fast rescue boats and davit-launched life rafts, and their role and function, including:

a) single fall:
   1) lifeboats;
   2) rescue boats;
   3) fast rescue boats;
   4) davit-launched life rafts;

b) twin fall lifeboats:
   1) open;
   2) partial;
   3) totally enclosed;
   4) lifeboat tenders;

c) free fall.

8.3.3.2 Training staff shall give an overview of the design and construction of lifeboats, including:

a) parts and key features of the various types of lifeboats;

b) SOLAS[7] and the LSA Code[11] design and construction requirements for the various types of lifeboats.

8.3.3.3 Training staff shall give an overview of the design and construction of rescue boats and fast rescue boats and davit-launched life rafts, including:

a) key features of rescue boats and fast rescue boats (FRBs) in relation to design and construction requirements of SOLAS III[7] and the LSA Code[11] including;
   1) hull design: planing, semi displacement, displacement, inflatable, rigid, rigid inflatable,
   2) self-righting systems: inflatable, permanent buoyancy;

b) propulsion systems, including:
   1) inboard diesel with shaft and propeller;
   2) outboards;
   3) jet drives;
   4) leg drives.

8.3.3.4 Training staff shall explain the types, designs and operation of launching appliances that meet the stated requirements of SOLAS III[7] and the LSA Code[11], in relation to lifeboats, rescue boats, fast rescue boats and davit-launched liferafts, including:

a) the types and designs of davits:
   1) single fall: fixed outrigger; single arm slewing, a-frame;

2) twin fall: pivoting, luffing, roller track;

3) free fall: primary and secondary launch systems;

b) the types and designs of winches:

1) single drum;

2) multi drum;

3) hydraulic hoisting and lowering;

4) electric hoisting gravity-lowering;

5) heave compensating.

8.3.3.5 Training staff shall give an overview of generic launching appliance components associated with lifeboats (including freefall lifeboats), rescue boats, fast rescue boats, and davit-launched life rafts, including:

a) davits:

1) arms,

2) foundation,

3) sheaves,

4) wire ropes,

5) master links,

6) floating blocks,

7) turnbuckles,

8) stored power systems;

b) winches:

1) drums and their main components,

2) sprag clutches, free wheel units, overrunning clutches,

3) gearing,

4) static brakes,

5) centrifugal brakes,

6) switch gear,

7) brake release,

8) limit switches,

9) switch gear,

10) manual winch handle operation,

11) power systems, electric, hydraulic, stored power.

8.3.3.6 Training staff shall give an overview of the characteristics and function of mechanical restraints, including:

a) maintenance pendant;

b) gripe wires;

c) tricing pendants;

d) bowsing tackle;

e) fall prevention devices;

f) secondary safety devices;

g) the documents to consult to evaluate the safe use of mechanical restraints, including:

   1) test certificates,

   2) flag administration notices/bulletins.

8.3.3.7 Training staff shall give an overview of the design and construction and safe operation of release mechanisms, including:

a) LSA Code[11] in relation to design and construction;

b) MSC 1/Circ.1392[10];

c) types and designs of release systems; load over centre, load not over centre, including:

   1) on-load: hydrostatic interlocks with diaphragm or float, rotating cams, amplifying arm/intermediate hook,

   2) on/offload lifeboat release gear, including hook, ball and socket,

   3) offload: load over centre off-load release rescue boat/fast rescue,

   4) load over centre off-load quick release davit-launched liferaft.

8.3.3.8 Training staff shall explain and demonstrate, and then allow candidates to practice on the safe operation of on load release gear.

8.3.4 Element 1.4 — The causes of lifeboat and rescue boat accidents

Training staff shall explain the causes of lifeboat and rescue boat accidents, and the measures to take to mitigate the risks to prevent them from occurring, including:

a) failure of on-load release mechanism;

b) inadvertent operation of on-load release mechanism;

c) inadequate maintenance of lifeboats, rescue boats, davits and launching equipment;

d) communication failures;

e) lack of familiarity with lifeboats, rescue boats, davits, equipment and associated controls;

f) unsafe practices during lifeboat drills and inspections;

g) unsafe practices during the launch and recovery of rescue boats (including FRBs) and inspections;

h) failure of equipment during launch and recovery of rescue boats (including FRBs);

i) design faults other than on-load release mechanisms.

8.3.5 Element 1.5 — The procedures for inspection maintenance thorough examination, operational testing, overhaul and repair of lifeboats and rescue boats, launching appliances and release gear

8.3.5.1 Training staff shall give an overview of the procedures for inspection, maintenance, thorough examination, operational testing, overhaul and repair of lifeboats and rescue boats, launching appliances and release gear, supporting the IMO Requirements, section 6.

8.3.5.2 Overview of the procedures for issuing a report of service and statement of fitness for purpose, supporting the IMO Requirements, section 5.

8.4 Module 2 — Basic safety at work

8.4.1 Element 2.1 — General health and safety legislative requirements

Training staff shall give an overview of the relevant health and safety legislation surrounding the operations of manufacturers and ASPs, including:

a) health and safety regulations;

b) work equipment regulations;

c) lifting equipment regulations.

8.4.2 Element 2.2 — Workplace hazards

Training staff shall identify and explain the specific hazards and measures to take, including the appropriate PPE to wear, to mitigate the risk of accident and injury in relation to:

a) slips, trips, nips and falls;

b) working in enclosed spaces (lifeboats);

c) working at height;

d) working over or near water;

e) control of substances hazardous to health;

f) manual handling;

g) noise;

h) dust;

i) vibration;

j) workplace transport;

k) machinery;

l) pressure systems;

m) explosive atmospheres;

n) environnemental conditions ;

o) lifting operations.

8.4.3 Element 2.3 — Lifesaving rules

Training staff shall explain the background to offshore and maritime lifesaving rules and identify the relevant lifesaving rules associated with the hazards listed in 8.4.2 (where applicable).

8.4.4 Module 2 — Practical exercise

Training staff shall demonstrate and then allow candidates to practice:

a) a team lift with a leader selected, using appropriate communications methods, where a large bulky package that requires the use of a trolley is provided;

b) a single lift of a package from a shelf to a trolley.

8.4.5 Module 2 — Written test

Candidates shall undertake a module test based on the module 2 learning outcomes. The test should be marked, and the answers discussed as a group.

8.5 Module 3 — Risk management

8.5.1 Element 3.1 — Risk assessment

Training staff shall explain the following:

a) definition of risk assessment, including the difference between hazard, risk and control (safety and environmental);

b) voluntary risks (smoking or driving a car) and involuntary risks (acts of nature) and how involuntary risks can be:

   1) task related,

   2) inherent, and/or

   3) process related;

c) hierarchy of controls and typical control measures (design, equipment, procedures, training and competence for people expected to operate these controls);

d) concepts of risk assessment and techniques;

e) a typical risk assessment process, including the steps of risk assessment outlined by different organizations such as the Health and Safety Executive (HSE):

   1) identifying what can harm people in the workplace,

   2) identifying who may be harmed and how,

   3) evaluating the risks and deciding on the appropriate controls, considering the controls already in place,

   4) recording risk assessment,

   5) reviewing and updating the assessment;

g) the use of a risk matrix:

   1) risk equals probability multiplied by consequences (that can include people, infrastructure, environment and reputation),

   2) risk with no controls,

3) add controls to make the risk ALARP;

h) the need for dynamic risk assessment (continuously alert) to identify hazards as they evolve in changing situations and environments;

i) toolbox talks in which the task-based risk assessments are discussed – when and how they should be held;

j) safety activities and documentation such as fire drills work instructions and incident records;

k) management of change – reviewing how changes shall be managed different people, different equipment, etc., how often poorly managed change can be a cause of injuries, fatalities and major accident hazard situations.

8.5.2 Element 3.2 — Risk intervention systems

Training staff shall explain company intervention systems, including:

a) the employee's right and duty to intervene (calling "time out" to address occasional safety concerns);

b) systems designed to change attitudes and behaviours and to improve safety in the workplace;

c) controls in place to ensure personnel work correctly at all times and not just when under direct supervision;

d) how to carry out an intervention:

1) ensure the person (or team) is in a safe position,

2) keep the conversation positive and constructive,

3) find out why they are not working safely or use positive feedback for safe working,

4) discuss what can potentially go wrong,

5) obtain agreement to change behaviour where applicable,

6) record the observations with a "no name, no blame" approach;

e) reporting the incident to appropriate personnel;

f) importance of reporting to ensure lessons learned and learning from task history.

8.5.3 Module 3 — Practical exercises

The module 3, on practical exercises, shall include group exercises that involve conducting the following:

a) risk assessment;

b) toolbox talk;

c) completing a risk intervention card.

8.5.4 Module 3 — Written test

The candidates shall undertake a module test based on the module 3 learning outcomes. The test should be marked, and the answers discussed as a group.

9 Initial service technician refresher training

9.1 General

Initial service technician refresher training has been developed to update personnel with any changes to legislation or to the rules and regulations associated with manufacturer/ASP operations. 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 effective manner.

The training programme in Clause 10 is designed to support the training and assessment requirements of IMO Requirements[5], sections 8.2.1.1, 8.2.1.2, 8.2.1.3 and 8.2.1.7.

Successful candidates shall be awarded an initial service technician refresher certificate of a three-year validity.

9.2 Candidate pre-requisites

Candidates shall hold a valid initial service technician certificate.

9.3 Aims and objectives

9.3.1 Aim

The aim of the initial service technician refresher training programme is to update level 2 service technicians with industry updates and changes in relation to 9.3.2.

9.3.2 Objectives

The objectives are to ensure candidates:

a) update and develop underpinning knowledge of the requirements of legislation, industry guidelines, rules, regulations and conventions applicable to the role of a service technician;

b) update their knowledge of the procedures for thorough examination, operational testing, overhaul and repair of lifeboats and rescue boats, launching appliances and release gear that are vital to carry out their role in a diligent and effective manner;

c) update their knowledge of health and safety legislation in the work environment, including company specific requirements for both onshore and offshore activities.

9.4 Learning outcomes

9.4.1 General

During the training programme, candidates shall be required to demonstrate they have the skills and understanding required to be deemed competent in relation to the training outcomes.

9.4.2 Module 4 — Service technician general industry knowledge

To successfully complete the initial service technician refresher training programme, candidates shall be able to explain:

a) legislative framework and industry guidelines applicable to a manufacturers and ASP;

b) relevant rules and regulations, including international conventions, related to the maintenance, thorough examination, operational testing, overhaul and repair of lifeboats and rescue boats, launching appliances and release gear;

c) procedures for thorough examination, operational testing, overhaul and repair of lifeboats and rescue boats, launching appliances and release gear;

d) procedures for issuing a report of service and statement of fit for purpose, based on the IMO Requirements, section 5;

e) health and safety legislation in the work environment, including specific requirements for both controlled environment and offshore activities.

9.5 Candidate assessment

9.5.1 Candidates attending initial service technician refresher training shall be given a series of explanations identifying what they are expected to know.

9.5.2 At the end of each module, candidates shall be given a short test allowing them to demonstrate their knowledge and understanding of the course content. A pass mark of 80 % is required for each test.

9.5.3 Any candidate failing to meet the training outcomes during the course can be given additional training. Candidates shall show, through repeating tests and practice sessions, that they have bridged the gap in their knowledge and understanding and can demonstrate competence.

9.5.4 If a candidate is deemed "not yet competent" (NYC) in the opinion of the trainer/assessor after reasonable tuition and is unable to meet the learning outcomes of any individual module, only the training outcomes that the candidate has not been able to achieve competence in shall be repeated.

9.5.5 All candidate assessment forms and test documentation shall be retained by the organization delivering the training for audit purposes.

9.6 Duration and timing of initial ASP service technician refresher training

The optimum recommended contact time for the training is 7,5 h. Contact time does not include course administration, lunch and refreshment breaks.

10 Initial service technician refresher training programme

10.1 General

The initial service technician refresher training programme specified in 10.2 and 10.3 is designed to help candidates achieve the stated learning outcomes specified in 9.4. Full use should be made of visual aids and course handout material. Candidates should be issued with course notes relevant to the initial service technician refresher training. These notes shall be suitable for use as a reference manual during the course.

10.2 Module 4 — Service technician general industry knowledge

10.2.1 Element 4.1 — Legislative framework, industry guidelines, rules, regulations, and conventions applicable to manufacturers and ASPs

Training staff shall update personnel in relation to the relevant rules and regulations, including international conventions, related to the maintenance, thorough examination, operational testing, overhaul, and repair of lifeboats and rescue boats, launching appliances and release gear, including:

a) LSA Code[11], MODU Code;

b) SOLAS Regulation III/20 – Operational readiness, maintenance and inspections[7];

c) SOLAS Regulation III/36 - Instructions for on-board maintenance[7];

d) MSC Circulars and Resolutions;

e) flag administration notices and bulletins.

10.2.2 Element 4.2 — The procedures for thorough examination, operational testing, overhaul and repair of lifeboats and rescue boats, launching appliances and release gear

10.2.2.1 Training staff shall update personnel in relation to the procedures for thorough examination, operational testing, overhaul and repair of lifeboats and rescue boats, launching appliances and release gear, supporting the IMO Requirements)[5], section 6.

10.2.2.2 Update of the procedures for issuing a report of service and statement of fitness for purpose, supporting the IMO Requirements, section 5.

10.3 Module 5 — Basic safety at work

10.3.1 Element 5.1 — General health and safety legislative requirements

Training staff shall update personnel in relation to the relevant health and safety legislation surrounding the operations of manufacturers and ASPs, including:

a) health and safety regulations;

b) work equipment regulations;

c) lifting equipment regulations.

Annex A
(informative)

Assessors checklists

Table A.1 — Checklists for assessors — Theory

Module 1 - Service technician general industry knowledge		**Assessment results**	
ASSESSMENT CRITERIA	On completion of this training, the candidate should be able to **explain**:	Check mark initials	Evidence source[a]
1	The organizations and regulatory bodies associated with the maritime and oil and gas industry, their roles and functions.		VQ/WT
2	The legislative framework and industry guidelines applicable to manufacturers and ASPs.		VQ/WT
3	The relevant rules and regulations, including international conventions, related to the maintenance, thorough examination, operational testing, overhaul and repair of lifeboats and rescue boats, launching appliances and release gear.		VQ/WT/O
4	The roles and responsibilities of the service technician.		VQ/WT
5	The different types of lifeboats, rescue boats, fast rescue boats and davit-launched life rafts and their key roles and functions.		VQ/WT
6	The design, construction of lifeboats (including free-fall lifeboats), rescue boats and fast rescue boats and davit-launched life rafts.		VQ/WT
7	The various types of launching appliances for lifeboats, rescue boats and davit-launched life rafts.		VQ/WT
8	The generic components of launching systems for lifeboats, rescue boats, fast rescue boats and davit-launched life rafts.		VQ/WT
9	Characteristics of mechanical restraints.		VQ/WT
10	The design, construction and operation of on load release gear.		VQ/WT
11	The common causes of lifeboat and rescue boat accidents and the measures to take to mitigate the risks associated to them in relation to the role of a manufacturer/ASP technician.		VQ/WT
12	The procedures for the maintenance, thorough examination, operational testing, overhaul and repair of lifeboats and rescue boats, launching appliances and release gear.		VQ/WT
13	The procedures for issuing a report of service and statement of fitness for purpose, based on the IMO Requirements, section 5.		VQ/WT

[a] Source of evidence: O = observation; S = simulation; VQ = verbal questioning; WT = written questions.
√ = COMPETENT (C) IN RELEVANT CRITERIA **O = NOT YET COMPETENT (NYC) IN RELEVANT CRITERIA**. This may be overwritten with a √ if the candidate/s, following additional training, subsequently become competent in those particular criteria.
INSTRUCTOR/ASSESSOR COMMENTS

Module 2 - Basic safety at work		Assessment results	
ASSESSMENT CRITERIA	On completion of this training, the candidate should be able to **explain**:	Check mark initials	Evidence source[a]