



Inspectie Leefomgeving en Transport  
*Ministerie van Infrastructuur en Milieu*

# **STCW-Code Seafarers" training, certification and watchkeeping code - (MSC.180(79))**

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# ANNEX 2 Seafarers' Training, Certification and Watchkeeping (STCW) Code

## Chapter I Guidance regarding general provisions

### Section B-I/01 Guidance regarding definitions

Ingangsdatum: 01-02-1997

1 The definitions contained in article II of the Convention, and the definitions and interpretations contained in regulation I/1 of its Annex, apply equally to the terms used in parts A and B of this Code. Supplementary definitions which apply only to the provisions of this Code are contained in section A-I/1.

2 Officers with capacities covered under the provisions of chapter VII may be designated as polyvalent officer, dual purpose officer or other designations as approved by the Administration, in accordance with the terminology used in the applicable safe manning requirements.

3 Ratings qualified to serve in capacities covered under the provisions of chapter VII may be designated as polyvalent ratings or other designations as approved by the Administration, in accordance with the terminology used in the applicable safe manning requirements.

### Section B-I/02 Guidance regarding certificates

Ingangsdatum: 01-02-1997

1 Where an endorsement is integrated in the format of a certificate as provided by Section A-I/2, paragraph 1, the relevant information should be inserted in the certificate in the manner explained hereunder, except for the omission of the space numbered .2. Otherwise in preparing endorsements attesting the issue of a certificate, the spaces numbered .1 to .17 in the form which follows the text hereunder, should be completed as follows:

.1 Enter the name of the issuing State.

.2 Enter the number assigned to the certificate by the Administration.

.3 Enter the full name of the seafarer to whom the certificate is issued. The name should be the same as that appearing in the seafarer's passport, seafarer's identity certificate and other official documents issued by the Administration.

.4 The number or numbers of the STCW Convention Regulation or Regulations under which the seafarer has been found qualified should be entered here, for example:

.4.1 II/1, if the seafarer has been found qualified to fill the capacity of officer in charge of a navigational watch,

.4.2 III/1, if the seafarer has been found qualified to act as the officer in charge of an engineering watch in a manned engine-room, or as designated duty engineer officer in a periodically unmanned engine-room,

.4.3 IV/2, if the seafarer has been found qualified to fill the capacity of radio operator,

.4.4 VII/1, if the certificate is a functional certificate and the seafarer has been found qualified to perform functions specified in Part A of the Code, for example, the function of marine engineering at the management level, and

.4.5 III/1 and V/1, if found qualified to act as the officer in charge of an engineering watch in a manned engine-room, or as designated duty engineer officer in a periodically unmanned engine-room in tankers. (See limitations in paragraphs .8 and .10 below)

.5 Enter the date of expiry of the endorsement. This date should not be later than the date of expiry, if any, of the certificate in respect of which the endorsement is issued, nor later than five years after the date of issue of the endorsement.

.6 In this column should be entered each of the functions specified in Part A of the Code, which the seafarer is qualified to perform. Functions and their associated levels of responsibility are specified in the tables of competence set out in Chapters II, III and IV of Part A of the Code, and are also listed for convenient reference in the introduction to Part A. When reference is made under .4 above to Regulations in Chapters II, III or IV it is not necessary to list specific functions.

.7 In this column should be entered the levels of responsibility at which the seafarer is qualified to perform each of the functions entered in column .6. These levels are specified in the tables of competence set out in

Chapters II, III and IV of Part A of the Code, and are also listed for convenient reference in the introduction to Part A.

.8 A general limitation, such as the requirement to wear corrective lenses when performing duties, should be entered prominently at the top of the limitations column. Limitations applying to the functions listed in column .6 should be entered on the appropriate line against the function concerned, for example:

.8.1 "Not valid for service in tankers" - if not qualified under Chapter V,

.8.2 "Not valid for service in tankers other than oil tankers" - if qualified under Chapter V for service only in oil tankers,

.8.3 "Not valid for service in ships in which steam boilers form part of the ship's machinery" - if the related knowledge has been omitted in accordance with STCW Code provisions, and

.8.4 "Valid only on near coastal voyages" if the related knowledge has been omitted in accordance with STCW Code provisions.

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Note: Tonnage and power limitations need not be shown here if they are already indicated in the title of the certificate and in the capacity entered in column .9.

.9 The capacity or capacities entered in column .9 should be those specified in the title to the STCW Regulation or Regulations concerned in the case of certificates issued under Chapters II or III, or should be as specified in the applicable safe manning requirements of the Administration, as appropriate.

.10 A general limitation such as the requirement to wear corrective lenses when performing duties should be entered prominently at the top of this limitations column also. The limitations entered in column .10 should be the same as those shown in column .8 for the functions performed in each capacity entered.

.11 The number entered in space .11 should be that of the certificate, so that both certificate and endorsement have the same unique number for reference and for location in the register of certificates and/or endorsements, etc.

.12 The date of original issue of the endorsement should be entered here; it may be the same as, or differ from, the date of issue of the certificate in accordance with the circumstances.

.13 The name of the official authorized to issue the endorsement should be shown here in block letters below the official's signature.

.14 The date of birth shown should be the date confirmed from Administration records or as otherwise verified.

.15 The endorsement should be signed by the seafarer in the presence of an official, or may be incorporated from the seafarer's application form duly completed and verified.

.16 The photograph should be a standard black and white or colour passport type head and shoulders photograph, supplied in duplicate by the seafarer so that one may be kept in or associated with the register of certificates.

.17 If the blocks for revalidation are shown as part of the endorsement form (see Section A-I/2, paragraph 1), the Administration may revalidate the endorsement by completing the block after the seafarer has demonstrated continuing proficiency as required by Regulation I/11.

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(Official seal)

(Country)

ENDORSEMENT ATTESTING THE ISSUE OF A CERTIFICATE UNDER THE PROVISIONS OF THE INTERNATIONAL CONVENTION ON STANDARDS OF TRAINING, CERTIFICATION AND WATCHKEEPING FOR SEAFARERS, 1978, AS AMENDED IN 1995

The Government of ..... .1 ..... certifies that Certificate No. .... .2 ..... has been issued to ..... .3 ..... who has been found duly qualified in accordance with the provisions of Regulation .... .4 ..... of the above Convention, as amended, and has been found competent to perform the following functions, at the levels specified, subject to any limitations indicated until ..... .5 ..... or until the date of expiry of any extension of the validity of this endorsement as may be shown overleaf.

Function	Level	Limitations applying (if any)
----------	-------	-------------------------------

The lawful holder of this certificate may serve in the following capacity or capacities specified in the applicable safe manning requirements of the Administration:

Capacity	Limitations applying (if any)
----------	-------------------------------

Endorsement No. .... .11 ..... issued on ..... .12 .....

(Official seal)

..... .13 .....

Signature of duly authorized official

.....

Name of duly authorized official

The original of this endorsement must be kept available in accordance with Regulation I/2, paragraph 9 of the Convention while serving on a ship.

Date of birth of the holder of the certificate ..... .14 .....

Signature of the holder of the certificate ..... .15 .....

Photograph of the holder of the certificate .16

.16
-----

<p>The validity of this endorsement is hereby extended until .....</p> <p>(Official seal)</p> <p>Signature of duly authorized official</p> <p>Date of revalidation .....</p> <p>Name of duly authorized official</p>
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<p>The validity of this endorsement is hereby extended until .....</p> <p>(Official seal)</p> <p>Signature of duly authorized official</p> <p>Date of revalidation .....</p> <p>Name of duly authorized official</p>
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2 An endorsement attesting the recognition of a certificate may be attached to and form part of the certificate endorsed, or may be issued as a separate document (see STCW Regulation I/2, paragraph 6). All entries made in the form are required to be in Roman characters and Arabic figures (see STCW Regulation I/2, paragraph 8). The spaces numbered .1 to .17 in the form which follows the text hereunder are intended to be completed as indicated in paragraph 1 above, except in respect of the following spaces:

- .2 where the number assigned by the Party which issued the certificate being recognized should be entered;
  - .3 where the name entered should be the same as that appearing in the certificate being recognized;
  - .4 where the name of the Party which issued the certificate being recognized should be entered;
  - .9 where the capacity or capacities entered in column .9 should be selected, as appropriate, from those specified in the safe applicable manning requirements of the Administration which is recognizing the certificate;
  - .11 where the number entered in space .11 should be unique to the endorsement both for reference and for location in the register of endorsements; and
  - .12 where the date of original issue of the endorsement should be entered.
- 3 When replacing a certificate or endorsement which has been lost or destroyed, Parties should issue the replacement under a new number, to avoid confusion with the document to be replaced.

\_\_\_\_\_  
 (Official seal)  
 (Country)

ENDORSEMENT ATTESTING THE RECOGNITION OF A CERTIFICATE UNDER THE PROVISIONS OF THE INTERNATIONAL CONVENTION ON STANDARDS OF TRAINING, CERTIFICATION AND WATCHKEEPING FOR SEAFARERS, 1978, AS AMENDED IN 1995

The Government of ..... .1 ..... certifies that Certificate No. .... .2 ..... issued to ..... .3 ..... by or on behalf of the Government of ..... .4 ..... is duly recognized in accordance with the provisions of Regulation I/10 of the above Convention, as amended, and the lawful holder is authorized to perform the following functions, at the levels specified, subject to any limitations indicated until ..... .5 ..... or until the date of expiry of any extension of the validity of this endorsement as may be shown overleaf:

Function	Level	Limitations applying (if any)
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The lawful holder of this endorsement may serve in the following capacity or capacities specified in the applicable safe manning requirements of the Administration:

Capacity	Limitations applying (if any)
----------	-------------------------------

Endorsement No. .... .11 ..... issued on ..... .12 .....

(Official seal)

..... .13 .....

Signature of duly authorized official

Name of duly authorized official

The original of this endorsement must be kept available in accordance with Regulation I/2, paragraph 9 of the Convention while serving on a ship.

Date of birth of the holder of the certificate ..... .14 .....

Signature of the holder of the certificate ..... .15 .....

Photograph of the holder of the certificate .16

.16
-----



The validity of this endorsement is hereby extended until .....
(Official seal)
Signature of duly authorized official
Date of revalidation .....
Name of duly authorized official

The validity of this endorsement is hereby extended until .....
(Official seal)
Signature of duly authorized official
Date of revalidation .....
Name of duly authorized official

### **Section B-I/03 Guidance regarding near-coastal voyages**

Ingangsdatum: 01-02-1997

1 When a Party defines near-coastal voyages, inter alia, for the purposes of applying variations to the subjects listed in column 2 of the standard of competence tables contained in Chapters II and III of Part A of the Code, for the issue of certificates valid for service in ships entitled to fly the flag of that Party and engaged on such voyages, account should be taken of the following factors, bearing in mind the effect on the safety of all ships and on the marine environment.

- .1 the type of ship and the trade in which it is engaged;
- .2 the gross tonnage of the ship and the power in kW of the main propulsion machinery;
- .3 the nature and length of the voyages;
- .4 the maximum distance from a port of refuge;
- .5 the adequacy of the coverage and accuracy of navigational position-fixing devices;
- .6 the weather conditions normally prevailing in the near-coastal voyage area;
- .7 the provision of shipboard and coastal communication facilities for search and rescue.

2 A Party which includes voyages off another Party's coast within the limits of its near-coastal voyage definition, may enter into a bilateral agreement with the Party concerned.

3 It is not intended that ships engaged on near-coastal voyages should extend their voyages world-wide, under the excuse that they are navigating constantly within the limits of designated near-coastal voyages of neighbouring Parties.

### **Section B-I/04 Guidance regarding control procedures**

Ingangsdatum: 01-02-1997

#### Introduction

1 The purpose of the control procedures of Regulation I/4 is to enable officers duly authorized by port States to ensure that the seafarers on board have sufficient competence to ensure safe and pollution-free operation of the ship.

2 This provision is no different in principle from the need to make checks on ships' structures and equipment. Indeed, it builds on these inspections to make an appraisal of the total system of on-board safety and pollution prevention.

#### Assessment

3 By restricting assessment as indicated in Section A-I/4, the subjectivity which is an unavoidable element in all control procedures, is reduced to a minimum, no more than would be evident in other types of control inspection.

4 The clear grounds given in Regulation I/4, paragraph 1.3 will usually be sufficient to direct the inspector's attention to specific areas of competency, which could then be followed up by seeking evidence of training in the skills in question. If this evidence is inadequate or unconvincing, the authorized officer may ask to observe a demonstration of the relevant skill.

5 It will be a matter for the professional judgement of the inspector when on board, either following an incident as outlined in Regulation I/4 or for the purposes of a routine inspection, whether the ship is operated in a manner likely to pose a danger to persons, property or the environment.

## **Section B-I/05 Guidance regarding national provisions**

Ingangsdatum: 01-02-1997

(No provisions)

## **Section B-I/06 Guidance regarding training and assessment**

Ingangsdatum: 01-02-1997

Qualifications of instructors and assessors

1 Each Party should ensure that instructors and assessors are appropriately qualified and experienced for the particular types and levels of training or assessment of competence of seafarers, as required under the Convention, in accordance with the guidelines in this Section.

In-service training and assessment

2 Any person on board or ashore conducting in-service training of a seafarer intended to be used in qualifying for certification under the Convention should have received appropriate guidance in instructional techniques.

3 Any person responsible for the supervision of in-service training of a seafarer intended to be used in qualifying for certification under the Convention should have appropriate knowledge of instructional techniques and of training methods and practice.

4 Any person, on board or ashore, conducting an in-service assessment of the competence of a seafarer intended to be used in qualifying for certification under the Convention, should have:

.1 received appropriate guidance in assessment methods and practice; and

.2 gained practical assessment experience under the supervision and to the satisfaction of an experienced assessor.

5 Any person responsible for the supervision of the in-service assessment of competence of a seafarer intended to be used in qualifying for certification under the Convention, should have a full understanding of the assessment system, assessment methods and practice.

## **Section B-I/07 Guidance regarding communication**

## **Section B-I/08 Guidance regarding quality**

Ingangsdatum: 01-02-1997

1 In applying quality standards under the provisions of Regulation I/8 and Section A-I/8 to the administration of its certification system, each Party should take account of existing national or international models, and incorporate the following key elements:

.1 an expressed policy regarding quality and the means by which such policy is to be implemented;

.2 a quality system incorporating the organizational structure, responsibilities, procedures, processes and resources necessary for quality management;

.3 the operational techniques and activities to ensure quality control;

.4 systematic monitoring arrangements including internal quality assurance evaluations, to ensure that all defined objectives are being achieved; and

.5 arrangements for periodic external quality evaluations as described in the following paragraphs.

2 In establishing such quality standards for the administration of their national certification system, Administrations should seek to ensure that the arrangements adopted:

- .1 are sufficiently flexible to enable the certification system to take account of the varying needs of the industry, and that they facilitate and encourage the application of new technology;
- .2 cover all the administrative matters that give effect to the various provisions of the Convention, in particular Regulations I/2 to I/15 and other provisions which enable the Administration to grant certificates of service and dispensations and to withdraw, cancel and suspend certificates;
- .3 encompass the Administration's responsibilities for approving training and assessment at all levels, from undergraduate-type courses and updating courses for certificates of competency to short courses of vocational training; and
- .4 incorporate arrangements for the internal quality assurance reviews under paragraph 1.4 involving a comprehensive self-study of the administrative procedures, at all levels, in order to measure achievement of defined objectives and to provide the basis for the independent external evaluation required under Section A-I/8, paragraph 3.

Quality standards model for assessment of knowledge, understanding, skills and competence

3 The quality standards model for assessment of knowledge, understanding, skills and competence should incorporate the recommendations of this Section within the general framework of either:

- .1 a national scheme for education and training accreditation or quality standards; or
- .2 an alternative quality standards model acceptable to the Organization.

4 The above quality standards model should incorporate:

- .1 a quality policy, including a commitment by the training institution or unit to the achievement of its stated aims and objectives, and to the consequential recognition by the relevant accrediting or quality standards authority;
- .2 those quality management functions that determine and implement the quality policy, relating to aspects of the work which impinge on the quality of what is provided, including provisions for determining progression within a course or program;
- .3 quality system coverage, where appropriate, of the academic and administrative organizational structure, responsibilities, procedures, processes and the resources of staff and equipment;
- .4 the quality control functions to be applied at all levels to the teaching, training, examination and assessment activities, and to their organization and implementation, in order to ensure their fitness for their purpose and the achievement of their defined objectives;
- .5 the internal quality assurance processes and reviews which monitor the extent to which the institution, or training unit, is achieving the objectives of the programs it delivers, and is effectively monitoring the quality control procedures which it employs; and
- .6 the arrangements made for periodic external quality evaluations required under Regulation I/8, paragraph 2 and described in the following paragraphs, for which the outcome of the quality assurance reviews forms the basis and starting point.

5 In establishing quality standards for education, training and assessment programs, the organizations responsible for implementing these programs should take account of the following:

- .1 Where provisions exist for established national accreditation, or education quality standards, such provisions should be utilized for courses incorporating the knowledge and understanding requirements of the Convention. The quality standards should be applied to both management and operational levels of the activity, and should take account of how it is managed, organized, undertaken and evaluated, in order to ensure that the identified goals are achieved.
- .2 Where acquisition of a particular skill or accomplishment of a designated task is the primary objective, the quality standards should take account of whether real or simulated equipment is utilized for this purpose, and of the appropriateness of the qualifications and experience of the assessors, in order to ensure achievement of the set standards.
- .3 The internal quality assurance evaluations should involve a comprehensive self-study of the program, at all levels, to monitor achievement of defined objectives through the application of quality standards. These quality assurance reviews should address the planning, design, presentation and evaluation of programs as well as the teaching, learning and communication activities. The outcome provides the basis for the independent evaluation required under Section A-I/8, paragraph 3.

The independent evaluation

6 Each independent evaluation should include a systematic and independent examination of all quality activities, but should not evaluate the validity of the defined objectives. The evaluation team should:

- .1 carry out the evaluation in accordance with documented procedures;
- .2 ensure that the results of each evaluation are documented and brought to the attention of those responsible for the area evaluated; and
- .3 check that timely action is taken to correct any deficiencies.

7 The purpose of the evaluation is to provide an independent assessment of the effectiveness of the quality standard arrangements at all levels. In the case of an education or training establishment a recognized academic accreditation or quality standards body or Government agency should be used. The evaluation team should be provided with sufficient advance information to give an overview of the tasks in hand. In the case of a major training institution or program, the following items are indicative of the information to be provided:

- .1 the mission statement of the institution;
- .2 details of academic and training strategies in use;
- .3 an organization chart and information on the composition of committees and advisory bodies;
- .4 staff and student information;
- .5 a description of training facilities and equipment; and
- .6 an outline of the policies and procedures on:
  - .6.1 student admission,
  - .6.2 the development of new courses and review of existing courses,
  - .6.3 the examination system, including appeals and resits,
  - .6.4 staff recruitment, training, development, appraisal and promotion,
  - .6.5 feedback from students and from industry, and
  - .6.6 staff involvement in research and development.

The report

8 Before submitting a final report, the evaluation team should forward an interim report to the management seeking their comments on their findings. Upon receiving their comments, the evaluators should submit their final report, which should:

- .1 include brief background information about the institution or training program;
- .2 be full, fair and accurate;
- .3 highlight the strengths and weaknesses of the institution;
- .4 describe the evaluation procedure followed;
- .5 cover the various elements identified in paragraph 4;
- .6 indicate the extent of compliance or non-compliance with the requirements of the Convention and the effectiveness of the quality standards in ensuring achievement of defined aims and objectives; and
- .7 spell out clearly the areas found deficient, offer suggestions for improvement and provide any other comments the evaluators consider relevant.

## **Section B-I/09 Guidance regarding medical standards - Issue and registration of certificates**

## **Section B-I/10 Guidance regarding the recognition of certificates**

## **Section B-I/11 Guidance regarding the revalidation**

## **Section B-I/12 Guidance regarding the use**

Ingangsdatum: 01-02-1997

1 When simulators are being used for training or assessment of competency, the following guidelines should be taken into consideration in conducting any such training or assessment.

Training and assessment in radar observation and plotting

2 Training and assessment in radar observation and plotting should:

- .1 incorporate the use of radar simulation equipment; and
- .2 conform to standards not inferior to those given in paragraphs 3 to 17 below.

3 Demonstrations of and practice in radar observation should be undertaken where appropriate on live marine radar equipment, including the use of simulators. Plotting exercises should preferably be undertaken in real time, in order to increase trainees' awareness of the hazards of the improper use of radar data and improve their plotting techniques to a standard of radar plotting commensurate with that necessary for the safe execution of collision avoidance manoeuvring under actual seagoing conditions.

Theory factors affecting performance and accuracy

4 An elementary understanding should be attained of the principles of radar, together with a full practical knowledge of:

.1 range and bearing measurement, characteristics of the radar set which determine the quality of the radar display, radar antennae, polar diagrams, the effects of power radiated in directions outside the main beam, a non-technical description of the radar system including variations in the features encountered in different types of radar set, performance monitors and equipment factors which affect maximum and minimum detection ranges and accuracy of information;

.2 the current marine radar performance specification adopted by the Organization;

.3 the effects of the siting of the radar antenna, shadow sectors and arcs of reduced sensitivity, false echoes, effects of antenna height on detection ranges and of siting radar units and storing spares near magnetic compasses, including magnetic safe distances; and

.4 radiation hazards and safety precautions to be taken in the vicinity of antenna and open wave guides.

Detection of misrepresentation of information, including false echoes and sea returns

5 A knowledge of the limitations to target detection is essential, to enable the observer to estimate the dangers of failure to detect targets. The following factors should be emphasized:

.1 performance standard of the equipment;

.2 brilliance, gain and video processor control settings;

.3 radar horizon;

.4 size, shape, aspect and composition of targets;

.5 effects of the motion of the ship in a seaway;

.6 propagation conditions;

.7 meteorological conditions; sea clutter and rain clutter;

.8 anti-clutter control settings;

.9 shadow sectors; and

.10 radar-to-radar interference.

6 A knowledge should be attained of factors which might lead to faulty interpretation, including false echoes, effects of nearby pylons and large structures, effects of power lines crossing rivers and estuaries, echoes from distant targets occurring on second or later traces.

7 A knowledge should be attained of aids to interpretation, including corner reflectors and radar beacons; detection and recognition of land targets; the effects of topographical features; effects of pulse length and beam width; radar conspicuous and inconspicuous targets; factors which affect the echo strength from targets.

PRACTICE

Setting up and maintaining displays

8 A knowledge should be attained of:

.1 the various types of radar display mode; unstabilized ship's-head-up relative motion; ship's-head-up course-up and north-up stabilized relative motion and true motion;

.2 the effects of errors on the accuracy of information displayed; effects of transmitting compass errors on stabilized and true motion displays; effects of transmitting log errors on a true motion display; and the effects of inaccurate manual speed settings on a true motion display;

.3 methods of detecting inaccurate speed settings on true motion controls; the effects of receiver noise limiting ability to display weak echo returns, and the effects of saturation by receiver noise, etc.; the adjustment of operational controls; criteria which indicate optimum points of adjustment; the importance of proper adjustment sequence, and the effects of maladjusted controls; the detection of maladjustments and corrections of:

.3.1 controls affecting detection ranges, and

.3.2 controls affecting accuracy;

.4 the dangers of using radar equipment with maladjusted controls; and

.5 the need for frequent regular checking of performance, and the relationship of the performance indicator to the range performance of the radar set.

Range and bearing

9 A knowledge should be attained of:

- .1 the methods of measuring ranges; fixed range markers and variable range markers;
- .2 the accuracy of each method and the relative accuracy of the different methods;
- .3 how range data are displayed; ranges at stated intervals, digital counter and graduated scale;
- .4 the methods of measuring bearings; rotatable cursor on transparent disc covering the display, electronic bearing cursor and other methods;
- .5 bearing accuracy and inaccuracies caused by: parallax, heading marker displacement, centre maladjustment;
- .6 how bearing data are displayed; graduated scale and digital counter; and
- .7 the need for regular checking of the accuracy of ranges and bearings, methods of checking for inaccuracies and correcting or allowing for inaccuracies.

Plotting techniques and relative motion concepts

10 Practice should be provided in manual plotting techniques, including the use of reflection plotters, with the objective of establishing a thorough understanding of the interrelated motion between own ship and other ships, including the effects of manoeuvring to avoid collision. At the preliminary stages of this training, simple plotting exercises should be designed to establish a sound appreciation of plotting geometry and relative motion concepts. The degree of complexity of exercises should increase throughout the training course until the trainee has mastered all aspects of the subject. Competence can best be enhanced by exposing the trainee to real-time exercises performed on a simulator or using other effective means.

Identification of critical echoes

11 A thorough understanding should be attained of:

- .1 position fixing by radar from land targets and sea marks;
- .2 the accuracy of position fixing by ranges and by bearings;
- .3 the importance of cross-checking the accuracy of radar against other navigational aids; and
- .4 the value of recording ranges and bearings at frequent, regular intervals when using radar as an aid to collision avoidance.

Course and speed of other ships

12 A thorough understanding should be attained of:

- .1 the different methods by which course and speed of other ships can be obtained from recorded ranges and bearings including:
  - .1.1 the unstabilized relative plot,
  - .1.2 the stabilized relative plot, and
  - .1.3 the true plot; and
- .2 the relationship between visual and radar observations, including detail and the accuracy of estimates of course and speed of other ships, and the detection of changes in movements of other ships.

Time and distance of closest approach of crossing, meeting or overtaking ships

13 A thorough understanding should be attained of:

- .1 the use of recorded data to obtain:
  - .1.1 measurement of closest approach distance and bearing, and
  - .1.2 time to closest approach, and
- .2 the importance of frequent, regular observations.

Detecting course and speed changes of other ships

14 A thorough understanding should be attained of:

- .1 the effects of changes of course and/or speed by other ships on their tracks across the display;
- .2 the delay between change of course or speed and detection of that change; and
- .3 the hazards of small changes as compared with substantial changes of course or speed in relation to rate and accuracy of detection.

Effects of changes in own ship's course or speed or both

15 A thorough understanding of the effects on a relative motion display of own ship's movements, and the effects of other ships' movements and the advantages of compass stabilization of a relative display.

16 In respect of true motion displays, a thorough understanding should be attained of:

- .1 the effects of inaccuracies of:
  - .1.1 speed and course settings, and
  - .1.2 of compass stabilization data driving a stabilized relative motion display;
- .2 the effects of changes in course or speed or both by own ship on tracks of other ships on the display; and
- .3 the relationship of speed to frequency of observations.

#### Application of the International Regulations for Preventing Collisions at Sea

17 A thorough understanding should be attained of the relationship of the International Regulations for Preventing Collisions at Sea to the use of radar, including:

- .1 action to avoid collision, dangers of assumptions made on inadequate information and the hazards of small alterations of course or speed;
- .2 the advantages of safe speed when using radar to avoid collision;
- .3 the relationship of speed to closest approach distance and time and to the manoeuvring characteristics of various types of ships;
- .4 the importance of radar observation reports and radar reporting procedures being well defined;
- .5 the use of radar in clear weather, to obtain an appreciation of its capabilities and limitations, compare radar and visual observations and obtain an assessment of the relative accuracy of information;
- .6 the need for early use of radar in clear weather at night and when there are indications that visibility may deteriorate;
- .7 comparison of features displayed by radar with charted features; and
- .8 comparison of the effects of differences between range scales.

#### Training and assessment in the operational use of automatic radar plotting aids (ARPA)

18 Training and assessment in the operational use of automatic radar plotting aids (ARPA) should:

- .1 require prior completion of the training in radar observation and plotting or combine that training with the training given in paragraphs 19 to 36 below;
- .2 incorporate the use of ARPA simulation equipment; and
- .3 conform to standards not inferior to those given in paragraphs 19 to 36 below.

19 Where ARPA training is provided as part of the general training under the 1978 STCW Convention, masters, chief mates and officers in charge of a navigational watch should understand the factors involved in decision-making based on the information supplied by ARPA in association with other navigational data inputs, having a similar appreciation of the operational aspects and of system errors of modern electronic navigational systems. This training should be progressive in nature, commensurate with the responsibilities of the individual and the certificates issued by Parties under the 1978 STCW Convention.

#### Theory and Demonstration

##### Possible risks of over-reliance on ARPA

20 Appreciation that ARPA is only a navigational aid and:

- .1 that its limitations, including those of its sensors, make over-reliance on ARPA dangerous, in particular for keeping a look-out; and
- .2 the need to observe at all times the Principles to be observed in keeping a navigational watch and the Guidance on keeping a navigational watch.

##### Principal types of ARPA systems and their display characteristics

21 Knowledge of the principal types of ARPA systems in use; their various display characteristics and an understanding of when to use ground or sea stabilized modes and north-up, course-up or head-up presentations.

##### IMO performance standards for ARPA

22 An appreciation of the IMO performance standards for ARPA, in particular the standards relating to accuracy.

##### Factors affecting system performance and accuracy

23 Knowledge of ARPA sensor input performance parameters - radar, compass and speed inputs and the effects of sensor malfunction on the accuracy of ARPA data.

24 Knowledge of:

- .1 the effects of the limitations of radar range and bearing discrimination and accuracy and the limitations of compass and speed input accuracies on the accuracy of ARPA data; and
- .2 factors which influence vector accuracy.

##### Tracking capabilities and limitations

25 Knowledge of:

- .1 the criteria for the selection of targets by automatic acquisition;
- .2 the factors leading to the correct choice of targets for manual acquisition;
- .3 the effects on tracking of "lost" targets and target fading;
- .4 the circumstances causing "target swap" and its effects on displayed data.

#### Processing delays

26 Knowledge of the delays inherent in the display of processed ARPA information, particularly on acquisition and re-acquisition or when a tracked target manoeuvres.

#### Operational warnings, their benefits and limitations

27 Appreciation of the uses, benefits and limitations of ARPA operational warnings and their correct setting, where applicable, to avoid spurious interference.

#### System operational tests

28 Knowledge of:

- .1 methods of testing for malfunctions of ARPA systems including functional self-testing; and
- .2 precautions to be taken after a malfunction occurs.

#### Manual and automatic acquisition of targets and their respective limitations

29 Knowledge of the limits imposed on both types of acquisition in multi-target scenarios, and the effects on acquisition of target fading and target swap.

#### True and relative vectors and typical graphic representation of target information and danger areas

30 Thorough knowledge of true and relative vectors; derivation of targets' true courses and speeds including:

- .1 threat assessment, derivation of predicted closest point of approach and predicted time to closest point of approach from forward extrapolation of vectors, the use of graphic representation of danger areas;
- .2 the effects of alterations of course and/or speed of own ship and/or targets on predicted closest point of approach and predicted time to closest point of approach and danger areas;
- .3 the effects of incorrect vectors and danger areas; and
- .4 the benefit of switching between true and relative vectors.

#### Information on past position of targets being tracked

31 Knowledge of the derivation of past positions of targets being tracked, recognition of historic data as a means of indicating recent manoeuvring of targets and as a method of checking the validity of the ARPA's tracking.

#### Practice

Setting up and maintaining displays 32 Ability to demonstrate:

- .1 the correct starting procedure to obtain the optimum display of ARPA information;
- .2 the selection of display presentation; stabilized relative motion displays and true motion displays;
- .3 the correct adjustment of all variable radar display controls for optimum display of data;
- .4 the selection, as appropriate, of required speed input to ARPA;
- .5 the selection of ARPA plotting controls, manual/automatic acquisition, vector/graphic display of data;
- .6 the selection of the time scale of vectors/graphics;
- .7 the use of exclusion areas when automatic acquisition is employed by ARPA; and
- .8 performance checks of radar, compass, speed input sensors and ARPA.

#### System operational tests

33 Ability to perform system checks and determine data accuracy of ARPA, including the trial manoeuvre facility, by checking against basic radar plot.

#### Obtaining information from the ARPA display

34 Demonstrate the ability to obtain information in both relative and true motion modes of display, including:

- .1 the identification of critical echoes;
- .2 the speed and direction of target's relative movement;
- .3 the time to, and predicted range at, target's closest point of approach;
- .4 the courses and speeds of targets;
- .5 detecting course and speed changes of targets and the limitations of such information;
- .6 the effect of changes in own ship's course or speed or both; and
- .7 the operation of the trial manoeuvre facility.

#### Application of the International Regulations for Preventing Collisions at Sea



35 Analysis of potential collision situations from displayed information, determination and execution of action to avoid close-quarters situations in accordance with the International Regulations for Preventing Collisions at Sea in force.

Recommended performance standards for non-mandatory types of simulation

36 Performance standards for non-mandatory simulation equipment used for training and/or assessment of competence or demonstration of skills are set out hereunder. Such forms of simulation include, but are not limited to, the following types:

- .1 navigation and watchkeeping;
- .2 shiphandling and manoeuvring;
- .3 cargo handling and stowage;
- .4 radiocommunications; and
- .5 main and auxiliary machinery operation

Navigation and watchkeeping simulation

37 Navigation and watchkeeping simulation equipment should, in addition to meeting all applicable performance standards set out in Section A-I/12, be capable of simulating navigational equipment and bridge operational controls which meet all applicable performance standards adopted by the Organization, incorporate facilities to generate soundings and:

- .1 create a real-time operating environment, including navigation control and communications instruments and equipment appropriate to the navigation and watchkeeping tasks to be carried out and the manoeuvring skills to be assessed;
- .2 provide a realistic visual scenario by day or by night, including variable visibility, or by night only as seen from the bridge, with a minimum horizontal field of view available to the trainee in viewing sectors appropriate to the navigation and watchkeeping tasks and objectives; and
- .3 realistically simulate "own ship" dynamics in open water conditions including the effects of weather, tidal stream, currents and interaction with other ships.

Ship handling and manoeuvring simulation

38 In addition to meeting the performance standards set out in paragraph 37, ship handling simulation equipment should:

- .1 provide a realistic visual scenario as seen from the bridge by day and by night with variable visibility throughout a minimum horizontal field of view available to the trainee in viewing sectors appropriate to the shiphandling and manoeuvring training tasks and objectives; and
- .2 realistically simulate "own ship" dynamics in restricted waterways, including shallow water and bank effects.

39 Manned scale models are used to provide shiphandling and manoeuvring simulation, in addition to the performance standards set out in paragraphs 37.3 and 38.2, such equipment should:

- .1 incorporate scaling factors which present accurately the dimensions, areas, volume and displacement, speed, time and rate of turn of a real ship; and
- .2 incorporate controls for the rudder and engines to the correct time scale.

Cargo handling and stowage simulation

40 Cargo handling simulation equipment should be capable of simulating cargo handling and control equipment which meets all applicable performance standards adopted by the Organization, and incorporate facilities to:

- .1 create an effective operational environment, including a cargo-control station with such instrumentation as may be appropriate to the particular type of cargo system modelled;
- .2 model loading and unloading functions and stability and stress data appropriate to the cargo handling tasks to be carried out and the skills to be assessed; and
- .3 simulate loading, unloading, ballasting and deballasting operations and appropriate associated calculations for stability, trim, list, longitudinal strength, torsional stress and damage stability.

GMDSS communication simulation

41 GMDSS communication simulation equipment should be capable of simulating GMDSS communication equipment which meets all applicable performance standards adopted by the Organization, and incorporate facilities to:

- .1 simulate the operation of VHF, VHF-DSC, NAVTEX, EPIRB and watch receiver equipment as required for the Restricted Operators Certificate (ROC);

- .2 simulate the operation of INMARSAT-A, B and C ship earth stations, MF/HF NBDP, MF/HF-DSC, VHF, VHF-DSC, NAVTEX, EPIRB and watch receiver equipment as required for the General Operator's Certificate (GOC);
- .3 provide voice communication with background noise;
- .4 provide a printed text communication facility; and
- .5 create a real-time operating environment, consisting of an integrated system, incorporating at least one instructor/assessor station and at least two GMDSS ship or shore stations.

Main and auxiliary machinery operation simulation

42 Engine-room simulation equipment should be capable of simulating a main and auxiliary machinery system and incorporate facilities to:

- .1 create a real-time environment for seagoing and harbour operations with communication devices and simulation of appropriate main and auxiliary propulsion machinery equipment and control panels;
- .2 simulate relevant sub-systems that should include but not be restricted to boiler, steering gear, electrical power general and distribution systems including emergency power supplies and fuel, cooling water, refrigeration, bilge and ballast systems;
- .3 monitor and evaluate engine performance and remote sensing systems;
- .4 simulate machinery malfunctions;
- .5 allow for the variable external conditions to be changed so as to influence the simulated operations: weather, ship's draught, sea water and air temperatures;
- .6 allow for instructor controlled external conditions to be changed: deck steam, accommodation steam, deck air, ice conditions, deck cranes, heavy power, bow thrust, ship load;
- .7 allow for instructor controlled simulator dynamics to be changed: emergency run, process responses, ship responses; and
- .8 provide a facility to isolate certain processes, such as speed, electrical system, diesel oil system, lubricating oil system, heavy oil system, seawater system, steam system, exhaust boiler and turbo generator for performing specific training tasks.

## **Section B-I/13 Guidance regarding the conduct**

Ingangsdatum: 01-02-1997

(No provisions)

## **Section B-I/14 Guidance regarding responsibilities of companies and recommended responsibilities of masters and crew**

Ingangsdatum: 01-02-1997

Companies

1 Companies should provide ship specific introductory programs aimed at assisting newly employed seafarers to familiarize themselves with all procedures and equipment relating to their areas of responsibility.

Master

2 The master should take all steps necessary to implement any company instructions issued in accordance with Section A-I/14. Such steps should include:

- .1 identifying all seafarers who are newly employed on board the ship before they are assigned to any duties;
- .2 providing the opportunity for all newly arrived seafarers to:
  - .2.1 visit the spaces in which their primary duties will be performed,
  - .2.2 get acquainted with the location, controls and display features of equipment they will be operating or using,
  - .2.3 activate the equipment when possible and perform functions using the controls on the equipment, and
  - .2.4 observe and ask questions of someone who is already familiar with the equipment, procedures and other arrangements, and who can communicate information in a language which the seafarer understands; and
- .3 providing for a suitable period of supervision when there is any doubt that a newly employed seafarer is familiar with the shipboard equipment, operating procedures and other arrangements needed for the proper performance of his or her duties.

## Crew members

3 Seafarers who are newly assigned to a ship should take full advantage of every opportunity provided to become familiar with the shipboard equipment, operating procedures and other arrangements needed for the proper performance of their duties. Immediately upon arriving on board for the first time, each seafarer has the responsibility to become acquainted with the ship's working environment, particularly with respect to new or unfamiliar equipment, procedures or arrangements.

4 Seafarers who do not promptly attain the level of familiarity required for performing their duties have the obligation to bring this fact to the attention of their supervisor or to the attention of the crew member designated in accordance with Section A-I/14, paragraph 2.2, and to identify any equipment, procedure or arrangement which remains unfamiliar.

## Chapter II Guidance regarding the master and the deck department

### Section B-II/1 Guidance regarding the certification of officers in charge of a navigational watch on ships of 500 gross

Ingangsdatum: 01-02-1997

#### Training

1 Every candidate for certification as officer in charge of a navigational watch should have completed a planned and structured programme of training designed to assist a prospective officer to achieve the standard of competence in accordance with table A-II/1.

2 The structure of the programme of training should be set out in a training plan which clearly expresses for all parties involved the objectives of each stage of training on board and ashore. It is important that the prospective officer, tutors, ships' staff and company personnel are clear about the competences which are to be achieved at the end of the programme and how they are to be achieved through a combination of education, training and practical experience on board and ashore.

3 The mandatory periods of seagoing service are of prime importance in learning the job of being a ship's officer and in achieving the overall standard of competence required. Properly planned and structured, the periods of seagoing service will enable prospective officers to acquire and practise skills and will offer opportunities for competences achieved to be demonstrated and assessed.

4 Where the seagoing service forms part of an approved training programme, the following principles should be observed:

- .1 The programme of on-board training should be an integral part of the overall training plan.
- .2 The programme of on-board training should be managed and co-ordinated by the company which manages the ship on which the seagoing service is to be performed.
- .3 The prospective officer should be provided with a training record book\* to enable a comprehensive record of practical training and experience at sea to be maintained. The training record book should be laid out in such a way that it can provide detailed information about the tasks and duties which should be undertaken and the progress towards their completion. Duly completed, the record book will provide unique evidence that a structured programme of on-board training has been completed which can be taken into account in the process of evaluating competence for the issue of a certificate.

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\* IMO Model Course 7.03 - Officer in Charge of a Navigational Watch - and a similar document produced by the International Shipping Federation may be of assistance in the preparation of training record books.

.4 At all times, the prospective officer should be aware of two identifiable individuals who are immediately responsible for the management of the programme of on-board training. The first of these is a qualified seagoing officer, referred to as the shipboard training officer who, under the authority of the master should organise and supervise the programme of training for the duration of each voyage. The second should be a person nominated by the company, referred to as the company training officer, who should have an overall responsibility for the training programme and for co-ordination with colleges and training institutions.

.5 The company should ensure that appropriate periods are set aside for completion of the programme of on-board training within the normal operational requirements of the ship.

#### ROLES AND RESPONSIBILITIES

5 The following section summarizes the roles and responsibilities of those individuals involved in organization and conducting on-board training:

.1 The company training officer should be responsible for:

.1.1 overall administration of the programme of training,

.1.2 monitoring the progress of the prospective officer throughout, and

.1.3 issuing guidance as required and ensuring that all concerned with the training programme play their parts.

.2 The shipboard training officer should be responsible for:

.2.1 organizing the programme of practical training at sea,

.2.2 ensuring in a supervisory capacity that the training record book is properly maintained and that all other requirements are fulfilled, and

.2.3 making sure, so far as is practicable, that the time the prospective officer spends on board is as useful as possible in terms of training and experience, and is consistent with the objectives of the training programme, the progress of training and the operational constraints of the ship.

.3 The master's responsibilities should be to:

.3.1 provide the link between the shipboard training officer and the company training officer ashore,

.3.2 fulfil the role of continuity if the shipboard training officer is relieved during the voyage, and

.3.3 ensure that all concerned are effectively carrying out the on-board training programme.

.4 The prospective officer's responsibilities should be to:

.4.1 follow diligently the programme of training as laid down,

.4.2 make the most of the opportunities presented, be they in or outside working hours, and

.4.3 keep the training record book up to date and ensure that it is available at all times for scrutiny.

#### INDUCTION

6 At the beginning of the programme and at the start of each voyage on a different ship, prospective officer should be given full information and guidance as to what is expected of them and how the training programme is to be organized. Induction presents the opportunity to brief prospective officers about important aspects of the tasks they will be undertaking, with particular regard to safe working practices and protection of the marine environment.

#### SHIPBOARD PROGRAMME OF TRAINING

7 The training record book should contain, amongst other things, a number of training tasks or duties which should be undertaken as part of the approved programme of on-board training.

Such tasks and duties should relate to at least the following areas:

.1 steering systems;

.2 general seamanship;

.3 mooring, anchoring and port operations;

.4 life-saving and fire-fighting appliances;

.5 systems and equipment;

.6 cargo work;

.7 bridge work and watchkeeping; and

.8 engine-room familiarization.

8 It is extremely important that the prospective officers is given adequate opportunity for supervised bridge watchkeeping experience, particularly in the later stages of the on-board training programme.

9 The performance of the prospective officers in each of the tasks and duties itemized in the training record book should be initialled by a qualified officer when, in the opinion of the officer concerned, a prospective officer has achieved a satisfactory standard of proficiency. It is important to appreciate that a prospective officer may need to demonstrate ability on several occasions before a qualified officer is confident that a satisfactory standard has been achieved.

#### MONITORING AND REVIEWING

10 Guidance and reviewing are essential to ensure that prospective officers are fully aware of the progress they are making and to enable them to join in decisions about their future programme. To be effective, reviews should be linked to information gained through the training record book and other sources as appropriate. The training record book should be scrutinized and endorsed formally by the master and the shipboard training officer at the beginning, during and at the end of each voyage. The training record book should also be examined and endorsed by the company training officer between voyages.

#### ASSESSMENT OF ABILITIES AND SKILLS IN NAVIGATIONAL

11 A candidate for certification who is required to have received special training and assessment of abilities and skills in navigational watchkeeping duties should be required to provide evidence, through demonstration either on a simulator or on board ship as part of an approved programme of shipboard training, that the skills and ability to perform as officer in charge of a navigational watch in at least the following areas have been acquired, namely to:

- .1 prepare for and conduct a passage, including:
  - .1.1 interpreting and apply information obtained from charts,
  - .1.2 fixing position in coastal waters,
  - .1.3 applying basic information obtained from tide tables and other navigational publications,
  - .1.4 checking and operating bridge equipment,
  - .1.5 checking magnetic and gyro-compasses,
  - .1.6 assessing available meteorological information,
  - .1.7 using celestial bodies to fix position,
  - .1.8 determining the compass error by celestial and terrestrial means, and
  - .1.9 performing calculations for sailings of up to 24 hours;
- .2 operate and apply information obtained from electronic navigation systems;
- .3 operate radar and ARPA and apply radar information for navigation and collision avoidance;
- .4 operate propulsion and steering systems to control heading and speed;
- .5 implement navigational watch routines and procedures;
- .6 implement the manoeuvres required for rescue of persons overboard;
- .7 initiate action to be taken in the event of an imminent emergency situation (e.g. fire, collision, stranding) and action in the immediate aftermath of an emergency;
- .8 initiate action to be taken in the event of malfunction or failure of major items of equipment or plant (e.g. steering gear, power, navigation systems);
- .9 conduct radiocommunications and visual and sound signalling in normal emergency situations; and
- .10 monitor and operate safety and alarm systems including internal communications.

12 Assessment of abilities and skills in navigational watchkeeping should:

- .1 be made against the criteria for evaluating competence of the function of navigation set out in table A-II/1;
- .2 ensure that the candidate performs navigational watchkeeping duties in accordance with the Principles to be observed in keeping a safe navigational watch (section A-VIII/2, part 3-1) and the Guidance on keeping a navigational watch (section B-VIII/2, part 3-1).

#### EVALUATION OF COMPETENCE

13 The standard of competence to be achieved for certification as officer in charge of a navigational watch is set out in table A-II/1. The standard specifies the knowledge and skill required and the application of that knowledge and skill to the standard of performance required on board ship.

14 Scope of knowledge is implicit in the concept of competence. Assessment of competence should, therefore, encompass more than the immediate technical requirements of the job, the skills and tasks to be performed, and should reflect the broader aspects needed to meet the full expectations of competent performance as a ship's officer. This includes relevant knowledge, theory, principles and cognitive skills which, to varying degrees, underpin all levels of competence. It also encompasses proficiency in what to do, how and when to do it, and why it should be done. Properly applied, this will help to ensure that a candidate can:

- .1 work competently in different ships and across a range of circumstances;
- .2 anticipate, prepare for and deal with contingencies; and
- .3 adapt to new and changing requirements.

15 The criteria for evaluating competence (column 4 of table A-II/1) identify, primarily in outcome terms, the essential aspects of competent performance. They are expressed so that assessment of a candidate's performance can be made against them and should be adequately documented in the training record book.

16 Evaluation of competence is the process of:

- .1 collecting sufficient valid and reliable evidence about the candidate's knowledge, understanding and proficiency to accomplish the tasks, duties and responsibilities listed in column 1 of table A-II/1; and
- .2 judging that evidence against the criteria specified in the standard.

17 The arrangements for evaluating competence should be designed to take account of different methods of assessment which provide different types of evidence about candidates' competence, e.g.:

- .1 direct observation of work activities (including seagoing service);
- .2 skills/proficiency/competency tests;
- .3 project and assignments;
- .4 evidence from previous experience; and
- .5 written, oral and computer-based questioning techniques.\*

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\* IMO Model Course 3.12 - Examination and Certification of Seafarers may be of assistance in the preparation of courses.

18 One or more of the first four methods listed should almost invariably be used to provide evidence of ability, in addition to appropriate questioning techniques to provide evidence of supporting knowledge and understanding.

### **Section B-II/2 Guidance regarding the certification of masters and chief officers on ships of 500 gross tonnage or**

Ingangsdatum: 01-02-1997

(See section B-II/1 for guidance.)

### **Section B-II/3 Guidance regarding the certification of officers in charge of a navigational watch and of masters on shi**

Ingangsdatum: 01-02-1997

(See section B-II/1 for guidance.)

### **Section B-II/4 Guidance regarding ratings forming part of a navigational watch**

Ingangsdatum: 01-02-1997

In addition to the requirements stated in table A-II/4 of this Code, Parties are encouraged for safety reasons to include the following subjects in the training of ratings forming part of a navigational watch:

- .1 a basic knowledge of the International Regulations for Preventing Collisions at Sea;
- .2 rigging a pilot ladder;
- .3 an understanding of wheel orders given by pilots in English.
- .4 training for proficiency in survival craft and rescue boats;
- .5 support duties when berthing and unberthing and during towing operations;
- .6 a basic knowledge of anchoring;
- .7 a basic knowledge of dangerous cargoes;
- .8 a basic knowledge of stowage procedures and arrangements for bringing stores on board; and
- .9 a basic knowledge of deck maintenance and tools used on deck.

## **Chapter III Guidance regarding the engine department**

### **Section B-III/1 Guidance regarding the certification of officers in charge of an engineering watch in a manned engine-r**

Ingangsdatum: 01-02-1997

1 In table A-III/1, column 1, top block, the tools referred to should include hand tools, common measuring equipment, centre lathes, drilling machines, welding equipment and milling machines as appropriate.

2 Training in workshop skills ashore can be carried out in a training institution or approved workshop.

3 On-board training should be adequately documented in the training record book by qualified

### **Section B-III/2 Guidance regarding the certification of chief engineer officers and second engineer officers of ships p**

Ingangsdatum: 01-02-1997

(No provisions)

## **Section B-III/3 Guidance regarding the certification of chief engineer officers and second engineer officers of ships p**

Ingangsdatum: 01-02-1997

(No provisions)

## **Section B-III/4 Guidance regarding the training and certification of ratings forming part of a watch in a manned engine**

Ingangsdatum: 01-02-1997

In addition to the requirements stated in Section A-III/4 of this Code, Parties are encouraged for safety reasons to include the following items in the training of ratings forming part of an engineering watch:

- .1 a basic knowledge of routine pumping operations, such as bilge, ballast and cargo pumping systems;
- .2 a basic knowledge of electrical installations and the associated dangers;
- .3 a basic knowledge of maintenance and repair of machinery and tools used in the engine-room; and
- .4 a basic knowledge of stowage and arrangements for bringing stores on board.

## **Chapter IV Guidance regarding radiocommunication and radio personnel**

### **Section B-IV/1 Guidance regarding the application of Chapter**

Ingangsdatum: 01-02-1997

(No provisions)

### **Section B-IV/2 Guidance regarding training and certification of GMDSS radio personnel**

Ingangsdatum: 01-02-1997

TRAINING RELATED TO THE FIRST-CLASS RADIOELECTRONIC CERTIFICATE

General

1 The requirements of medical fitness, especially as to hearing, eyesight and speech, should be met by the candidate before training is commenced.

2 The training should be relevant to the provisions of the STCW Convention, the provisions of the Radio Regulations annexed to the International Telecommunication Convention (Radio Regulations) and the provisions of the International Convention for the Safety of Life at Sea (SOLAS) Convention, currently in force, with particular attention given to provisions for the Global Maritime Distress and Safety System (GMDSS). In developing training requirements, account should be taken of at least the knowledge and training given in paragraphs 3 to 14 hereunder.

Theory

3 Knowledge of the general principles and basic factors necessary for safe and efficient use of all sub-systems and equipment required in the GMDSS, sufficient to support the practical training provisions given in paragraph 13.

4 Knowledge of the use, operation and service areas of GMDSS sub-systems, including satellite system characteristics, navigational and meteorological warning systems and selection of appropriate communication circuits.

5 Knowledge of the principles of electricity and the theory of radio and electronics sufficient to meet the provisions given in paragraphs 6 to 10 below.

6 Theoretical knowledge of GMDSS radiocommunication equipment, including narrow-band direct-printing telegraphy and radiotelephone transmitters and receivers, digital selective calling equipment, ship earth stations, emergency position-indicating radiobeacons (EPIRBs), marine antenna systems, radio equipment for survival craft together with all auxiliary items, including power supplies, as well as general knowledge of the principles of other equipment generally used for radionavigation, with particular reference to maintaining the equipment in service.

7 Knowledge of factors that affect system reliability, availability, maintenance procedures and proper use of test equipment.

8 Knowledge of microprocessors and fault diagnosis in systems using microprocessors.

9 Knowledge of control systems in the GMDSS radio equipment including testing and analysis.

10 Knowledge of the use of computer software for the GMDSS radio equipment and methods for correcting faults caused by loss of software control of the equipment.

Regulations and documentation

11 Knowledge of:

.1 the SOLAS Convention and the Radio Regulations with particular emphasis on:

.1.1 distress, urgency and safety radiocommunications,

.1.2 avoiding harmful interference, particularly with distress and safety traffic, and

.1.3 prevention of unauthorized transmissions;

.2 other documents relating to operational and communication procedures for distress, safety and public correspondence services, including charges, navigational warnings, and weather broadcasts in the Maritime Mobile Service and the Maritime Mobile Satellite Service; and

.3 use of the International Code of Signals and the Standard Marine Navigational Vocabulary as replaced by the IMO Standard Marine Communication Phrases.

Watchkeeping and procedures

12 Knowledge of and training in:

.1 communication procedures and discipline to prevent harmful interference in GMDSS sub-systems;

.2 procedures for using propagation prediction information to establish optimum frequencies for communications;

.3 radiocommunication watchkeeping relevant to all GMDSS sub-systems, exchange of radiocommunication traffic, particularly concerning distress, urgency and safety procedures and radio records;

.4 use of the international phonetic alphabet;

.5 monitoring a distress frequency while simultaneously monitoring or working on at least one other frequency;

.6 ship reporting systems and procedures;

.7 radiocommunication procedures of the IMO Merchant Ship Search and Rescue Manual (MERSAR);

.8 radio medical systems and procedures; and

.9 causes of false distress alerts and means to avoid them.

Practical

13 Practical training, supported by appropriate laboratory work, should be given in:

.1 correct and efficient operation of all GMDSS sub-systems and equipment under normal propagation conditions and under typical interference conditions;

.2 safe operation of all the GMDSS communication equipment and ancillary devices, including safety precautions;

.3 adequate and accurate keyboard skills for the satisfactory exchange of communications;

.4 operational techniques for:

.4.1 receiver and transmitter adjustment for the appropriate mode of operation, including digital selective calling and direct-printing telegraphy,

.4.2 antenna adjustment and re-alignment, as appropriate,

.4.3 use of radio life-saving appliances, and

.4.4 use of emergency position-indicating radio beacons (EPIRBs);

.5 antenna rigging, repair and maintenance, as appropriate;

.6 reading and understanding pictorial, logic and circuit diagrams;

.7 use and care of those tools and test instruments necessary to carry out at-sea electronic maintenance;

.8 manual soldering and desoldering techniques, including those involving semiconductor devices and modem circuits and the ability to distinguish whether the circuit is suitable to be manually soldered or desoldered;

.9 tracing and repair of faults to component level where practicable, and to board/module level in other cases;

.10 recognition and correction of conditions contributing to the fault occurring;



- .11 maintenance procedures, both preventive and corrective for all GMDSS communication equipment and radionavigation equipment; and
- .12 methods of alleviating electrical and electromagnetic interference such as bonding, shielding and bypassing.

#### Miscellaneous

#### 14 Knowledge of and/or training in:

- .1 the English language, both written and spoken, for the satisfactory exchange of communications relevant to the safety of life at sea;
- .2 world geography, especially the principal shipping routes, services of rescue co-ordination centres (RCCs) and related communication routes;
- .3 survival at sea, the operation of lifeboats, rescue boats, liferafts, buoyant apparatus and their equipment, with special reference to radio life-saving appliances;
- .4 fire prevention and fire-fighting, with particular reference to the radio installation;
- .5 preventive measures for the safety of ship and personnel in connection with hazards related to radio equipment, including electrical, radiation, chemical and mechanical hazards;
- .6 first aid, including heart-respiration revival techniques; and
- .7 co-ordinated universal time (UTC), global time zones and the international date line.

#### TRAINING RELATED TO THE SECOND-CLASS RADIOELECTRONIC CERTIFICATE

#### General

15 The requirements of medical fitness, especially as to hearing, eyesight and speech, should be met by the candidate before training is commenced.

16 The training should be relevant to the provisions of the STCW Convention, and the SOLAS Convention currently in force, with particular attention given to provisions for the Global Maritime Distress and Safety System (GMDSS). In developing training requirements, account should be taken of at least the knowledge and training given in paragraphs 17 to 28 hereunder.

#### Theory

17 Knowledge of the general principles and basic factors necessary for safe and efficient use of all sub-systems and equipment required in the GMDSS, sufficient to support the practical training provisions given in paragraph 27 below.

18 Knowledge of the use, operation and service areas of GMDSS sub-systems, including satellite system characteristics, navigational and meteorological warning systems and selection of appropriate communication circuits.

19 Knowledge of the principles of electricity and the theory of radio and electronics sufficient to meet the provisions given in paragraphs 20 to 24 below.

20 General theoretical knowledge of GMDSS radiocommunication equipment, including narrow-band direct-printing telegraph and radiotelephone transmitters and receivers, digital selective calling equipment, ship earth stations, emergency position-indicating radiobeacons (EPIRBs), marine antenna systems, radio equipment for survival craft together with all auxiliary items, including power supplies, as well as general knowledge of other equipment generally used for radionavigation, with particular reference to maintaining the equipment in service.

21 General knowledge of factors that affect system reliability, availability, maintenance procedures and proper use of test equipment.

22 General knowledge of microprocessors and fault diagnosis in systems using microprocessors.

23 General knowledge of control systems in the GMDSS radio equipment including testing and analysis.

24 Knowledge of the use of computer software for the GMDSS radio equipment and methods for correcting faults caused by loss of software control of the equipment.

#### Regulations and documentation

#### 25 Knowledge of:

- .1 the SOLAS Convention and the Radio Regulations with particular emphasis on:
  - .1.1 distress, urgency and safety radiocommunications,
  - .1.2 avoiding harmful interference, particularly with distress and safety traffic, and
  - .1.3 the prevention of unauthorized transmissions;
- .2 other documents relating to operational and communication procedures for distress, safety and public correspondence services, including charges, navigational warnings, and weather broadcasts in the Maritime Mobile Service and the Maritime Mobile Satellite Service; and

.3 the use of the International Code of Signals and the Standard Marine Navigational Vocabulary as replaced by the IMO Standard Marine Communication Phrases.

Watchkeeping and procedures

26 Training should be given in:

- .1 communication procedures and discipline to prevent harmful interference in GMDSS sub-systems;
- .2 procedures for using propagation prediction information to establish optimum frequencies for communications;
- .3 radiocommunication watchkeeping relevant to all GMDSS sub-systems, exchange of radiocommunication traffic, particularly concerning distress, urgency and safety procedures and radio records;
- .4 use of the international phonetic alphabet;
- .5 monitoring a distress frequency while simultaneously monitoring or working on at least one other frequency;
- .6 ship reporting systems and procedures;
- .7 radiocommunication procedures of the IMO Merchant Ship Search and Rescue Manual (MERSAR);
- .8 radio medical systems and procedures; and
- .9 causes of false distress alerts and means to avoid them.

Practical

27 Practical training, supported by appropriate laboratory work, should be given in:

- .1 correct and efficient operation of all GMDSS sub-systems and equipment under normal propagation conditions and under typical interference conditions;
- .2 safe operation of all the GMDSS communication equipment and ancillary devices, including safety precautions;
- .3 adequate and accurate keyboard skills for the satisfactory exchange of communications;
- .4 operational techniques for:
  - .4.1 receiver and transmitter adjustment for the appropriate mode of operation, including digital selective calling and direct-printing telegraphy,
  - .4.2 antenna adjustment and re-alignment, as appropriate,
  - .4.3 use of radio life-saving appliances, and
  - .4.4 use of emergency position-indicating radio beacons (EPIRBs);
- .5 antenna rigging, repair and maintenance, as appropriate;
- .6 reading and understanding pictorial, logic and module interconnection diagrams;
- .7 use and care of those tools and test instruments necessary to carry out at-sea electronic maintenance at the level of unit or module replacement;
- .8 basic manual soldering and desoldering techniques and their limitations;
- .9 tracing and repair of faults to board/module level;
- .10 recognition and correction of conditions contributing to the fault occurring;
- .11 basic maintenance procedures, both preventive and corrective, for all the GMDSS communication equipment and radionavigation equipment; and
- .12 methods of alleviating electrical and electromagnetic interference such as bonding, shielding and bypassing.

Miscellaneous

28 Knowledge of, and/or training in:

- .1 the English language, both written and spoken, for the satisfactory exchange of communications relevant to the safety of life at sea;
- .2 world geography, especially the principal shipping routes, services of rescue co-ordination centres (RCCs) and related communication routes;
- .3 survival at sea, the operation of lifeboats, rescue boats, liferafts, buoyant apparatus and their equipment, with special reference to radio life-saving appliances;
- .4 fire prevention and fire-fighting, with particular reference to the radio installation;
- .5 preventive measures for the safety of ship and personnel in connection with hazards related to radio equipment, including electrical, radiation, chemical and mechanical hazards;
- .6 first aid, including heart-respiration revival techniques; and
- .7 co-ordinated universal time (UTC), global time zones and international date line.

TRAINING RELATED TO THE GENERAL OPERATOR'S CERTIFICATE

## General

29 The requirements of medical fitness, especially as to hearing, eyesight and speech, should be met by the candidate before training is commenced.

30 The training should be relevant to the provisions of the STCW Convention, the Radio Regulations and the SOLAS Convention currently in force, with particular attention given to provisions for the Global Maritime Distress and Safety System (GMDSS). In developing training requirements, account should be taken of at least the knowledge and training given in paragraphs 31 to 36 hereunder.

## Theory

31 Knowledge of the general principles and basic factors necessary for safe and efficient use of all sub-systems and equipment required in the GMDSS sufficient to support the practical training provisions given in paragraph 35 below.

32 Knowledge of the use, operation and service areas of GMDSS sub-systems, including satellite system characteristics, navigational and meteorological warning systems and selection of appropriate communication circuits.

## Regulations and documentation

33 Knowledge of:

.1 the SOLAS Convention and the Radio Regulations with particular emphasis on:

.1.1 distress, urgency and safety radiocommunications,

.1.2 avoiding harmful interference, particularly with distress and safety traffic, and

.1.3 prevention of unauthorized transmissions;

.2 other documents relating to operational and communication procedures for distress, safety and public correspondence services, including charges, navigational warnings, and weather broadcasts in the Maritime Mobile Service and the Maritime Mobile Satellite Service; and

.3 use of the International Code of Signals and the Standard Marine Navigational Vocabulary as replaced by the IMO Standard Marine Communication Phrases.

## Watchkeeping and procedures

34 Training should be given in:

.1 communication procedures and discipline to prevent harmful interference in GMDSS sub-systems;

.2 procedures for using propagation prediction information to establish optimum frequencies for communications;

.3 radiocommunication watchkeeping relevant to all GMDSS sub-systems, exchange of radiocommunication traffic, particularly concerning distress, urgency and safety procedures and radio records;

.4 use of the international phonetic alphabet;

.5 monitoring a distress frequency while simultaneously monitoring or working on at least one other frequency;

.6 ship reporting systems and procedures;

.7 radiocommunication procedures of the IMO Merchant Ship Search and Rescue Manual (MERSAR);

.8 radio medical systems and procedures; and Practical

35 Practical training should be given in:

.1 correct and efficient operation of all GMDSS sub-systems and equipment under normal propagation conditions and under typical interference conditions;

.2 safe operation of all the GMDSS communications equipment and ancillary devices, including safety precautions;

.3 accurate and adequate keyboard skills for the satisfactory exchange of communications; and

.4 operational techniques for:

.4.1 receiver and transmitter adjustment for the appropriate mode of operation, including digital selective calling and direct-printing telegraphy,

.4.2 antenna adjustment and re-alignment as appropriate,

.4.3 use of radio life-saving appliances, and

.4.4 use of emergency position-indicating radio beacons (EPIRBs).

## Miscellaneous

36 Knowledge of, and/or training in:

.2 world geography, especially the principal shipping routes, services of rescue co-ordination centres (RCCs) and related communication routes;

- .3 survival at sea, the operation of lifeboats, rescue boats, liferafts, buoyant apparatus and their equipment, with special reference to radio life-saving appliances;
- .4 fire prevention and fire-fighting, with particular reference to the radio installation;
- .5 preventive measures for the safety of ship and personnel in connection with hazards related to radio equipment, including electrical, radiation, chemical and mechanical hazards;
- .6 first aid, including heart-respiration revival techniques; and
- .7 co-ordinated universal time (UTC), global time zones and international date line.

#### TRAINING RELATED TO THE RESTRICTED OPERATOR'S CERTIFICATE

##### General

37 The requirements of medical fitness, especially as to hearing, eyesight and speech, should be met by the candidate before training is commenced.

38 The training should be relevant to the provisions of the STCW Convention, the Radio Regulations and the SOLAS Convention currently in force, with particular attention given to provisions for the Global Maritime Distress and Safety System (GMDSS). In developing training guidance, account should be taken of at least the knowledge and training given in paragraphs 39 to 44 hereunder.

##### Theory

39 Knowledge of the general principles and basic factors, including VHF range limitation and antenna height effect necessary for safe and efficient use of all sub-systems and equipment required in GMDSS in sea area A1, sufficient to support the training given in paragraph 43 below.

##### Regulations and documentation

41 Knowledge of:

- .1 those parts of the SOLAS Convention and the Radio Regulations relevant to sea area A1, with particular emphasis on:
  - .1.1 distress, urgency and safety radiocommunications,
  - .1.2 avoiding harmful interference, particularly with distress and safety traffic, and
  - .1.3 prevention of unauthorized transmissions;
- .2 other documents relating to operational and communication procedures for distress, safety and public correspondence services, including charges, navigational warnings and weather broadcasts in the Maritime Mobile Service in sea area A1; and
- .3 use of the International Code of Signals and the Standard Marine Navigational Vocabulary as replaced by the IMO Standard Marine Communication Phrases.

##### Watchkeeping and procedures

42 Training should be given in:

- .1 communication procedures and discipline to prevent harmful interference in GMDSS sub-systems used in sea area A1;
- .2 VHF communication procedures for:
  - .2.1 radiocommunication watchkeeping, exchange of radiocommunication traffic, particularly concerning distress, urgency and safety procedures and radio records,
  - .2.2 monitoring a distress frequency while simultaneously monitoring or working on at least one other frequency, and
  - .2.3 the digital selective calling system;
- .3 use of the international phonetic alphabet;
- .4 ship reporting systems and procedures;
- .5 VHF radiocommunication procedures of the IMO Merchant Ship Search and Rescue Manual (MERSAR);
- .6 radio medical systems and procedures; and
- .7 causes of false distress alerts and means to avoid them.

##### Practical

43 Practical training should be given in:

- .1 correct and efficient operation of the GMDSS sub-systems and equipment prescribed for ships operating in sea area A1 under normal propagation conditions and wider typical interference conditions;
- .2 safe operation of relevant GMDSS communication equipment and ancillary devices, including safety precautions; and
- .3 operational techniques for use of:
  - .3.1 VHF, including channel, squelch, and mode adjustment, as appropriate,
  - .3.2 radio life-saving appliances,

.3.3 emergency position-indicating radio beacons (EPIRBs), and

.3.4 NAVTEX receivers.

Miscellaneous

44 Knowledge of, and/or training in:

.1 the English language, both written and spoken, for the satisfactory exchange of communications relevant to the safety of life at sea;

.2 services of rescue co-ordination centres (RCCs) and related communication routes;

.3 survival at sea, the operation of lifeboats, rescue boats, liferafts, buoyant apparatus and their equipment, with special reference to radio life-saving appliances;

.4 fire prevention and fire-fighting, with particular reference to the radio installation;

.5 preventive measures for the safety of ship and personnel in connection with hazards related to radio equipment, including electrical, radiation, chemical and mechanical hazards; and

.6 first aid, including heart-respiration revival techniques.

TRAINING RELATED TO MAINTENANCE OF GMDSS INSTALLATIONS ON BOARD SHIPS

General

45 Reference is made to the maintenance requirements of SOLAS Convention Regulation IV/15, and to IMO Resolution A.702(17) on Radio maintenance guidelines for the GMDSS related to sea areas A3 and A4, which includes in its Annex the following provision:

"4.2 The person designated to perform functions for at-sea electronic maintenance should either hold an appropriate certificate as specified by the Radio Regulations, as required, or have equivalent at-sea electronic maintenance qualifications, as may be approved by the Administration, taking into account the recommendations of the Organization on the training of such personnel."

46 The following guidance on equivalent electronic maintenance qualifications is provided for use by Administrations as appropriate.

47 Training as recommended below, does not qualify any person to be an operator of GMDSS radio equipment who does not hold an appropriate Radio Operator's Certificate.

Maintenance training equivalent to the First-Class Radioelectronic Certificate

48 In determining training equivalent to the elements of the listed First-Class Radioelectronic Certificate:

.1 the theory content should cover at least the subjects given in paragraphs 3 to 10;

.2 the practical content should cover at least the subjects given in paragraph 13; and

.3 the miscellaneous knowledge included should cover at least the subjects given in paragraph 14.

Maintenance training equivalent to the Second-Class Radioelectronic

49 In determining training equivalent to the maintenance elements of the Second-Class Radioelectronic Certificate:

## Chapter V Guidance regarding special training requirements for personnel on certain type of ships

### Section B-V/1 Guidance regarding the training and qualifications of tanker personnel

Ingangsdatum: 01-02-1997

Oil tanker training

1 The training required by paragraph 2.2 of regulation V/1 in respect of oil tankers should be divided into two parts, a general part concerning principles involved and a part on the application of those principles to ship operation. Any of this training may be given on board or ashore. It should be supplemented by practical instruction on board and, where appropriate, in a suitable shore-based installation. All training and instruction should be given by properly qualified and suitably experienced personnel.\*

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\* The following IMO Model Courses may be of assistance in the preparation of courses:

.1 IMO Model Course 1.02 - Advanced Training Programme on Oil Tanker Operations

.2 IMO Model Course 1.11 - MARPOL 73/78 - Annex I

.3 IMO Model Course 2.06 - Cargo and Ballast Handling Simulator

2 As much use as possible should be made of shipboard operation and equipment manuals, films and suitable visual aids, and the opportunity should be taken to introduce discussion of the part to be played by the safety organization on board ship and the role of safety officers and safety committees.

#### Chemical tanker training

3 The training required by paragraph 2.2 of regulation V/1 in respect of chemical tankers should be divided into two parts, a general part concerning principles involved and a part on the application on board of those principles to ship operations. Any of this training may be given on board or ashore. It should be supplemented by practical instruction on board and, where appropriate, in a suitable shore-based installation. All training and instruction should be given by properly qualified and suitably experienced personnel.\*

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\* The following IMO Model Courses may be of assistance in the preparation of courses:

.1 IMO Model Course 1.04 - Advanced Training Programme on Chemical Tanker Operations

.2 IMO Model Course 1.12 - MARPOL 73/78 - Annex II

4 As much use as possible should be made of shipboard operation and equipment manuals, films and suitable visual aids, and the opportunity should be taken to introduce discussion of the part to be played by the safety organization on board ship and the role of safety officers and safety committees.

#### Liquefied gas tanker training

5 The training required by paragraph 2.2 of Regulation V/1 in respect of liquefied gas tankers should be divided into the following two parts:

- supervised instruction, conducted in a shore-based facility or on board a specially equipped ship having training facilities and special instructors for this purpose, dealing with the principles involved and the application of these principles to ship operation, so however that Administrations may, in special situations, permit junior officers or ratings to be trained on board liquefied gas tankers on which they are serving, provided that such service is for a limited period, as established by the Administration, and that such crew members do not have duties or responsibilities in connection with cargo or cargo equipment and provided further that they are later trained in accordance with this guidance for any subsequent service; and
- supplementary shipboard training and experience, wherein the principles learned are applied to a particular type of ship and cargo-containment system. All training and instruction should be given by properly qualified and suitably experienced personnel.\*

\* IMO Model Course 1.06 - Advanced Training Programme on Liquefied Gas Tanker Operations may be of assistance in the preparation of courses.

6 As much use as possible should be made of shipboard operation and equipment manuals, films and suitable visual aids, and the opportunity should be taken to introduce discussion of the part to be played by the safety organization on board ship and the role of safety officers and safety committees.

#### ON-BOARD TRAINING FOR ALL TANKER PERSONNEL

7 All tanker personnel should undergo training on board and, where appropriate, ashore, which should be given by qualified personnel experienced in the handling and characteristics of oil, chemical or liquefied gas cargoes as appropriate and the safety procedures involved. The training should at least cover the matters set out in paragraphs 9 to 15 below.

#### Regulations

8 Knowledge of the ship's rules and regulations governing the safety of personnel on board a tanker in port and at sea.

#### Health hazards and precautions to be taken

9 Dangers of skin contact; inhalation and accidental swallowing of cargo; oxygen deficiency, with particular reference to inert-gas systems; the harmful properties of cargoes carried, personnel accidents and associated first aid; lists of dos and don'ts.

#### Fire prevention and fire-fighting

10 Control of smoking and cooking restrictions; sources of ignition; fire and explosion prevention; methods of fire-fighting; of portable extinguishers and fixed installations.

#### Pollution prevention

11 Procedures to be followed to prevent air and water pollution and measures which will be taken in the event of spillage. Safety equipment and its use

12 The proper use of protective clothing and equipment, resuscitators, escape and rescue equipment. Emergency procedures

13 Familiarization with the emergency plan procedures.

Cargo equipment and operations

14 A general description of cargo-handling equipment; safe loading and discharge procedures and precautions and safe entry into enclosed spaces.

**ON-BOARD TRAINING FOR LIQUEFIED GAS TANKER PERSONNEL**

15 Personnel who are required to be trained under Regulation V/1 should be provided supplementary shipboard training and experience based on the ship's operation manual. Such training and experience should cover the following systems as applicable: the cargo handling system including piping systems; pumps; valves; expansion devices and vapour systems; service requirements and operating characteristics of the cargo handling systems and liquid re-circulation;

instrumentation systems including cargo level indicators; gas-detection systems; hull and cargo temperature monitoring systems; the various methods of transmitting a signal from a sensor to the monitoring station and automatic shutdown systems;

boil-off disposal including use as fuel; compressors; heat exchanger; gas piping and ventilation in machinery and manned spaces; principles of dual-fuel boilers, gas turbines, diesel engines; emergency venting and re-liquefaction;

auxiliary systems including ventilation and inerting; quick-closing, remote control, pneumatic, excess flow, safety relief, and pressure/vacuum valves; steam systems for voids, ballast tanks and condenser; and general principles of operating the cargo-handling plant including inerting cargo tanks and void spaces;

tank cool-down and loading; operations during loaded and ballasted voyages; discharging and tank stripping; emergency procedures, and pre-planned action in the event of leaks, fires, collision, stranding, emergency cargo discharge and personnel casualty.

**PROOF OF QUALIFICATION**16 The master of every oil, chemical and liquefied gas tanker should ensure that the officer primarily responsible for the cargo possesses an appropriate certificate, issued or endorsed or validated as required by Regulation V/1, paragraph 4 and has had adequate recent practical experience on board an appropriate type of tanker to permit that officer to safely perform the duties assigned.

## **Section B-V/2 Guidance regarding mandatory minimum requirements for the training and qualification of masters, officers, ratings and other personnel on ro-ro passenger ships**

Ingangsdatum: 01-02-1997

(No provisions)

## **Section B-V/3 Guidance regarding additional training for masters and chief mates of large ships and ships with unusual manoeuvring characteristics**

### **Section B-V/a Guidance regarding additional training for masters and chief mates of large ships and ships with unusual manoeuvring characteristics**

Ingangsdatum: 01-01-1999

1 It is important that masters and chief mates should have had relevant experience and training before assuming the duties of master or chief mate of large ships or ships having unusual manoeuvring and handling characteristics significantly different from those in which they have recently served. Such characteristics will generally be found in ships which are of considerable deadweight or length or of special design or of high speed.

2 Prior to their appointment to such a ship, masters and chief mates should:

.1 be informed of the ship's handling characteristics by the company, particularly in relation to the knowledge, understanding and proficiency listed under ship manoeuvring and handling in column 2 of table A-II/2 - Specification of the minimum standard of competence for masters and chief mates of ships of 500 gross tonnage or more; and

.2 be made thoroughly familiar with the use of all navigational and manoeuvring aids fitted in the ship concerned, including their capabilities and limitations.

3 Before initially assuming command of one of the ships referred to above, the prospective master should have sufficient and appropriate general experience as master or chief mate, and either:

.1 have sufficient and appropriate experience manoeuvring the same ship under supervision or in manoeuvring a ship having similar manoeuvring characteristics; or

.2 have attended an approved ship-handling simulator course on an installation capable of simulating the manoeuvring characteristics of such a ship.

4 The additional training and qualifications of masters and chief mates of dynamically supported and high speed craft should be in accordance with the relevant guidelines of the IMO Code of Safety for Dynamically Supported Craft and the IMO Code of Safety for High Speed Craft (HSC) Code, as appropriate.

## **Section B-V/4 Guidance regarding training of officers and ratings responsible for cargo handling on ships carrying dangerous and hazardous substances in solid form in bulk.**

### **Section B-V/b Guidance regarding training of officers and ratings responsible for cargo handling on ships carrying dangerous and hazardous substances in solid form in bulk.**

Ingangsdatum: 01-01-1999

1 Training should be divided into two parts, a general part on the principles involved and a part on the application of such principles to ship operation. All training and instruction should be given by properly qualified and suitably experienced personnel and cover at least the subjects given in paragraphs 2 to 14 hereunder.

#### **PRINCIPLES**

Characteristics and properties

2 The important physical characteristics and chemical properties of dangerous and hazardous substances, sufficient to give basic understanding of the intrinsic hazards and risks involved.

Classification of materials possessing chemical hazards

3 IMO dangerous goods classes 4-9 and materials hazardous only in bulk(MHB) and the hazards associated with each class.

Health hazards

4 Dangers from skin contact, inhalation, ingestion and radiation.

Conventions, regulations and recommendations

5 General familiarization with the relevant requirements of chapters II-2 and VII of the 1974 SOLAS Convention as amended.

6 General use of and familiarization with the Code of Safe Practice for Solid Bulk Cargoes(BC Code) with particular reference to: .1 safety of personnel including safety equipment, measuring instruments, their use and practical application and interpretation of results;

.2 hazards from cargoes which have a tendency to shift; and

.3 materials possessing chemical hazards. SHIPBOARD APPLICATION

Class 4.1 - Flammable solids

Class 4.2 - Substances liable to spontaneous combustion

Class 4.3 - Substances which, in contact with water, emit flammable gases

7 Carriage, stowage and control of temperature to prevent decomposition and possible explosion; stowage categories; general stowage precautions, including those applicable to self-reactive and related substances; segregation requirements to prevent heating and ignition; the emission of poisonous or flammable gases and the formation of explosive mixtures.

Class 5.1 - Oxidizing substances

8 Carriage, stowage and control of temperature to prevent decomposition and possible explosion; stowage categories; general stowage precautions and segregation requirements to ensure separation from combustible material, from acids and heat sources to prevent fire, explosion and the formation of toxic gases.

Class 6.1 - Toxic substances

9 Contamination of foodstuffs, working areas and living accommodation and ventilation.



#### Class 7 - Radioactives

10 Transport index; types of ores and concentrates; stowage and segregation from persons, undeveloped photographic film and plates and foodstuffs; stowage categories; general stowage requirements; special stowage requirements; segregation requirements and separation distances; segregation from other dangerous goods.

#### Class 8 - Corrosives

11 Dangers from wetted substances.

#### Class 9 - Miscellaneous dangerous substances and articles

12 Examples and associated hazards; the hazards of materials hazardous only in bulk(MHB); general and specific stowage precautions; working and transport precautions; segregation requirements.

Safety precautions and emergency procedures

13 Electrical safety in cargo spaces; precautions to be taken for entry into enclosed spaces that may contain oxygen depleted, poisonous or flammable atmospheres; the possible effects of fire in shipments of substances of each class; use of the Emergency Procedures for Ships Carrying Dangerous Goods; emergency plans and procedures to be followed in case of incidents involving dangerous and hazardous substances and the use of individual entries in the Code of Safe Practice for Solid Bulk Cargoes in this respect.

Medical first aid

14 The IMO Medical First Aid Guide for Use in Accidents Involving Dangerous Goods (MFAG) and its use and application in association with other guides and medical advice by radio.

### **Section B-V/5 Guidance regarding training of officers and ratings responsible for cargo handling on ships carrying dangerous and hazardous substances in packaged form**

#### **Section B-V/c Guidance regarding training of officers and ratings responsible for cargo handling on ships carrying dangerous and hazardous substances in packaged form**

Ingangsdatum: 01-01-1999

1 Training should be divided into two parts, a general part on the principles involved and a part on the application of such principles to ship operation. All training and instruction should be given by properly qualified and suitably experienced personnel and cover at least the subjects given in paragraphs 2 to 19 hereunder.

##### PRINCIPLES

Characteristics and properties

2 The important physical characteristics and chemical properties of dangerous and hazardous substances, sufficient to give a basic understanding of the intrinsic hazards and risks involved.

Classification of dangerous and hazardous substances and materials possessing chemical hazards

3 IMO dangerous goods classes 1-9 and the hazards associated with each class; materials hazardous only in bulk(MHB)

Health hazards

4 Dangers from skin contact, inhalation, ingestion and radiation.

Conventions, regulations and recommendations

5 General familiarization with the relevant requirements of chapters II-2 and VII of the 1974 SOLAS Convention and of Annex III of MARPOL 73/78 including its implementation through the IMDG Code Use of and familiarization with the International Maritime Dangerous Goods(IMDG) Code

6 General knowledge of the requirements of the IMDG Code concerning declaration, documentation, packing, labelling and placarding; freight container and vehicle packing; portable tanks, tank containers and road tank vehicles, and other transport unit used for dangerous substances.

7 Knowledge of identification, marking, labelling, for stowage, securing, separation and segregation in different ship types mentioned in the IMDG Code.

8 Safety of personnel including safety equipment, measuring instruments, their use and practical application and the interpretation of results.

##### SHIPBOARD APPLICATION

Class 1 - Explosives

9 The 6 hazard divisions and 13 compatibility groups; packagings and magazines used for carriage of explosives; structural serviceability of freight containers and vehicles; stowage provisions, including specific arrangements for on-deck and under deck stowage; segregation from dangerous goods of other classes within class 1 and from non-dangerous goods; transport and stowage on passenger ships; suitability of cargo spaces; security precautions; precautions to be taken during loading and unloading.

Class 2 - Gases (compressed, liquefied, refrigerated liquefied or gases in solution) flammable, non-compressed, non-poisonous and poisonous

10 Types of pressure vessels and portable tanks including relief and closing devices used; stowage categories; general stowage precautions including those for flammable and poisonous gases and gases which are marine pollutants.

Class 3 - Flammable liquids

11 Packagings, tank containers, portable tank and road tank vehicles; stowage categories, including the specific requirements for plastics receptacles; general stowage precautions including those for marine pollutants; segregation requirements; precautions to be taken when carrying flammable liquids at elevated temperatures.

Class 4.1 - Flammable solids

Class 4.2 - Substances liable to spontaneous combustion

Class 4.3 - Substances which, in contact with water, emit flammable gases

12 Types of packagings; carriage and stowage under controlled temperatures to prevent decomposition and possible explosion; stowage categories; general stowage precautions, including those applicable to self-reactive and related substances, desensitized explosives and marine pollutants; segregation requirements to prevent heating and ignition, the emission of poisonous or flammable gases and the formation of explosive mixtures.

Class 5.1 - Oxidizing substances

Class 5.2 - Organic peroxides

13 Types of packagings; carriage and stowage under controlled temperatures to prevent decomposition and possible explosion; stowage categories; general stowage precautions, including those applicable to marine pollutants; segregation requirements to ensure separation from combustible material, from acids and heat sources to prevent fire, explosion and the formation of toxic gases; precautions to minimize friction and impact which can initiate decomposition

Class 6.1 - Toxic substances

Class 6.2 - Infectious substances

14 Types of packagings; stowage categories; general stowage precautions including those applicable to toxic, flammable liquids and marine pollutants; segregation requirements, especially considering that the characteristic common to these substances is their ability to cause death or serious injury to human health; decontamination measures in the event of spillage.

Class 7 - Radioactives

15 Types of packagings; transport index in relation to stowage and segregation; stowage and segregation from persons, undeveloped photographic film and plates and foodstuffs; stowage categories; general stowage requirements; segregation requirements and separation distances; segregation from other dangerous goods.

Class 8 - Corrosives

16 Types of packagings; stowage categories; general stowage precautions, including those applicable to corrosive, flammable liquids and marine pollutants; segregation requirements, especially considering that the characteristic common to these substances is their ability to cause severe damage to living tissue.

Class 9 - Miscellaneous dangerous substances and articles

17 Examples of hazards including marine pollution Safety precautions and emergency procedures

18 Electrical safety in cargo spaces; precautions to be taken for entry into enclosed spaces that may contain oxygen depleted, poisonous or flammable atmospheres; the possible effects of spillage or fire in shipments of substances of each class; consideration of events on deck or below deck; use of the IMO Emergency Procedures for Ships Carrying Dangerous Goods; emergency plans and procedures to be followed in case of incidents involving dangerous substances.

Medical first aid

19 The IMO Medical First Aid Guide for Use in Accidents Involving Dangerous Goods(MFAG) and its use and application in association with other guides and medical advice by radio.

## **Section B-V/d Guidance on application of the provisions of the STCW Convention to mobile offshore units (MOUs)**

Ingangsdatum: 30-05-2000

- 1 The provisions of the STCW Convention apply to the maritime personnel of self-propelled MOUs proceeding on voyages;
- 2 the provisions of the STCW Convention do not apply to non self-propelled MOUs or to MOUs on station;
- 3 when considering appropriate standards of training and certification when an MOU is on station, the country of registry should take account of relevant IMO recommendations. In particular, all maritime crew members on self-propelled MOUs and, where required, on other units should meet the requirements of the STCW Convention, as amended;
- 4 self-propelled MOUs proceeding on international voyages are required to carry safe manning documents;
- 5 MOUs on station are subject to the national legislation of the coastal State in whose Exclusive Economic Zone (EEZ) they are operating. Such coastal States should also take account of relevant IMO recommendations and should not prescribe higher standards for MOUs registered in other countries than the standards applied to MOUs registered in that coastal State; and
- 6 all special personnel employed on board MOUs (whether or not self-propelled) should be provided with appropriate familiarization and basic safety training in accordance with relevant IMO recommendations.

## **Chapter VI Guidance regarding emergency, occupational safety, medical care and survival functions**

### **Section B-VI/1 Guidance regarding familiarization and basic safety training and instruction for all seafarers**

#### **Elementary first aid**

Ingangsdatum: 01-02-1997

5 The training in elementary first aid required by Regulation VI/1 as part of the basic training should be given at an early stage in vocational training, preferably during pre-sea training, to enable seafarers to take immediate action upon encountering an accident or other medical emergency until the arrival of a person with first aid skills or the person in charge of medical care on board.

#### **Fire prevention and fire-fighting**

Ingangsdatum: 01-02-1997

1 The basic training in fire prevention and fire-fighting required by Section A-VI/1 should include at least the theoretical and practical elements itemized in paragraphs 2 to 4 hereunder.

#### **General**

Ingangsdatum: 01-02-1997

4 Trainees should also be made aware of the necessity of maintaining a state of readiness on board.

#### **Personal safety and social responsibilities**

Ingangsdatum: 01-02-1997

6 Administrations should bear in mind the significance of communication and language skills in maintaining safety of life and property at sea and in preventing marine pollution. Given the international character of the maritime industry, the reliance on voice communications from ship-to-ship and ship-to-shore, the increasing use of multi-national crews, and the concern that crew members should be able to communicate with passengers in an emergency, adoption of a common language for maritime

communications would promote safe practice by reducing the risk of human error in communicating essential information.

7 Although not universal, by common practice English is rapidly becoming the standard language of communication for maritime safety purposes, partly as a result of the use of the Standard Marine Navigational Vocabulary, as replaced by the IMO Standard Marine Communication Phrases.

8 Administrations should consider the benefits of ensuring that seafarers have an ability to use at least an elementary English vocabulary, with an emphasis on nautical terms and situations.

### **Practical training**

Ingangsdatum: 01-02-1997

3 The practical training given below should take place in spaces which provide truly realistic training conditions (e.g. simulated shipboard conditions), and whenever possible and practical should also be carried out in darkness as well as by daylight and should allow the trainees to acquire the ability to:

.1 use various types of portable fire extinguishers;

.2 use self-contained breathing apparatus; .3 extinguish smaller fires, e.g. electrical fires, oil fires and propane fires;

.4 extinguish extensive fires with water (jet and spray nozzles); .5 extinguish fires with either foam, powder or any other suitable chemical agent; .6 enter and pass through, with life-line but without breathing apparatus, a compartment into which high expansion foam has been injected;

.7 fight fire in smoke-filled enclosed spaces wearing self-contained breathing apparatus;

.8 extinguish fire with water fog, or any other suitable fire-fighting agent in accommodation room or simulated engine-room with fire and heavy smoke;

.9 extinguish an oil fire with fog applicator and spray nozzles; dry chemical powder or foam applicators;

.10 effect a rescue in a smoke-filled space wearing breathing apparatus.

### **Theoretical training**

Ingangsdatum: 01-02-1997

2 The theoretical training should cover:

.1 the three elements of fire and explosion (the fire triangle), fuel; source of ignition; oxygen;

.2 ignition sources: chemical; biological; physical;

.3 flammable materials; flammability; ignition point; burning temperature; burning speed; thermal value; lower flammable limit (LFL); upper flammable limit (UFL); flammable range; inerting; static electricity; flashpoint; auto-ignition;

.4 fire hazard and spread of fire by radiation, convection, and conduction;

.5 reactivity;

.6 classification of fires and applicable extinguishing agents;

.7 main causes of fire on board ships: oil leakage in engine-room; cigarettes; overheating (bearings);

galley appliances (stoves, flues, fryers, hotplates, etc.); spontaneous ignition (cargo, wastes, etc.); hot work (welding, cutting, etc.); electrical apparatus (short circuit, non-professional repairs); reaction, self-

heating and auto-ignition; arson; static electricity; .8 fire prevention; .9 fire and smoke detection systems; automatic fire alarms; .10 fire-fighting equipment

including: .10.1 fixed installations on board and their locations; fire mains, hydrants; international shore connection; smothering installations, carbon dioxide (CO<sub>2</sub>), foam; halogenated hydrocarbons; pressure

water spray system in special category spaces, etc.; automatic sprinkler system; emergency fire pump; emergency generator; chemical powder applicants; general outline of required and available mobile

apparatus; high pressure fog system; high expansion foam; new developments and equipment; 2 .10.2 firefighter's outfit, personal equipment; breathing apparatus; resuscitation apparatus; smoke helmet or

mask; fireproof life-line and harness; and their location on board; and .10.3 general equipment including fire hoses, nozzles, connections, fire axes; portable fire extinguishers; fire blankets; .11 construction and

arrangements including escape routes; means for gas freeing tanks; Class A, B and C divisions; inert gas systems; .12 ship fire-fighting organization, including general alarm; fire control plans, muster stations and

duties of individuals; communications, including ship-shore when in port; personnel safety procedures; periodic shipboard drills; patrol systems .13 practical knowledge of resuscitation methods; .14 fire-fighting

methods including sounding the alarm; locating and isolating; jettisoning; inhibiting; cooling; smothering; extinguishing; reflash watch; smoke extraction; and .15 fire-fighting agents including water, solid jet, spray, fog, flooding; foam, high, medium and low expansion; carbon dioxide (CO<sub>2</sub>); halon; aqueous film forming foam (AFFF); dry chemical powder; new developments and equipment. 2 Practical training 3 The practical training given below should take place in spaces which provide truly realistic training conditions (e.g. simulated shipboard conditions), and whenever possible and practical should also be carried out in darkness as well as by daylight and should allow the trainees to acquire the ability to: .2 use self-contained breathing apparatus; .3 extinguish smaller fires, e.g. electrical fires, oil fires and propane fires; .4 extinguish extensive fires with water (jet and spray nozzles); .5 extinguish fires with either foam, powder or any other suitable chemical agent; .6 enter and pass through, with life-line but without breathing apparatus, a compartment into which high expansion foam has been injected; .7 fight fire in smoke-filled enclosed spaces wearing self-contained breathing apparatus; .8 extinguish fire with water fog, or any other suitable fire-fighting agent in accommodation room or simulated engine-room with fire and heavy smoke; .9 extinguish an oil fire with fog applicator and spray nozzles; dry chemical powder or foam applicators; 4 Trainees should also be made aware of the necessity of maintaining a state of readiness on board. .10 effect a rescue in a smoke-filled space wearing breathing apparatus.

### **Section B-VI/2 Guidance regarding certification for proficiency in survival craft, rescue boats and fast rescue boats**

Ingangsdatum: 01-02-1997

1 Before training is commenced the requirement of medical fitness, particularly regarding eyesight and hearing, should be met by the candidate.

2 The training should be relevant to the provisions of the International Convention for the Safety of Life at Sea (SOLAS), as amended.

### **Section B-VI/3 Guidance regarding training in advanced fire-**

Ingangsdatum: 01-02-1997

(No provisions)

### **Section B-VI/4 Guidance regarding requirements in medical first aid and medical care**

Ingangsdatum: 01-02-1997

(No provisions)

## **Chapter VII Guidance regarding alternative certification**

### **Section B-VII/1 Guidance regarding the issue of alternative certificates**

Ingangsdatum: 01-02-1997

(No provisions)

### **Section B-VII/2 Guidance regarding certification of seafarers**

Ingangsdatum: 01-02-1997

(No provisions)

### **Section B-VII/3 Guidance regarding principles governing the issue of alternative certificates**

Ingangsdatum: 01-02-1997

(No provisions)

# Chapter VIII Guidance regarding watchkeeping,

## Section B-VIII/1 Guidance regarding fitness for duty

Ingangsdatum: 01-02-1997

### Prevention of fatigue

1 In observing the rest period requirements, "overriding operational conditions" should be construed to mean only essential shipboard work which cannot be delayed for safety or environmental reasons or which could not reasonably have been anticipated at the commencement of the voyage.

2 Although there is no universally accepted technical definition of fatigue, everyone involved in ship operations should be alert to the factors which can contribute to fatigue, including, but not limited to those identified by the Organization, and take them into account when making decisions on ship operations.

3 In applying Regulation VIII/1, the following should be taken into account:

.1 provisions made to prevent fatigue should ensure that excessive or unreasonable overall working hours are not undertaken. In particular, the minimum rest periods specified in Section A-VIII/1 should not be interpreted as implying that all other hours may be devoted to watchkeeping or other duties;

.2 that the frequency and length of leave periods, and the granting of compensatory leave, are material factors in preventing fatigue from building up over a period of time;

.3 the provisions may be varied for ships on short-sea voyages, provided special safety arrangements are put in place; and

4 Administrations should consider the introduction of a requirement that records of hours of work or rest of seafarers should be maintained and that such records are inspected by the Administration at appropriate intervals to ensure compliance with regulations concerning working hours or rest periods.

5 Based on information received as a result of investigating maritime casualties, Administrations should keep their provisions on prevention of fatigue under review.

## Section B-VIII/2 Guidance regarding watchkeeping arrangements and principles to be observed

### Part 1 Guidance on certification

Ingangsdatum: 01-02-1997

(No provisions)

### Part 2 Guidance on voyage planning

Ingangsdatum: 01-02-1997

(No provisions)

### Part 3 Guidance on watchkeeping at sea

Ingangsdatum: 01-02-1997

(No provisions)

### Part 3-1 Guidance on keeping a navigational watch

#### Bridge resource management

Ingangsdatum: 01-02-1997

4 Companies should issue guidance on proper bridge procedures, and promote the use of checklists appropriate to each ship taking into account national and international guidance.

5 Companies should also issue guidance to masters and officers in charge of the navigational watch on each ship concerning the need for continuously reassessing how bridge-watch resources are being allocated and used, based on bridge resource management principles such as the following:

- .1 a sufficient number of qualified individuals should be on watch to ensure all duties can be performed effectively;
- .2 all members of the navigational watch should be appropriately qualified and fit to perform their duties efficiently and effectively or the officer in charge of the navigational watch should take into account any limitation in qualifications or fitness of the individuals available when making navigational and operational decisions;
- .3 duties should be clearly and unambiguously assigned to specific individuals, who should confirm that they understand their responsibilities;
- .4 tasks should be performed according to a clear order of priority;
- .5 no member of the navigational watch should be assigned more duties or more difficult tasks than can be performed effectively;
- .6 individuals should be assigned at all times to locations at which they can most efficiently and effectively perform their duties, and individuals should be reassigned to other locations as circumstances may require;
- .7 members of the navigational watch should not be assigned to different duties, tasks or locations until the officer in charge of the navigational watch is certain that the adjustment can be accomplished efficiently and effectively;
- .8 instruments and equipment considered necessary for effective performance of duties should be readily available to appropriate members of the navigational watch;
- .9 communications among members of the navigational watch should be clear, immediate, reliable, and relevant to the business at hand
- .10 non-essential activity and distractions should be avoided, suppressed or removed;
- .11 all bridge equipment should be operating properly and if not, the officer in charge of the navigational watch should take into account any malfunction which may exist in making operational decisions;
- .12 all essential information should be collected, processed and interpreted, and made conveniently available to those who require it for the performance of their duties;
- .13 non-essential materials should not be placed on the bridge or any work surface; and
- .14 members of the navigational watch should at all times be prepared to respond efficiently and effectively to changes in circumstances.

### **Introduction**

Ingangsdatum: 01-02-1997

2 Particular guidance may be necessary for special types of ships as well as for ships carrying hazardous, dangerous, toxic or highly flammable cargoes. The master should provide this operational guidance as appropriate.

3 It is essential that officers in charge of the navigational watch appreciate that the efficient performance of their duties is necessary in the interests of the safety of life and property at sea and of preventing pollution of the marine environment.

### **Part 3-2 Guidance on keeping an engineering watch**

Ingangsdatum: 01-02-1997

6 Particular guidance may be necessary for special types of propulsion systems or ancillary equipment and for ships carrying hazardous, dangerous, toxic or highly flammable materials or other special types of cargo. The chief engineer officer should provide this operational guidance as appropriate.

7 It is essential that officers in charge of the engineering watch appreciate that the efficient performance of engineering watchkeeping duties is necessary in the interest of the safety of life and property at sea and of preventing pollution of the marine environment.

8 The relieving officer, before assuming charge of the engineering watch, should:

- .1 be familiar with the location and use of the equipment provided for the safety of life in a hazardous or toxic environment;
- .2 ascertain that materials for the administration of emergency medical first aid are readily available, particularly those required for the treatment of burns and scalds; and
- .3 when in port, safely anchored or moored, be aware of:

.3.1 cargo activities, the status of maintenance and repair functions and all other operations affecting the watch, and

.3.2 the auxiliary machinery in use for passenger or crew accommodation services, cargo operations, operational water supplies and exhaust systems.

### **Part 3-3 Guidance on keeping a radio watch**

#### **Battery maintenance**

Ingangsdatum: 01-02-1997

33 Batteries providing a source of energy for any part of the radio installation including those associated with uninterrupted power supplies are the responsibility of the radio operator designated as having primary responsibility for radiocommunications during distress incidents and should be:

.1 tested on-load and off-load daily and, where necessary, brought up to the fully charged condition;

.2 tested once per week by means of a hydrometer where practicable, or where a hydrometer cannot be used, by a suitable load test; and

.3 checked once per month for the security of each battery and its connections and the condition of the batteries and their compartment or compartments. The results of these tests should be recorded in the radio log.

#### **Distress alerts and procedures**

Ingangsdatum: 01-02-1997

21 The distress alert or distress call has absolute priority over all other transmissions. All stations which receive such signals are required by the Radio Regulations to immediately cease all transmissions capable of interfering with distress communications.

22 In the case of a distress affecting own ship, the radio operator designated as having primary responsibility for radiocommunications during distress incidents should immediately assume responsibility for following the procedures of the Radio Regulations and relevant ITU-R Recommendations.

23 On receiving a distress alert:

.1 the radio operator on watch should alert the master and, if appropriate, the radio operator designated as having primary responsibility for radiocommunications during distress incidents; and

.2 the radio operator designated as having primary responsibility for radiocommunications during distress incidents should evaluate the situation and immediately assume responsibility for following the procedures of the Radio Regulations and relevant ITU-R Recommendations.

#### **General**

Ingangsdatum: 01-02-1997

9 Among other things, the Radio Regulations require that each ship radio station is licensed, is under the ultimate authority of the master or other person responsible for the ship and is only operated under the control of adequately qualified personnel. The Radio Regulations also require that a distress alert shall only be sent on the authority of the master or other person responsible for the ship.

10 The master should bear in mind that all personnel assigned responsibility for sending a distress alert must be instructed with regard to, be knowledgeable of, and be able to operate properly, all radio equipment on the ship as required by Regulation I/14, paragraph 1.4. This should be recorded in the deck or radio log-book.

#### **Operational**

Ingangsdatum: 01-02-1997

14 Prior to sailing, the radio operator designated as having primary responsibility for radiocommunications during distress incidents should ensure that:

.1 all distress and safety radio equipment and the reserve source of energy are in an efficient working condition, and that this is recorded in the radio log;



.2 all documents required by international agreement, notices to ship radio stations and additional documents required by the Administration are available and are corrected in accordance with the latest supplements, and that any discrepancy is reported to the master;  
.3 the radio clock is correctly set against standard time signals;  
.4 antennae are correctly positioned, undamaged and properly connected; and  
.5 to the extent practicable, routine weather and navigational warning messages for the area in which the ship will be navigating are updated together with those for other areas requested by the master, and that such messages are passed to the master.

15 On sailing and opening the station, the radio operator on watch should:

.1 listen on the appropriate distress frequencies for any possible existing distress situation; and  
.2 send a traffic report (name, position and destination, etc.) to the local coast station and any other appropriate coast station from which general communications may be expected.

16 While the station is open, the radio operator on watch should.

.1 check the radio clock against standard time signals at least once a day;  
.2 send a traffic report when entering and on leaving the service area of a coast station from which general communications might be expected, and  
.3 transmit reports to ship reporting systems in accordance with the instructions of the master.

17 While at sea, the radio operator designated as having primary responsibility for radiocommunications during distress incidents should ensure the proper functioning of:

.1 the Digital Selective Calling (DSC) distress and safety radio equipment by means of a test call at least once each week; and  
.2 the distress and safety radio equipment by means of a test at least once each day but without radiating any signal.

The results of these tests should be recorded in the radio log.

18 The radio operator designated to handle general communications should ensure that an effective watch is maintained on those frequencies on which communications are likely to be exchanged, having regard to the position of the ship in relation to those coast stations and to coast earth stations from which traffic may be expected. When exchanging traffic, radio operators should follow the relevant ITU recommendations.

19 When closing the station on arrival at a port, the radio operator on watch should advise the local coast station and other coast stations with which contact has been maintained of the ship's arrival and of the closing of the station.

20 When closing the radio station the radio operator designated as having primary responsibility for radiocommunications during distress incidents should:

.1 ensure that transmitting antennae are earthed; and  
.2 check that the reserve sources of energy are sufficiently charged.

### **Radio records**

Ingangsdatum: 01-02-1997

31 Additional entries in the radio log should be made in accordance with paragraphs 10, 12, 14, 17 and 33.

32 Unauthorized transmissions and incidents of harmful interference should, if possible, be identified, recorded in the radio log and brought to the attention of the Administration in compliance with the Radio Regulations, together with an appropriate extract from the radio log.

### **Safety messages**

Ingangsdatum: 01-02-1997

28 When a safety message is to be transmitted, the master and the radio operator on watch should follow the procedures of the Radio Regulations.

29 On receiving a safety message, the radio operator on watch should note its content and act in accordance with the master's instructions.

30 Bridge-to-bridge communications should be exchanged on VHF channel 13. Bridge-to-bridge communications are described as "Intership Navigation Safety Communications" in the Radio Regulations.

## **Urgency messages**

Ingangsdatum: 01-02-1997

24 In cases of urgency affecting own ship, the radio operator designated as having responsibility for radiocommunications during distress incidents should immediately assume responsibility for following the procedures of the Radio Regulations and relevant ITU-R Recommendations.

25 In cases of communications relating to medical advice, the radio operator designated as having primary responsibility for radiocommunications during distress incidents should follow the procedures of the Radio Regulations and adhere to the conditions as published in the relevant international documentation (see paragraph 14.2) or as specified by the satellite service provider.

26 In cases of communications relating to medical transports, as defined in the Annex 1 to the Protocol additional to the Geneva Conventions of 12 August 1949 relating to the protection of victims of international armed conflicts (Protocol 1), the radio operator designated as having primary responsibility for radiocommunication during distress incidents should follow the procedures of the Radio Regulations.

27 On receiving an urgency message, the radio operator on watch should alert the master and, if appropriate, the radio operator designated as having primary responsibility for radiocommunications during distress incidents.

## **Watchkeeping**

Ingangsdatum: 01-02-1997

11 In addition to the requirements concerning radiowatchkeeping, the master of every seagoing ship should ensure that:

.1 the ship's radio station is adequately manned for the purpose of exchanging general communications - in particular public correspondence, taking into account the constraints imposed by the duties of those authorized to operate it; and

.2 the radio equipment provided on board and, where fitted, the reserve sources of energy, are maintained in an efficient working condition.

12 Necessary instruction and information on use of radio equipment and procedures for distress and safety purposes should be given periodically to all relevant crew members by the person designated in the muster list to have primary responsibility for radiocommunications during distress incidents.

This should be recorded in the radio log.

13 The master of every ship not subject to the SOLAS Convention should require that radio watchkeeping is adequately maintained as determined by the Administration, taking into account the Radio Regulations.

## **Part 4 Guidance on watchkeeping in port**

Ingangsdatum: 01-02-1997

(No provisions)

## **Part 5 Guidance on prevention of drug and alcohol abuse\***

### **Part 5 Guidance on prevention of drug and alcohol abuse**

Ingangsdatum: 30-05-1998

34 Drug and alcohol abuse directly affect the fitness and ability of a seafarer to perform watchkeeping duties. Seafarers found to be under the influence of drugs or alcohol should not be permitted to perform watchkeeping duties until they are no longer impaired in their ability to perform those duties.

35 Administrations should consider developing national legislation:

.1 prescribing a maximum of 0.08% blood alcohol level (BAC) during watchkeeping duty as a minimum safety standard on their ships; and

.2 prohibiting the consumption of alcohol within 4 hours prior to serving as a member of a watch.

Drug and alcohol abuse screening program guidelines

36 The Administration should ensure that adequate measures are taken to prevent alcohol and drugs from impairing the ability of watchkeeping personnel, and should establish screening programs as necessary which:

- .1 identify drug and alcohol abuse;
- .2 respect the dignity, privacy, confidentiality and fundamental legal rights of the individuals concerned; and
- .3 take into account relevant international guidelines.\*

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Guidance on establishing programmes

37 Those involved in establishing drug and alcohol prevention programmes should take into account the guidance contained in the ILO publication "Drug on Alcohol Prevention Programmes in the Maritime Industry(A Manual for Planners)", as may be amended\*.

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\* Annex III of this Manual includes "Guiding Principles on Drug and Alcohol Testing Procedures for Worldwide Application in the Maritime Industry". These Guiding Principles were adopted by the Joint ILO/WHO Committee on the Health of Seafarers(May 1993).