U.S. Department
of Transportation
**United States
Coast Guard**

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NVIC

NAVIGATION AND VESSEL INSPECTION CIRCULAR NO.

Subj: GUIDANCE ON COAST GUARD ACCEPTED TRAINING RECORD BOOKS

Ref: (a) International Convention on Standards of Training, Certification and Watchkeeping for Seafarers, 1978, as amended
(b) Federal Register Vol. 62, No. 123, pg. 34505, dated June 26, 1997
(c) Navigation and Vessel Inspection Circular (NVIC) 6-97, "Policy on Qualified Instructors and Designated Examiners Who Train or Assess the Competence of Merchant Mariners"

1. PURPOSE.

   a. This Circular establishes guidance on the use of Coast Guard-accepted training record books for meeting the requirements of Title 46, Code of Federal Regulations (CFR), section 10.304 ("Substitution of training for required service, and use of training record books").

   b. Specifically, this Circular provides: (1) model training record books, which may be used without further application for approval or acceptance by the Coast Guard; and (2) procedures for submitting record books, which are different from the basic model, for Coast Guard acceptance.

2. DIRECTIVES AFFECTED. None

3. BACKGROUND.

   a. In 1993, the International Maritime Organization (IMO) embarked on a comprehensive revision of the Standards for Training Certification and Watchkeeping - 1978 (STCW) to establish the highest practical standards of competence for mariners and to reduce human error as a major cause of marine casualties. On July 7, 1995, a conference of Parties to the

STCW adopted a package of amendments to the Convention which establishes requirements for qualification of masters, officers, watchkeeping and other crew personnel on seagoing merchant vessels operating outside the boundary line and the responsibilities of companies that operate such vessels. The STCW Amendments entered into force on February 1, 1997 (see reference (a)).

b. STCW Regulation II/1 (officer of the navigational watch) requires candidates for certification to have "approved seagoing service of not less than one year as part of an approved training program which includes on-board training which meets the requirements of Section A-II/1 of the STCW Code and is documented in an *approved training record book,* or, otherwise, have approved seagoing service of not less than three years" (emphasis added).

c. STCW Regulation III/1 (officer in charge of an engineering watch or designated duty engineer) requires that candidates for certification have "completed not less than six months seagoing service in the engine department" and have "completed approved education and training of at least 30 months. This is to include on-board training and documented in an *approved training record book,* meeting the standards of competence specified in Section A-III/1 of the STCW Code" (emphasis added).

d. Section A-I/6 of the STCW Code ("Training and Assessment") provides for on-board, in-service assessment of competence by qualified instructors, supervisors, or assessors.

e. The Coast Guard published an Interim Final Rule on June 26, 1997, in the Federal Register (reference (b)) which revised the regulations in Title 46, CFR Parts 10 and 12 to implement the requirements of the 1995 STCW Amendments to ensure that U.S. merchant mariners and vessel owners/operators conform to the new provisions. Title 46 CFR, Section 10.304(e) and (f) require the use of a Coast Guard-accepted training record book for candidates for STCW certificates or endorsements as deck officers or engineer officers who commence their training or sea service on or after August 1, 1998.

4. DISCUSSION.

a. The Coast Guard will be requiring formal record keeping of demonstrated competencies and formalized training as part of an approved program of training, in addition to approved sea service and examinations, as criteria for issuing STCW certificates and endorsements. The following question-and-answer format is intended to provide guidance to:

(1) assist individuals and/or training programs in determining whether they have compiled an appropriate document for the purpose of verifying the performance of training and assessment functions;

(2) enable those who offer training to merchant mariners an appropriate record keeping system to ensure that qualified individuals can verify that all skill demonstrations and knowledge have been provided; and

(3) assist those who conduct monitoring of training programs under a quality standards system in evaluating whether the program is achieving its stated objectives and meeting regulatory requirements.

b. The following questions and answers provide information on "Training Record Books."

(1) *What is a "Training Record Book?"*

A "Training Record Book" (TRB) is required by 46 CFR 10.404 (e) for certification as officer in charge of a navigational watch on ships of 500 gross tonnage or more, and 46 CFR 10.304 (f) certification of officers in charge of an engineering watch in a manned engine room or as a designated duty engineer in a periodically unmanned engine room, to adequately document systematic practical training and experience in the tasks, duties, and responsibilities of an officer in charge of a watch.

(2) What must be provided in a TRB?

All TRBs, at a minimum, must contain the following items listed in 46 CFR 10.304 (g):

(a) The identity of the candidate.

(b) The tasks to be performed or the skills to be demonstrated, with reference to the standards of competence set forth in the tables of the appropriate sections in part A of the STCW code.

(c) The criteria to be used in determining that the tasks or skills have been performed properly, again with reference to the standards of competence set forth in the tables of the appropriate sections in part A of the STCW code.

(d) A place for a qualified instructor to indicate by his or her initials that the candidate has received training in the proper performance of the task or skill.

(e) A place for the a designated examiner to indicate by his or her initials that the candidate has successfully completed a practical demonstration and has proved competent in the task or skill under the criteria, when assessment of competence is to be documented in the record books.

(f) The identity of each qualified instructor, including any Coast Guard license or document held, and the instructor's signature.

(g) The identity of each designated examiner, when any assessment of competence is recorded, including any Coast Guard license or document held, and the examiner's signature confirming that his or her initials certify that he or she has witnessed the practical demonstration of a particular task or skill by the candidate.

In general, the following items will be needed to supplement the items listed above and include the tasks and corresponding criteria for satisfactory performance as a watchstander for either a navigational watch or an engine room watch. In addition each TRB is to include the candidate's personal history page with photo ID, ship service record, ship data sheet, shipboard training officer's review of training progress, an inspection of record book form for the company's training and senior officers, an introduction (describing guidance in the use, scope, and objectives of the TRB and the training program) and guidance for those

directly involved with the candidate's training and evaluation (see enclosures 1 and 2).

(3) *Has a format been developed for the layout and presentation of the TRBs?*

Enclosure (1) is a model training record book for certification as officer in charge of a navigational watch for use onboard vessels where a complete training program has been approved and established. Enclosure (2) is a model training record book for certification as officer in charge of an engineering watch or designated duty engineer for use onboard vessels where a complete training program has been approved and established.

These enclosures are based on the respective models developed by the International Maritime Organization. They are provided with supplemental guidance on instructional and assessment techniques and arrangements to be taken into account when using the training record book for on-board instruction and assessment.

(4) *Will every training organization be required to submit the exact same contents?*

Any training record book which follows the model is Coast Guard-accepted for purposes of meeting the requirements of 46 CFR 10.304(e), provided the training program in which it is used and is approved under 46 CFR 10.302 (Coast Guard course approval) or 10.309 (Coast Guard accepted training other than Coast Guard approved courses). In addition, any training record book which conforms with the model TRB is Coast Guard-accepted for purposes of meeting the requirements of 46 CFR 10.304(f), provided the training program in which it is used and is approved under 46 CFR 10.302 (Coast Guard course approval) or 10.309 (Coast Guard accepted training other than Coast Guard approved courses).

However, this should not be interpreted as every training organization being required to conduct its training program in exactly the same manner as another.

(5) *Can a Training Record Book be developed to meet the needs of a specific training program and used in place of the IMO models?*

Yes, all training record books need not conform in every respect with the models in either enclosure (1) or (2). Variations from these models may be accepted by the Coast Guard to suit the circumstances of training programs which are adapted to special classes of vessel or limited areas of training and assessment, or are otherwise justified by the nature and purpose of the training objectives.

(6) *What are the required qualifications for the on board instructor/assessor referred to in the training record book?*

The requirements and qualifications for instructors and assessors are discussed in NVIC 6-97, (reference (c)).

(7) *Will the use of the TRBs in existing training programs, such as the maritime academies, require significant changes?*

Existing academy training programs are not considered to be significantly affected by the use of the TRBs. Primarily, the TRB will be a document, when properly completed, that will be used to indicate that all training and the competent demonstration of appropriate skills has been accomplished.

(8) *The use of the TRB appears to be fairly simple, in which case, something that simple must have some requirement that will end in producing a problem?*

When the TRBs are used in a training program, each instructor and/or assessor will need to develop the specific criteria for the conduct of instruction and/or assessment reflected by the guidelines presented in the model TRBs. One perceived problem may be related to the specific criteria that will need to be developed by each instructor and/or assessor. There is concern that the same level of assessment may not be uniformly applied and as a result consistency of assessment may be diminished. This concern can be minimized by each training organization developing specific criteria by which students will be assessed, rather than relying upon each individual assessor having to develop their own standards.

(9) *Can the task of developing assessment criteria be that difficult?*

Enclosure (3) is an example of how the base criteria for determining competency (as provided in the IMO model Training Record Book) has been expanded into a specific criteria of assessment for determining the competent conduct to be demonstrated by the student. Although the development of the criteria is not necessarily difficult, it is the extent of detail that will become the focus of a lack of agreement. Once enclosure (3) has been reviewed, some will argue that the criteria is too detailed, while others will argue that there is insufficient detail provided by the criteria. With that set of arguments being anticipated, each program should establish a uniform set of criteria for all who will be required to conduct assessment of their trainees.

(10) *Can the specific criteria of assessment be considered as a Training Record Book?*

Again, it should be reiterated that a specimen for an alternative training record book may be submitted, along with an explanation of how and why the alternative training record book is different from the models provided in enclosure (1) or (2). When a training organization submits a complete set of specific criteria for assessment and, corresponding to all demonstrable skills as laid out in the respective IMO model TRB, it will be given significant consideration for acceptance. The included explanation will also need to address how the remaining criteria, listed in the IMO models, is to be acknowledged.

(11) *Where should the Training Record Books be submitted for acceptance?*

All Training Record Books, adopted directly from the IMO models are Coast Guard - accepted and need not be submitted for further consideration. Where an organization may prefer to submit an alternative training record book, the specimens are to be submitted, along with an appropriate letter explaining how and why the training record book differs from the models provided in enclosure (1) or (2) to the:

National Maritime Center, Director, NMC-4B,
4200 Wilson Boulevard, Suite 510,
Arlington, VA 22203-1804,

or for additional information call (703) 235-0014.

(a) Evaluation. The National Maritime Center will:

(1) evaluate the alternative record book submitted;
(2) consult with the applicant, when necessary, to clarify any details; and
(3) issue a letter to the applicant with a determination of whether or not the proposed alternative record book can be "Coast Guard accepted."

(b) Recognition.

(1) Once the determination is issued that a particular alternative record book is in fact "Coast Guard approved", it may be used in the context of an approved training program to meet the requirements of 46 CFR 10.304(e) or (f), as appropriate.

(2) The Coast Guard OCMI will accept valid, properly-completed training and assessment record books which conform with the models in enclosures (1) or (2) as evidence that the candidate named in the book has met the requirement of 46 CFR 10.302(e) or (f), as appropriate.

5. ACTION.

a. The guidelines contained in this circular apply to training record books which are to be Coast Guard-accepted for purposes of complying with the requirements of 46 CFR 10.304(e) and (f).

b. Entities and organizations offering training to candidates for U.S. licenses, documents, and STCW endorsements should be aware that a Coast Guard-accepted training record book is required under some circumstances for individuals pursuing certification as deck or engineer officers under the STCW Convention and implementing regulations in 46 CFR 10.304.

c. Entities and organizations offering maritime training should follow the guidance in this NVIC to ensure the appropriate training record book is employed during training and is properly completed by qualified instructors and assessors.

d. OCMI's should use this circular as guidance for maintaining oversight of maritime training programs in their area of responsibility.

Encl: (1) Model training record book for candidates for certification as an officer in charge of a navigational watch
(2) Model training record book for candidates for certification as an engineer officer in charge of an engineering watch or designated duty engineer
(3) Specific Criteria for Assessment

Non-Standard Distribution:

B:a G-MSO(4); G-MOC(4); G-MOA(2); G-MSE(1); G-MSR(1); G-M(1); G-MS(1)

C:e New Orleans (90); Hampton Roads (50); Baltimore (45); San Francisco (40); Philadelphia, Port Arthur, Honolulu, Puget Sound (35); Miami, Houston, Mobile, Morgan City, Los Angeles/Long Beach (25); Jacksonville, Portland OR, Boston, Portland ME, Charleston, Galveston, Anchorage, Cleveland, Louisville, Memphis, Paducah, Pittsburgh, St. Louis, San Juan, Savannah, Tampa, Chicago, Buffalo, Detroit, Duluth, Milwaukee, San Diego, Juneau, Valdez, Providence, Huntington, Wilmington, Corpus Christi, Toledo, Guam (20).

C:m New York (70); Sturgeon Bay (4).

D:l CG Liaison Officer MILSEALIFTCOMD (Code N-7CG) (1).

RSPA (DHM-22), CG Liaison Officer MARAD (MAR-720.2) (1).

NOAA Fleet Inspection Officer (1).

d. OCMI's should use this circular as guidance for maintaining oversight of maritime training programs in their area of responsibility.

Encl: (1) Model training record book for candidates for certification as an officer in charge of a navigational watch
(2) Model training record book for candidates for certification as an engineer officer in charge of an engineering watch or designated duty engineer
(3) Specific Criteria for Assessment

Non-Standard Distribution:

B:a G-MSO(4); G-MOC(4); G-MOA(2); G-MSE(1); G-MSR(1); G-M(1); G-MS(1)

C:e New Orleans (90); Hampton Roads (50); Baltimore (45); San Francisco (40); Philadelphia, Port Arthur, Honolulu, Puget Sound (35); Miami, Houston, Mobile, Morgan City, Los Angeles/Long Beach (25); Jacksonville, Portland OR, Boston, Portland ME, Charleston, Galveston, Anchorage, Cleveland, Louisville, Memphis, Paducah, Pittsburgh, St. Louis, San Juan, Savannah, Tampa, Chicago, Buffalo, Detroit, Duluth, Milwaukee, San Diego, Juneau, Valdez, Providence, Huntington, Wilmington, Corpus Christi, Toledo, Guam (20).

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NOAA Fleet Inspection Officer (1).

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OFFICE/DIVISION	MSO-1	G-MSO	G-MS	G-M						
INITIALS OF RESP. OFFICERS										
INTRA-OFFICE OR DIVISION INITIALS										
DATE OUT										

ANNEX 9

STCW 7/Circ.2

INTERNATIONAL CONVENTION ON STANDARDS OF TRAINING, CERTIFICATION AND WATCHKEEPING FOR SEAFARERS (STCW), 1978

Model training record book for candidates for certification as an officer in charge of a navigational watch

1. The Sub-Committee on Standards of Training and Watchkeeping (STW), at its twenty-eighth session, prepared the draft IMO Model training record book for candidates for certification as an officer in charge of a navigational watch given at annex.

2. The STW Sub-Committee noted the draft text of the model training record book must be seen as a model only which has been developed as guidance to assist Parties in preparing their own training record book for use as part of an approved training programme. The content of the model training record book follows the structure of the STCW Convention and the STCW Code. However, nothing prevents a Party from adopting its own format or specifying assignments in less or greater detail.

3. Assessment of the competence of the seafarers concerned is included in the model training record book. However, as the STW Sub-Committee could not reach consensus, the on-board assessment in relation to the training record books will be further considered at the twenty-ninth session of the STW Sub-Committee (January 1998).

4. Parties should be aware that it is their responsibility to ensure that instructors, supervisors and assessors are appropriately qualified as required by section A-I/6, paragraph 3 of the STCW Code and that they comply with the quality standards in section A-1/8 of the STCW Code.

ENCLOSURE [1]

MODEL OF A TRAINING RECORD BOOK FOR CANDIDATES FOR CERTIFICATION AS OFFICER IN CHARGE OF A NAVIGATIONAL WATCH (as part of an approved training programme)

INTRODUCTION

1. This model Training Record Book is developed as guidance to assist Parties in developing their own Training Record Book which may be used as part of an approved training programme. Further, the Training Record Book allows for the recording of assessment by qualified assessors of satisfactorily demonstrated competencies. The content of this book follows the structure given in section A-II/1 of the STCW Code. Nothing should prevent a Party from adopting its own format or specifying the assignments presented in section A-II/1 of the STCW Code in greater detail. Each company has to satisfy requirements relevant to training, as outlined in regulation I/III of the STCW Convention and Section A-I/14 of the STCW Code.

2. This model Training Record Book details the practical training which should be completed prior to certification as Officer in Charge of a Navigational Watch. It will serve both as a guide to the practical training which should be undertaken during the mandatory period of seagoing service and as a record of the satisfactory completion of that training on board.

3. Each trainee will require his/her own training record book and should be responsible for its safe keeping. Masters and shipboard training officers will also need to consult it to facilitate planning and organization of the training.

4. Those carrying out instruction or assessment' activities as part of an approved in-service training programme, either on board or ashore, should appreciate how and where the particular skill or ability being taught or assessed might best be conducted and related to all other skills or abilities required to achieve competency at the operational level. Where assessment is used in this document, it refers solely to the assessment of the trainee's practical ability to carry out the tasks given in the Training Record Book as demonstrated. Types of assessment include:

   .1 Approved in-service experience;

   .2 Approved training ship experience;

Instructors and assessors shall be qualified in accordance with regulation 1/6 of the STCW Convention and the corresponding parts of the STCW Code.

   .3 Approved simulator training, where appropriate;

   .4 Approved laboratory equipment training;

.5 Approved fire-fighting training and experience as set out in section A-VI/3 of the STCW Code;

.6 Approved training and experience as set out in section A-VI/2, paragraphs 1 to 4 of the STCW Code; and

.7 Approved training as set out in section A-VI/4, paragraphs 1 to 3 of the STCW Code.

5. No on-board training or assessment should take place unless such activities can be carried out without interfering with the normal operation of the ship, jeopardizing safety of life at sea, or posing a risk of marine pollution. Instructors and assessors should be able to devote their time and attention exclusively to the instruction and assessment activity at hand, or if unable to do so, should defer the activity until a more suitable time.

SCOPE

6. The aim of the practical training is for trainees to:

- gain experience in relevant aspects of shipboard activities as they occur on board the ship or ships on which the trainee is sailing;
- test and compare the knowledge acquired at school with the daily practice on board;
- consolidate and expand theoretical knowledge;
- build a practical basis to achieve the standards of competence in accordance with table A-II/1 of the STCW Code;
- build a practical basis to achieve the standards of competence in accordance with regulation VIII/2 and the corresponding parts of the STCW Code relating to principles to be observed in keeping a navigational watch; and
- prepare for a future position on board.

Instructors and assessors shall be qualified in accordance with regulation 1/6 of the STCW Convention and the corresponding parts of the STCW Code.

OBJECTIVE

7.1 The trainees will acquire basic seamanship skills and a practical awareness of the need to follow safe working practices. They will also -be able to keep a navigational watch safely, in accordance with the relevant regulations and recommendations.

7.2 The aim of the Training Record Book is three fold, namely:

- directing the practical training, so the trainee is guided as to the objectives of the practical training period;
- giving guidance to the shipboard training officers regarding the development of the practical training to enable them to judge the progress and, if necessary, to make adjustments; and
- directing the assessment so that the required training outcome can be proved and documented.

APPROVED PROGRAMME OF ON-BOARD TRAINING

8.1 Candidates for certification under regulation II/1, other than those who have approved seagoing service of not less than three years, are required to have completed an "approved program of on board training". This program of onboard training is to form part of an overall program of education and training approved by the Party under whose authority the certificate or endorsement is to be issued. The programme of on-board training is required to ensure that the candidate receives systematic practical training and experience which is closely supervised and monitored by qualified officers and adequately documented in an approved Training Record Book. The regulation requires that officers supervising and monitoring and assessing the on board training are appropriately qualified.

8.2 Each general training activity specified in the approved training record book is required to have been completed by the candidate and supervised, monitored, assessed and documented as being satisfactorily completed in accordance with the requirements and recommendations of the STCW Code.

See regulations I/6, I/8 and II/1 of the STCW Convention and the corresponding parts of the STCW Code.

SEA GOING PHASE TRAINING RECORD BOOK

Guidance for the Master and Shipboard Training Officer

Guidance for on-board instructors.

1. Before giving instruction in a particular skill or ability for the purpose of initialing this training record book (TRB), the instructor should (a) be qualified under the relevant regulations to give such instruction, and (b) determine that the candidate is qualified on the basis of prior experience and/or training, to receive such instruction. The instructor should also review the TRB to identify what training the candidate has already completed, and what training remains to be conducted.

2. In designing an on-board training activity, the instructor should have clear, measurable, training objectives. These should be organized by reference to other related skills and abilities needed by the student to achieve the level of competence being pursued. The training objectives should be approved by the responsible person supervising the training and assessment program.

3. The instructor should conduct training only when the necessary equipment is operational and will be available throughout the training exercise.

4. The instructor should follow an outline, checklist, or training plan which organizes information and instructional activities in a logical and progressive manner.

5. Instructional activities should make effective use of available teaching media such as videotape, personal computers, and models.

6. The instructor should ensure the candidate has sufficient opportunities to observe the skill or ability being properly performed. When the skill or ability requires the use of certain shipboard equipment, the instructor should ensure that the candidate is given adequate opportunities for hands-on use of that equipment along with constructive comments directing the candidate to preferred or proper ways of using the equipment.

7. Instruction should include explanations of misuse or improper procedure; problems that may be encountered and proper corrective actions to take; and descriptions of important differences which may exist from ship to ship.

8. The instructor should periodically use a reliable means of assessment to determine that candidate is in fact making progress toward the objectives stated for the instructional activity.

9. When the instructor is inexperienced, arrangements should be made for his or her early training activities to be monitored by the person responsible for supervising the training and assessment program, with the aim of ensuring that training activities are conducted in the most effective manner possible.Guidance for on-board assessors/designated examiners

10. Before assessing the performance of a particular skill or ability for the purpose of initialing this TRB, the assessor should (a) be qualified under the relevant regulations to perform the assessment; and (b) determine that the candidate is qualified on the basis of prior experience and/or training, to be assessed. The assessor should also review the TRB to identify what training and assessment the candidate has already completed, and what training or assessment remains to be conducted.

11. In designing an on-board assessment activity, the assessor should have clear, measurable, assessment objectives. These should be organized by reference to other related skills and abilities needed by the student to achieve the level of competence being pursued. The training objectives should be approved by the person responsible for supervising the training and assessment program.

12. The following guidelines are taken from section B-II/1 of the STCW Code for the conduct of assessment and should be taken into account:

    .1 The 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:

        .1.1 work competently in different ships and across a range of circumstances;

        .1.2 anticipate, prepare for, and deal with contingencies; and

        .1.3 adapt to new and changing requirements.

    .2 The criteria for evaluating competence (column 4 of table A-II/1 of the STCW Code) 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.

    .3 Evaluation of competence is the process of:

        .3.1 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

        .3.2 judging that evidence against the criteria specified in the standard.

    .4 The arrangements for evaluating competence should be designed to take account of different methods of assessment which can provide different types of evidence about the candidate's competence, e.g.:

.4.1 direct observation of work activities (including seagoing service);

.4.2 skills/proficiency/competency tests;

.4.3 projects and assignments;

.4.4 evidence from previous experience; and

.4.5 written, oral and computer-based questioning techniques.

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

13. Before conducting the assessment, the assessor should:

.1 familiarize him or herself with the assessment criteria [in column 4 of the relevant tables in section A-II/1 of the STCW Code] to ensure that the assessment activities will be effective and comprehensive;

.2 develop scenarios which involve a sequence of events that require the candidate to exercise good judgment in a realistic amount of time; that include distracters (such as equipment malfunctions) which test the candidate's ability to react properly to abnormal or emergency circumstances; and that require the candidate to make effective use of all relevant and available human resources, hardware and information.

.3 ensure the necessary equipment is operational and will be available throughout the assessment activity;

.4 be able to articulate the parameters or thresholds which will, under the circumstances, represent an acceptable level of performance;

.5 clearly explain to the candidate the purpose of the activity and the steps he or she is to take during the demonstration of the skill or ability;

.6 ensure that the candidate (a) can concentrate on the task(s) at hand; (b) will not receive unauthorized assistance during the assessment process; and (c) is not in a position to "learn the test" by watching the performance of other candidates;

.7 inform the candidate as to the scope and depth of knowledge to be assessed, the length of time allowed for the demonstration, and the effect of failing to perform part of the demonstration properly; and establish the candidate's willingness to be assessed under the circumstances presented.

14. The assessor should continuously observe the candidate during performance of the skill or ability and should only note in the training record book when the performance is acceptable. In

the event the candidate does not perform a critical phase of the assessment exercise at an acceptable level of proficiency, assessment should be suspended and should not be conducted until further instruction is provided.

15. Successful or acceptable performance should be based on the candidate's proved ability to safely perform:

.1 the assigned tasks in accordance with competency criteria identified in the training record book;

.2 such tasks in a manner which demonstrates that the required level of skill, knowledge and ability was never in serious doubt; and

.3 such tasks in a manner which demonstrates sound and professional judgment.

16. Unsuccessful or unacceptable performance may be based on the candidate's failure to prove his or her ability in accordance with paragraph 14, or because the candidate otherwise performs improperly in the judgment of the assessor, based on events such as the following:

.1 an action, or lack of action, by the candidate which required corrective action or intervention by the assessor to prevent injury, damage, or the development of a hazardous condition;

.2 the candidate failed to use proper procedures (including appropriate communication procedures);

.3 the candidate failed to take prompt corrective action when required.

17. Normally, a single demonstration of skill immediately following instruction should not be relied upon as the sole basis for judging competence.

18. When the assessor is inexperienced, arrangements should be made for his or her early assessment activities to be monitored by the person responsible for the training and assessment program, with the aim of ensuring that assessment activities are conducted in the most effective manner possible.

MODEL TRAINING RECORD BOOK FOR CANDIDATES FOR CERTIFICATION AS OFFICER IN CHARGE OF A NAVIGATIONAL WATCH

Subject outline

Page

1 Navigation

2 Cargo handling and stowage

3 Controlling the operation of the ship and care for persons on board.

PERSONAL HISTORY

Photo

Full Name

Permanent Address

Date of Birth

Seaman's Registration Number

Training College

Shipping Companies undertaking training and their addresses

Government Administration Department issuing the Training Record Book

Date of issue

SHIP SERVICE RECORD

SHIP REF.No.	NAME OF SHIP/PORT OF REGISTRY	SERVICE PERIOD				SIGNATURE OF MASTER
		Date		Service		
		Joining	Leaving	m	d	

SEAGOING PHASE TRAINING RECORD BOOK

BRIDGE WATCHKEEPING RECORD

SHIP REF. No.	NAME OF SHIP/PORT OF REGISTRY	SERVICE PERIOD			SIGNATURE OF MASTER
		Dates		Days of Service on Bridge	
		From	To	Days	

SHIPBOARD TRAINING OFFICER'S REVIEW OF TRAINING PROGRESS

Ship	Comments	Name of Shipboard Training Officer	Initials	Date

MASTER'S INSPECTION OF RECORD BOOK

Ship	Comments	Name of Master	Master's Initials	Date	Ship's Official Stamp

COMPANY TRAINING OFFICER'S INSPECTION OF RECORD BOOK

Company Name	Comments	Name of Company Training Officer	Initials	Date

SHIP DATA (Use a different sheet for each ship)

SHIP REFERENCE NO. _____

SHIP'S NAME SS/MV _____

Dimensions and capacities _____
Gross tonnage _____
Net tonnage _____
Length O.A. _____
Breadth _____
Depth _____
Summer draught _____
Summer freeboard _____
Deadweight _____
Light displacement _____
Fresh water allowance _____ mm
Immersion at load draft _____tpc
Trimming moment _____mctc
Bale capacity _____m^3
Grain capacity _____m^3
Liquid capacity _____m^3
Refrigerated capacity _____m^3
Total ballast capacity _____t

Main Engines
Type of engines _____
Types of boiler and No. _____
Type of fuel _____
Daily consumption _____
Bunker capacity _____
Propellers _____
Service speed _____
Type of steering gear _____
Main Engine output at _____kw
…… Revs per min

Anchors Type and weight
Port _____
Starboard _____
Spare _____
Other _____
Cable size _____
(diam.) _____
Type of windless _____
or capstans _____

Moorings Size
Natural fibre _____
Synthetic fibre _____
Wires _____
Towing spring _____
Type of mooring winches _____

Environmental protection
Working principle/Capacity
Sewage treatment plant _____
Bilge water treatment _____
Incinerator plant _____
Ballast water monitor _____

CALL SIGN _____

Cargo handling gear No. and SWL
Derricks _____
_____
_____
Cranes _____
_____
_____
Winches _____
_____
_____
Other equipment
_____
_____
Type of hatch covers
main deck _____
'tween decks _____

Navigational and communications equipment
Compasses Type
magnetic _____ _____
gyro _____ _____
Radars _____
Log _____
SATCOM _____
OPS _____
NAVTEX _____
Autopilot _____
VHF/FT _____
Echo-sounder _____
other electronic
navigation aids _____

GMDSS EPIRB (No.) Lifesaving equipment
No. and capacity
Lifeboats _____
Liferafts _____
Rescue boats _____
Davits (type) _____
Size of falls _____
Lifebuoys (No.) _____

Fire-fighting equipment
Fire extinguishers No. and capacity
water _____
Soda/Acid _____
Foam _____
Dry powder _____
CO_2 _____
Other _____
Fire hoses (No. and size) _____ mm
Breathing apparatus (No. and type) _____

SAFETY FAMILIARIZATION*

Ship Ref. No.						
Task/Duty	**Officer's Initials/Date**	**Officer's Initials/Date**	**Officer's Initials/Date**	**Officer's** Initials/Date	**Officer's** Initials/Date	**Officer's** Initials/Date
Be able To: Communicate with other persons on board on elementary safety matters						
Understand safety information symbols, signs and alarm signals						
Know what to do if: A person falls overboard Fire or smoke is detected The fire or abandon ship alarm is sounded						
Be able to: Identify muster and embarkation stations and emergency escape routes						
Locate and don life jackets						
Raise the alarm and have a basic knowledge of the use of portable fire extinguishers						
Take immediate action upon encountering an accident or other medical emergency before seeking further medical assistance on board						
Close and open the fire, weathertight and watertight doors fitted in the particular ship, other than those for hull openings						

Use a different sheet for each ship.

Ship Ref. No.						
Task/Duty	**Officer's Initials/Date**	**Officer's Initials/Date**	**Officer's Initials/Date**	**Officer's Initials/ate**	**Officer's Initials/Date**	**Officer's Initials/Date**
Watchkeeping procedures and arrangements: Visit bridge, lookout post, forecastle, poopdeck, main deck and other work areas						
Get acquainted with steering controls, telephones, telegraphs and other bridge equipment and displays						
Activate, under supervision, equipment to be used in routine duties						
Safety and emergency procedures: Read and demonstrate an understanding of your company's Fire and Safety Regulations.						
Demonstrate recognition of the alarm signals for: FIRE EMERGENCY ABANDON SHIP						
Locate medical and first aid equipment						
Locate fire-fighting equipment: alarm activating points, alarm bells, extinguishers, hydrants, fire axes and hoses						
Locate: Rocket line throwing apparatus						
Distress rockets, flares and otherpyrotechnics						
Breathing apparatus and fire-fighter's outfits, etc.						
Locate and explain how to operate emergency deck stop mechanism for main engines, including other emergency stop valves						

*Use a different sheet for each ship.

SHIPBOARD FAMILIARIZATION

Ship Ref. No						
Task/Duty	**Officer's Initials/Date**	**Officer's Initials/Date**	**Officer's Initials/Date**	**Officer's Initials/Date**	**Officer's Initials/Date**	**Officer's Initials/Date**
Safety and emergency procedures (continued): Locate CO_2 or halon bottle room, and control valves for smothering apparatus in pump rooms, cargo tanks and holds						
Locate and explain the operation of the emergency pump						
Environmental protection: Get acquainted with the: procedure for handling garbage, rubbish and other wastes						
use of garbage compactor or other equipment as appropriate						

Insert Boat and Fire Muster Stations and other details in the appropriate space. have the Shipboard Training Officer sign in the space provided

Ship's Ref. No.						
Boat Muster Station						
Fire Muster Station						
Shipboard Training Officer						
Shipboard Training Officer						
Date						

ANav2

Function: **Navigation at the operational level**

Competence: **Plan and conduct a passage and determine position (STCW Code, Table A-II/1)**

No.	No.	TASKS Plan a passage	CRITERIA FOR SATISFACTORY PERFORMANCE	Ship Ref. No.	**Assignment completed**					
					Date	Confirmed by qualified instructor	Date	Confirmed by qualified assessor	*Type of Assessment	Remarks
1.1	1.1	Consult nautical publications.	The information obtained from navigational charts and publications is relevant, interpreted correctly and properly applied. All potential navigational hazards are accurately identified.							
1.2	1.2	Select charts of adequate scale.	The charts selected are the largest scale suitable for the area of navigation and charts are corrected in accordance with the latest information available.							
1.3	1.3	Set courses.	The courses are suitably set in respect of the ship's size, draft and rnaneuverability, and set with sufficient distance off shallow waters, banks and other dangers to navigation. Due consideration is given to current, ice, prevailing meteorological conditions and routing and traffic separation schemes.							
1.4	1.4	Calculate Estimated Time of Arrival (ETA).	The total distance is correctly calculated and ETA given within acceptable time limits.							

* For details on types of assessment, see the Introduction, paragraph 4.

Function: **Navigation at the operational level**

Competence: **Plan and conduct a passage and determine position (STCW Code, Table A-II/1)**

No.	TASKS Conduct a passage and determine position	CRITERIA FOR SATISFACTORY PERFORMANCE	Ship Ref. No.	**Assignment completed**					
				Date	Confirmed by qualified instructor	Date	Confirmed by qualified assessor	Type of Assessment	Remarks
2.1	Determine and apply compass error for courses and compass bearings.	Errors in magnetic and gyro compasses are determined and correctly applied to courses and bearings.							
2.2	Recognize conspicuous objects and other terrestrial aids to navigation in daylight and at night.	The information obtained from navigational charts and publications is relevant, interpreted correctly and properly applied. All potential navigational hazards are accurately identified.							
2.3	Establish position by terrestrial observations i.e. lighthouses, buoys and beacons.	The position is determined within the limits of acceptable instruments stem errors							
2.4	Establish position by use of electronic navigational equipment.	The position is determined within the limits of acceptable instrument/system errors							
2.5	Determine ship's position by dead reckoning.	The position is determined within acceptable limits.			,.				
2.6	Operate electronic position fixing and navigational equipment.	Performance checks and tests to navigation systems comply with manufacturer's recommendations and good navigational practice.							
2.7	Use celestial bodies to determine the ship's position.	The fix is within acceptable accuracy, due regard taken to possible errors of the position lines and the meteorological conditions.							

Function: **Navigation at the operational level**

Competence: **Plan and conduct a passage and determine position (STCW Code, Table A-II/1) (continued)**

No.	TASKS Conduct a passage and determine position	CRITERIA FOR SATISFACTORY PERFORMANCE	Ship Ref. No.	Assignment completed					
				Date	Confirmed by qualified instructor	Date	Confirmed by qualified assessor	Type of Assessment	Remarks
2.8	Steer the ship and comply with helm orders in the English language.	A steady course is steered within acceptable limits having regard to the area of navigation and prevailing sea state. Alteration of course are smooth and controlled. Communications are clear and concise at all times and orders are acknowledged in a seaman-like manner.							
2.9	Operate the steering control systems. Know the operational procedures and change-over from manual to automatic control and vice-versa. Adjust the controls for optimum performance.	The selection of mode of steering is the most suitable for the prevailing weather, sea and traffic conditions and intended maneuvers.							
2.10	Able to use and interpret information obtained from shipborne meteorological instruments.	Measurements and observations of weather conditions are accurate.							
2.11	Able to apply the meteorological information available.	Meteorological information is correctly interpreted and applied.							

Function: Navigation at the operational level

Competence: Plan and conduct a passage and determine position (STCW Code, Table A-II/1)

No.	TASKS Maintain a safe navigational watch	CRITERIA FOR SATISFACTORY PERFORMANCE	Ship Ref. No.	**Assignment completed**					
				Date	Confirmed by qualified instructor	Date	Confirmed by qualified assessor	Type of Assessment	Remarks
3.1	On preparing for sea' check ship's draught, and check that the necessary equipment on the bridge is operational and proper sailing information is available.	All navigational and communication equipment is operational and all appropriate charts, tidal and weather information is available.							
3.2	On leaving or entering port notify the master/engine control room as appropriate.	The master/engine control room is notified as appropriate.							
3.3	Assist in carrying out the master's/pilot's order/directions.	Master's/pilot's instructions are verified and essential information recorded and relevant information given to those concerned.							
3.4	Monitor the course, speed and position.	Ship's safety is constantly monitored and the candidate shows to be particularly vigilant and on the alert in confined waters.							
3.5	Display/sound correct lights, flags, shapes and sound signals.	Correct lights, flags, shapes and sound signals are displayed/sounded.							
3.6	Properly monitor the pilot's safety when boarding and disembarking.	The pilot's safety is ensured when boarding and disembarking.							
3.7	On leaving or entering port notify the crew as appropriate.	The crew is available for handling moorings/anchors when needed.							
3.8	At the commencement of the watch ascertain ship's position, course and speed and appraise the traffic situation and any danger to the ship.	All checks are promptly and correctly carried out. A clear statement is given that the situation is under full control when the watch is formally taken over.							

No.	**TASKS** Maintain a safe navigational **watch**	CRITERIA FOR SATISFACTORY PERFORMANCE	Ship Ref. No.	**Assignment completed**					
				Date	Confirmed by qualified instructor	Date	Confirmed by qualified assessor	Type of Assessment	Remarks
3.9	Keep a proper lookout by sight and hearing.	Sound signals, lights and other objects are properly detected and their appropriate bearing in degrees or points is reported to the officer of the watch.							
3.10	Fix the ship's position regularly, assess risks of collision and/or grounding and take appropriate actions.	Apply properly the International Regulations for Preventing Collisions at Sea.							
3.11	Check the reliability of the information obtained from the primary method of position fixing at appropriate intervals.	The reliability of the information obtained from the primary method of position fixing is checked at appropriate intervals.							
3.12	Adjust the ship's course and speed to the traffic, the waters and the meteorological condition.	The speed and mode of steering is suitable for the prevailing conditions.							
3.13	Monitor and control navigational instruments and record relevant activities and incidents.	Compasses are regularly checked and errors are correctly applied. All movements and activities related to the navigation of the ship are properly recorded.							

Function: Navigation at the operational level

Competence: Use radar and ARPA to maintain safety of navigation (STCW Code, Table A-II/1)

No.	**TASKS** **Use radar and ARPA.**	CRITERIA FOR SATISFACTORY PERFORMANCE	Ship Ref. No.	**Assignment completed**					
				Date	Confirmed by qualified instructor	Date	Confirmed by qualified assessor	Type of Assessment	Remarks
4.1	Carry out operational checks and adjust the equipment to proper performance.	The equipment is functioning properly and in accordance with the manufacturers specifications.							
4.2	Able to operate and to interpret and analyze information obtained from radar and ARPA, as applicable.	The information obtained from the equipment is correctly interpreted and applied with due regards to the limitations of the equipment and prevailing circumstances and conditions.							
4.3	Interpret and analyze factors affecting performance and accuracy.	The information obtained from the equipment is correctly interpreted and applied with due regards to the limitations of the equipment and prevailing circumstances and conditions.							
4.4	Set up and maintain displays.	The displays are properly set up and maintained.							
4.5	Detect and be aware of the possibility of misinterpretation of information, false echoes, sea returns, etc.	The information obtained from the equipment is correctly interpreted and applied with due regards to the limitations of the equipment and prevailing circumstances and conditions.							
4.6	Interpret and analyze information obtained from racons and SARTs.	The information obtained from the equipment is correctly interpreted and applied with due regards to the limitations of the equipment and prevailing circumstances and conditions.							

No.	TASKS **Use radar and ARPA.**	CRITERIA FOR SATISFACTORY PERFORMANCE	Ship' Ref. No.	**Assignment completed**					
				Date	Confirmed by qualified instructor	Date	Confirmed by qualified assessor	Type of Assessment	Remarks
4.7	Detect and calculate range and bearing, course and speed of other ships, lime and distance of closest approach of crossing, meeting and overtaking ships.	The information obtained from the equipment is correctly interpreted and applied with due regards to the limitations of the equipment and prevailing circumstances and conditions. The course and speed of other ships, as well as time and distance of assumed closest approach to other ships, are ascertained with sufficient accuracy to take appropriate actions.							
4.8	Identity critical echoes, detect course and speed changes of other ships, take into account the effect of changes in own ship's course or speed or both.	The information obtained from the equipment is correctly interpreted and applied with due regards to the limitations of the equipment and prevailing circumstances and conditions.							
4.9	Apply the International Regulations for Preventing Collisions at Sea.	Action taken to avoid close encounter or collision with other vessels is in accordance with the International Regulations for Preventing Collisions at SCL							
4.10	Use plotting techniques and relative and true motion concepts.	The information obtained from the equipment is correctly interpreted and applied with due regards to the limitations of the equipment and prevailing circumstances and conditions.							
4.11	Use parallel indexing techniques.	The information obtained from the equipment is correctly interpreted and applied with due regards to the limitations of the equipment and prevailing circumstances and conditions.							

No.	TASKS Use radar and ARPA.	CRITERIA FOR SATISFACTORY PERFORMANCE	Ship Ref. No.	**Assignment completed**					
				Date	Confirmed by qualified **instructor**	Date	Confirmed by qualified assessor	Type of Assessment	Remarks
4.12	Interpret and analyze information related to system performance and accuracy, tracking capabilities and limitations, and processing delays.	The information obtained from the equipment is correctly interpreted and applied with due regards to the limitations of the equipment and prevailing circumstances and conditions. The course and speed of other ships as well as time and distance of assumed closest approach to other snips are ascertained with sufficient accuracy to take appropriate actions.							
4.13	Use operational warnings and Systems tests.	The information obtained from the equipment is correctly interpreted and applied with due regards to the limitations of the equipment and prevailing circumstances and conditions.							
4.14	Use of the target acquisition and its limitations.	The information obtained from the equipment is correctly interpreted and applied with due regards to the limitations of the equipment and prevailing circumstances and conditions.							
4.15	Use true and relative vectors, graphic representation of target information and danger areas.	The information obtained from the equipment is correctly interpreted and applied with due regards to the limitations of the equipment and prevailing circumstances and conditions. The course and speed of other ships as well as time and distance of assumed closest approach to other ships are ascertained with sufficient accuracy to take appropriate actions.							

No.	**TASKS** Use radar and ARPA.	CRITERIA FOR SATISFACTORY PERFORMANCE	Ship **Ref.** No.	**Assignment completed**					
				Date	Confirmed by qualified instructor	Dat e	Confirmed by qualified assessor	Type of Assessment	Remarks
4.16	Derive and analyze information, critical echoes, exclusion areas and trial maneuvers.	**The information obtained from the** equipment is correctly interpreted and applied with due regards to the limitations of the equipment and prevailing circumstances and conditions. The course and speed of other ships as well as time and distance of closest approach to other ships are ascertained with sufficient accuracy 10 take appropriate actions.							
4.17	Take appropriate actions to avoid accidents.	Action taken to avoid a close encounter or collision with other vessels is in accordance with the International Regulations for Preventing Collisions at Sea. Decisions to amend course and/or speed are both timely and in accordance with accepted navigation practice. Adjustments made to the ship's course and speed maintain safety of navigation. Maneuvering signals are made at the appropriate time and are in accordance with the International Regulations for Preventing Collisions at Sea.							

Function: Navigation at the operational level

Competence: Respond to emergencies (STCW Code, Table A-II/1)

No.	TASKS Respond to emergencies	CRITERIA FOR SATISFACTORY PERFORMANCE	Ship Ref. No.	Assignment completed					
				Date	Confirmed by qualified instructor	Date	Confirmed by qualified assessor	Type of Assessment	Remarks
5.1	During relevant drills demonstrate ability to take precautions for the protection and safety of passengers and crew in emergency situations.	The type and scale of the emergency is promptly identified. Initial actions are in accordance with contingency plans and are appropriate to the urgency of the situation and nature of the emergency.							
5.2	During relevant drills demonstrate ability to take initial actions following a collision or grounding, initial damage assessment and control.	The type and scale of the emergency is promptly identified. Initial actions and, if appropriate, manoeuvring of the ship are in accordance with contingency plans and are appropriate to the urgency of the situation and nature of the emergency.							
5.3	During relevant drills demonstrate ability to act correctly when rescuing persons from the sea, assisting a ship in distress, responding to emergencies which arise in port	The type and scale of the emergency is promptly identified. Initial actions and, if appropriate, manoeuvring of the ship are in accordance with contingency plans and are appropriate to the urgency of the situation and nature of the emergency.							

Function: **Navigation at the operational level**

Competence: **Respond to a distress signal at sea (STCW Code, Table A-II/1)**

No.	TASKS Respond to a distress signal at sea	CRITERIA FOR SATISFACTORY PERFORMANCE	Ship Ref. No.	Assignment completed					
				Date	Confirmed by qualified instructor	Date	Confirmed by qualified assessor	Type of Assessment	Remarks
6.1	During relevant drills establish the position of a unit in distress in relation to own position.	The distress or emergency signal is immediately recognized. The positions are correctly plotted in suitable charts.							
6.2	During relevant drills make a preliminary assessment of the situation and inform the master.	Contingency plans and instructions in standing orders are implemented and complied with.							

Function: **Navigation at the operational level**

Competence: **Use the IMO Standard Marine Navigational Vocabulary as replaced by the IMO Standard Marine Communication Phrases and use English in written and oral form (STCW Code, Table A-II/1)**

No.	TASKS Use the IMO Standard Marine Communication Phrases and write and speak English	CRITERIA FOR SATISFACTORY PERFORMANCE	Ship Ref. No.	Assignment completed					
				Date	Confirmed by qualified instructor	Date	Confirmed by qualified assessor	Type of Assessment	Remarks
7.1	Use IMO Standard Marine Communication Phrases.	Navigation and Safety communication is satisfactorily conducted with persons unable to understand the officer's national language.							
7.2	Understand Meteorological and Marine Safety messages	The messages relevant to the safety of the ship are correctly interpreted or drafted.							
7.3	Fill in standard English nautical reports and forms.	All reports and forms relevant to the duties of an officer in charge of a navigational watch are correctly fulfilled.							
7.4	Communicate with other ships and coast stations.	Communications are clear and understood.							
7.5	Perform the officer's duties also with multi-lingual crew.	Communications are clear and understood.							

Function: **Navigation at the operational level**

Competence: Transmit and receive information by visual signaling (STCW Code, Table A-II/1)

No.	**TASKS** Transmit and receive visual signals	CRITERIA FOR SATISFACTORY PERFORMANCE	**Ship Ref. No.**	**Assignment Completed**					
				Date	Confirmed by a qualified instructor	Date	Confirmed by qualified assessor	Type of Assessment	Remarks
8.1	Transmit and receive Morse signals by light.	Communication within the operator's area of responsibility are consistently successful.							
8.2	Use the International Code of Signals to interpret messages given by flags and pendants.	Communication within the operator's area of responsibility are consistently successful.							

Function: **Navigation at the operational level**

Competence: **Maneuver the ship (STCW Code, Table A-II/1)**

No.	TASKS Maneuver the ship	CRITERIA FOR SATISFACTORY PERFORMANCE	**Ship Ref. No.**	**Assignment completed**					
				Date	Confirmed by qualified instructor	Date	Confirmed by qualified assessor	Type of Assessment	Remarks
9.1	Use available information as to the ship's turning circles and stopping distances when maneuvering taking into account the effects of deadweight, draught, trim, speed and under-keel clearance on turning circles and stopping distances.	The information is adequately used during normal situations while taking note of draught and trim. Safe operating limits of ship propulsion, steering and power systems are not exceeded in normal maneuvers. Adjustments made to the ship's course and speed maintain safety of navigation.							
9.2	Use available information as to the ship's turning circles and stopping distances when maneuvering taking into account the effects of wind and current on ship handling.	The information is adequately used during normal situations while taking due regards to wind and current. Safe operating limits of ship propulsion, steering and power systems are not exceeded in normal maneuvers. Adjustments made to the ship's course and speed maintain safety of navigation.							
9.3	Use available information as to the ship's turning circles and stopping distances when maneuvering taking into account the effects of squat, shallow water and similar effects.	The information is adequately used during normal situations while taking due regards to squat, shallow water and similar effects. Safe operating limits of ship propulsion, steering and power systems are not exceeded in normal maneuvers. Adjustments made to the ship's course and speed maintain safety of navigation.							
9.4	Demonstrate proper mooring procedures.	Moorings are made fast or taken onboard as ordered. Ship is safely moored without undue delay.							

No.	TASKS	CRITERIA FOR SATISFACTORY	Ship	Assignment completed

	Maneuver the ship	PERFORMANCE	Ref. No.						
				Date	Confirmed by qualified instructor	Date	Confirmed by qualified assessor	Type of Assessment	Remarks
9.5	Demonstrate proper anchoring procedures.	Anchors are lowered/heaved and secured as ordered. Ship is safely anchored without undue delay.							
9.6	Maneuver to rescue a man overboard.	The actions taken are as generally recommended and the turning maneuver brings the ship into its wake.							

Acargo2

Function: **Cargo handling and stowage at the operational level**

Competence: **Monitor loading, stowage, securing and unloading of cargoes and their care during the voyage (STCW Code, Table A-II/1)**

No.	TASKS Monitor loading of cargoes	CRITERIA FOR SATISFACTORY PERFORMANCE	Ship Ref. No.	Assignment completed					
				Date	Confirmed by qualified instructor	Date	Confirmed by qualified assessor	Type of Assessment	Remarks
1.1	Supervise the preparation of holds and deep tanks for loading.	Precautions are taken before entering holds or confined spaces to ensure safe atmosphere. The holds and deep tanks are in good order and condition, sufficiently cleaned and adequately dunned for the new cargo. Any heating arrangement is functioning. The bilge's are dry and there is free drainage to the suctions.							
1.2	Supervise the operation of the ship's cargo gear.	The gear is safely operated and the safe working load never exceeded. Damaged or worn out ropes, wires or parts of the gear are detected and replaced.							
1.3	Supervise the loading. Take into account the effect of cargo including heavy lifts on the seaworthiness and stability of the ship.	The cargo is loaded in accordance with the cargo plan while maintaining proper trim and stability at all times. Dangerous goods are detected and handled in accordance with international regulations and recognized standards and codes of safe practice. Any incidents or accidents during loading are reported immediately and proper actions taken.							

Function: Cargo handling and stowage at the operational level

Competence: Monitor loading, stowage, securing and unloading of cargoes and their care during the voyage (STCW Code, Table A-II/1)

No.	TASKS Monitor loading of cargoes	CRITERIA FOR SATISFACTORY PERFORMANCE	Ship Ref. No.	assignment completed					
				Date	Confirmed by qualified instructor	Date	Confirmed by qualified assessor	Type of Assessment	Remarks
2.1	Ensure a solid stow and securing of all cargoes in packaged form.	Cargoes liable to slide during rolling or pitching are adequately stowed and secured to avoid damage to ship and cargo. Special attention is paid to dangerous goods, heavy loads and vehicles.							
2.2	Ensure separation between bull cargoes or packaged goods if required.	The cargoes are not mixed or contaminated and all cargoes are delivered at the due port.							
2.3	Supervise that adequate precautions are taken to ensure ventilation and facilitate inspections during the voyage.	The ventilation is sufficient to avoid sweat from cargo and ship and harmful gases are let out.							
2.4	Stowage and securing of dangerous, hazardous and harmful cargoes and their effect on the safety of life and of the ship.	The handling of dangerous, hazardous and harmful cargoes complies with international regulations and recognized standards and codes of safe practice.							

Function: **Cargo handling and stowage at the operational level**

Competence: Monitor loading, stowage, securing and unloading of cargoes and their care during the voyage (STCW Code, Table A-II/1)

No.	TASKS Taking care of cargoes during voyage	CRITERIA FOR SATISFACTORY PERFORMANCE	Ship Ref. No.	Assignment completed					
				Date	Confirmed by qualified instructor	Date	Confirmed by qualified assessor	Type of Assessment	Remarks
3.1	Inspect the cargo at regular intervals.	Routine inspections are carried Out, taking into account the condition of the cargo and the weather.							
3.2	Record all inspections and the conditions found.	The results of the inspections are properly recorded and any need for actions reported immediately.							
3.3	Take actions to avoid damage to the ship or cargo.	Correct actions are taken to adjust ventilation, temperature or to carry out any other operation to avoid damage to ship or cargo.							

Function: **Cargo Handling and stowage at the operational level**

Competence: **Monitor loading, stowage, securing and unloading of cargoes and their care during the voyage (STCW Code, Table A-II/1)**

No.	TASKS Taking care of cargoes during voyage	CRITERIA FOR SATISFACTORY PERFORMANCE	Ship Ref. No.	Assignment completed					
				Date	Confirmed by qualified instructor	Date	Confirmed by qualified assessor	Type of Assessment	Remarks
4.1	Inspect hatch covers, gear and cargoes before and during discharging.	Any damage is immediately reported and properly recorded. Appropriate action are taken to avoid accidents or further damage.							
4.2	Ensure that all cargoes are discharged in good condition..	Cargo operations are carried out in accordance with the cargo plan or other documents and established safety rules/regulations, equipment operating instructions and shipboard limitations. Improper handling of gear or cargo is immediately stopped or reported.							
4.3	Ensure satisfactory trim, stability, hogging and sagging at all times.	Factors influencing the safety of the ship are constantly monitored and kept within stated acceptable limits.							
4.4	Identify and damage to ship or cargo after discharging and establish possible causes.	Any damage is detected, immediately reported and causes established or suggested depending on the circumstances.							

Function: **Controlling the operation of the ship and care for persons on board it the operational level**
Competence: **Ensure compliance with pollution prevention requirements (STCW Code, Table A-II/1)**

No.	TASKS Take actions to prevent pollution	CRITERIA FOR SATISFACTORY PERFORMANCE	Ship Ref. No.	Assignment completed					
				Date	Confirmed by qualified instructor	Date	Confirmed by qualified assessor	Type of Assessment	Remarks
1.1	Ensure that procedures are agreed and observed and all scuppers are blocked before bunkering.	The operations are fully observed, all scuppers are blocked and pipes and hoses inspected before bunkering takes place.							
1.2	During relevant drills initiate immediate investigation to detect the source of pollution.	All available resources are utilized to detect the source and the master or appropriate authorities are informed.							
1.3	During relevant drills stop or prevent leakage's and spills of harmful liquids and solid substances.	The situation is thoroughly assessed and the actions taken are effectively organized and exercised with due consideration for the extent of the pollution.							
1.4	Have all tanks and compartments sounded if any damage is suspected.	The soundings are readily available and the results immediately reported to the master.							
1.5	Carry out bilge, ballast and bunkering operations.	All operations are carried out in accordance with MARPOL and due regard paid to Shipboard Oil Pollution Emergency Plan (SOPEP).							

Function: Controlling the operation of the ship and care for persons on board at the operational level

Competence: Maintain seaworthiness of the ship (STCW Code, Table A-II/1)

No.	TASKS Monitor stowage and securing of cargoes	CRITERIA FOR SATISFACTORY PERFORMANCE	Ship Ref. No.	Assignment completed						Re
				Date	Confirmed by qualified instructor	Date	Confirmed by qualified assessor	Type of Assessment	Remarks	
2.1	Inspect hull and hull openings, compartments, hatch covers, equipment and complement and take action if any defects are detected.	The inspection is properly carried out, due regards paid to the prevailing circumstances and areas where defects are most likely to occur. Any defect is immediately reported and recorded and the suggested or executed action adequate for the situation.								
2.2	Ensure that all loose objects are securely fastened to avoid damage.	Inspection is carried out at regular intervals and more frequently in heavy weather or if other incidents occur. Heavy or otherwise dangerous objects are given the highest priority and good seamanship exercised.								
2.3	Arrange for regular control measures to ensure watertight integrity.	Peaks, bilge's, tanks and other compartments are sounded regularly, the results recorded and any irregularities reported and examined further								
2.4	Calculate stability, trim and stresses using stability trim, and Stress tables, diagrams and stress calculating equipment.	Ensure that stability conditions comply with the IMO intact stability criteria under all conditions of loading.								
2.5	During relevant drills take actions to ensure and maintain the watertight integrity of the ship.	Actions to ensure and maintain the watertight integrity of the ship are in accordance with accepted practice.								

Function: **Controlling the operation of the ship and care for persons on board at the operational level**

Competence: **Prevent, control and fight fires on board (STCW code, Table A-II/1I)**

No.	TASKS Prevent fires on board	CRITERIA FOR SATISFACTORY PERFORMANCE	Ship Ref. No.	Assignment completed					
				Date	Confirmed by qualified instructor	Date	Confirmed by qualified assessor	Type of Assessment	Remarks
3.1	Operate fire and smoke detecting equipment	The equipment is tested and operated in accordance with manufacturer's manuals and ship-specific instructions.							
3.2	Ensure that all persons on watch are able to detect and correct hazardous situations and actions and keep the ship clean and tidy.	Watch personnel make regular inspections in areas exposed to ignition. Easily inflammable material is put in safe places and the watch demonstrate an attitude of alertness and readiness to respond to fires.							
3.3	Make the watch locate and use fire-fighting appliances and emergency escape routes and sound alarm.	Every person on watch can use portable or otherwise adequate fire-extinguishers for small fires, demonstrate ability to find emergency escape routes and raise the alarm.							

Function: Controlling the operation of the ship and care for persons on board at the operational level

Competence: Prevent, control and fight fires on board (STCW Code, Table A-II/1)

No.	TASKS **Fight fires on board**	CRITERIA FOR SATISFACTORY PERFORMANCE	Ship Ref. No.	assignment completed					
				Date	Confirmed by qualified instructor	Date	Confirmed by qualified assessor	Type of Assessment	Remarks
4.1	Locate fire-stations and demonstrate proper use of fixed installations and other fire-fighting appliances and agents.	All stations are located and the most suitable one selected in the event of a fire. Proper equipment and extinguishing agents selected for the various materials on fire.							
4.2	Locate and use fire-protective equipment (fireman's outfit, including breathing apparatus).	The equipment is quickly donned and used in a way that no accidents are likely to occur.							
4.3	Demonstrate ability to act in accordance with the fire-fighting plan during fire-drills.	During debriefing after an exercise or a real fire extinguishing action the reasons for each action taken, including the priority in which they were taken, are explained and accepted as the most appropriate.							
4.4	During relevant drills carry out rescue operations wearing breathing apparatus.	The breathing apparatus is tested and used in accordance with manufacturers manual and the rescue operation is successful.							

Function: **Controlling the operation of the ship and care for persons on board at the operational level**

Competence: Operate life saving appliances (STCW Code, Table A-II/1)

No.	TASKS Operate life saving appliances	CRITERIA FOR SATISFACTORY PERFORMANCE	Ship Ref. No.	assignment completed					
				Date	Confirmed by qualified instructor	Date	Confirmed by qualified assessor	Type of Assessment	Remarks
5.1	Organize abandon ship drills.	On sounding the alarm all persons meet at the designated life-boat station wearing life jackets or immersion suits and carry out their duties on request.							
5.2	Demonstrate the ability to organize and supervise the launching, handling and recovery of life boat.	Correct orders for embarkation, launching, immediately clearing the ship's side, safely handling the boat under motor, oars or sail as appropriate, and safe boat recovery.							
5.3	Demonstrate the ability to organize and supervise the launching or throwing overboard a liferaft, and manoeuvre it clear of ship's side.	The duties for the persons designated for the raft are clearly allocated and orders efficiently executed.							
5.4	Demonstrate proper use of radio life-saving appliances, satellite, EPIRBs and SARTs.	Equipment is operated in accordance with manufacturer's instruction.							
5.5	Ensure that all survival craft launching equipment on board is functioning.	Equipment is maintained in accordance with manufacturer’s instructions and regulatory requirements.							
5.6	Ensure rations on board survival craft are adequate.	Food and water are sufficient for the survival craft designated complement.							
5.7	Ensure that equipment on board survival craft is adequate.	Equipment such as pyrotechnics, signaling equipment, all meet regulatory requirements.							

Function: Controlling the operation of the ship and care for persons on board at the operational level

Competence: Apply medical first aid on board (STCW Code, Table A-II/I)

No.	TASKS Apply medical first aid on board	CRITERIA FOR SATISFACTORY PERFORMANCE	Ship Ref. No.	assignment completed					
				Date	Confirmed by qualified instructor	Date	Confirmed by qualified assessor	Type of Assessment	Remarks
6.1	During relevant drills stop excessive bleeding, ensure breathing and put injured persons in proper position.	The actions demonstrated are in compliance with accepted recommendations given in international medical first aid guidance.							
6.2	During relevant drills detect signs of shock and heat stroke and act accordingly.	The treatment recommended or given is adequate. Ability to request Radio Medico for advice is demonstrated.							
6.3	During relevant drills treat burns, scalds, fractures and hypothermia.	Recommended guidelines for proper actions are explained and the basic principles for avoiding hypothermia are demonstrated.							
6.4	During relevant drills, locate and access shipboard medicine and equipment.	Ability to access the medical cabinet in a timely way.							

Function: **Controlling the operation of the ship and care for persons on board at the operational level**

Competence: **Monitor compliance with legislation requirements (STCW Code, Table A-II/1)**

No.	TASKS Monitor compliance with legislation	CRITERIA FOR SATISFACTORY PERFORMANCE	Ship **Ref.** No.	assignment completed					
				Date	Confirmed by qualified instructor	Date	Confirmed by qualified assessor	Type of Assessment	Remarks
7.1	State where laws, rules and regulations concerning ship operation and pollution prevention arc available.	The statement given is correct and includes relevant bodies or organizations which may be contacted to attain special information or guidance which is not easily accessible.							
7.2	Use legislation to ascertain due approach to solve questions encountered during onboard operations.	Legislative requirements relating to safety of life at sea and protection of the marine environment are correctly identified.							

ANNEX 10

STCW.7/CIRC.3

INTERNATIONAL CONVENTION ON STANDARDS OF TRAINING, CERTIFICATION AND WATCHKEEPING FOR SEAFARERS (STCW) 1978

Model training record book for candidates for certification as an officer in charge of an engineering watch or designated duty engineer

1. The Sub-Committee on Standards of Training and Watchkeeping (STW), at its twenty-eighth session, prepared the draft IMO Model training record book for candidates for certification as an officer in charge of an engineering watch or designated duty officer given at annex.

2 The STW Sub-Committee noted the draft text of the model training record book must be seen as a model only which has been developed as guidance to assist Parties in preparing their own training record book for use as part of an approved training programmer. The content of the model training record book follows the structure of the STCW Convention and the STCW Code. However, nothing prevents a Party from adopting its own format or specifying assignments in less or greater detail.

3. Assessment of the competence of the seafarers concerned is included in the model training record book. However, as the STW Sub-Committee could not reach consensus, the on-board assessment in relation to the training record books will be further considered at the twenty-ninth session of the STW Sub-Committee (January 1998).

4. Parties should be aware that it is their responsibility to ensure that instructors, supervisors and assessors are appropriately qualified as required by section A-I/6, paragraph 3 of the STCW Code and that they comply with the quality standards in section A-I/8 of the STCW Code.

ENCLOSURE [2]

ANNEX 10

MODEL TRAINING RECORD BOOK FOR CANDIDATES FOR CERTIFICATION AS OFFICER IN CHARGE OF AN ENGINEERING WATCH OR DESIGNATED DUTY ENGINEER

INTRODUCTION

1. This model Training Record Book is developed as guidance to assist Parties in developing their own training record book which may be used as part of an approved training programmer. The content of this book follows the structure of the STCW Convention given in section A-III/1 of the STCW Code. Nothing should prevent a Party from adopting its own format or spec specifying the assignments presented in section A-III/1 of the STCW Code in greater detail. Each company has responsibilities as outlined in regulation I/14 of the STCW Convention and section A-l/14 of the STCW Code.

2. This model Training Record Book details the practical training whether obtained onboard or ashore which should be completed during the sea-going phase leading to certification as Officer in Charge of an Engineering Watch or Designated Duty Engineer. It will serve both as a guide to the practical training which should be undertaken during the mandatory period of seagoing service and as a record of the satisfactory completion of that training.

3. Each trainee will require his/her own training record book and should be responsible for its safe keeping. Ship engineer officers and supervising engineer officers will also need to consult it to facilitate planning and organization of the training.

4. Those carrying out instruction or assessment activities[9] as part of an approved training programmer either on board or ashore should

appreciate how and where the particular skill or ability being taught or assessed might best be conducted and how it relates to all other skills or abilities required to achieve competency at the operational level. Where assessment is used in this document, it refers solely to the assessment of the trainee's practical ability to carry out the tasks given in the Training Record Book as demonstrated. Types of assessment include:

_____

•Instructors and assessors shall be qualified in accordance with regulation '/6 of the STCW Convention and corresponding parts of the STCW Code

.1 Approved in-service experience;

.2 Approved training ship experience;

.3 Approved simulator training, where appropriate

.4 Approved laboratory equipment training;

.5 Approved fire-fighting training and experience as set out in STCW-Code section A-VI/3 of the STCW Code;

.6 Approved training and experience as set out in section A-VI/2, paragraphs 1 to 4 of the STCW Code

.7 Approved training as set out in section A-VI/4, paragraphs 1 to 3 of the

STCW Code;

.8 Approved workshop skills training; and

.9 Approved practical experience and tests.

5. No on-board training or assessment should take place unless such activities can be carried out without interfering with the normal operation of the ship, jeopardizing safety of life at sea, or posing a risk of marine pollution. Instructors and/or assessors' should be able to devote their time and attention exclusively to the instruction and assessment activity at hand, or if unable to do so, should defer the activity until a more suitable time.

SCOPE

6. The aim of the practical training is for trainees to:

- gain experience in relevant aspects of shipboard activities as they occur on board the ship or ships on which the trainee is sailing;
- test and compare the knowledge acquired at school with the daily practice on board;
- consolidate and expand theoretical knowledge;
- build a practical basis to achieve the standards of competence in accordance with table A-III/1 of the STCW Code;
- build a practical basis to achieve the standards of competence in accordance with regulation VIII/2 and the corresponding sections of Parts A and B of the STCW Code relating to Basic principles to be observed in keeping an engineering watch;

- prepare for a future position on board.

OBJECTIVE

7.1 The trainees will acquire basic engineering skills and a practical awareness of the need to follow safe working practices. They will also be able to keep an engineering watch safely, in accordance with the relevant regulations and recommendations.

7.2 The aim of the Training Record Book is three fold, namely:

- directing the practical training, so the trainee is guided as to the objectives of the practical training period;
- giving guidance to the engineer officers regarding the development of the practical training to enable them to judge the progress and, if necessary, to make adjustments; and
- directing the training assessment so that the required training outcome can be proved and documented.

APPROVED PROGRAM OF ON-BOARD TRAINING

8.1 Candidates for certification under regulation III/1, are required to follow an approved program of on-board training. This programmer of onboard training is to form part of an overall programmer of education and training approved by the Party under whose authority the certificate or endorsement is to be issued. The programmer of on-board training is required to ensure that the candidate receives systematic practical training and experience which is closely supervised and monitored by qualified engineer officers and adequately documented in an approved training record book. The regulation requires that engineer officers supervising and monitoring and assessing the onboard training are appropriate qualified.*

8.2 Each general training activity specified in the approved training record book is required to have been completed by the candidate and supervised, monitored, assessed and documented as being satisfactory completed in accordance with the requirements and recommendations of the STCW Code.

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* See regulations 116, 1/8, and Ill/1 of the STCW Convention and the corresponding sections of parts A and B of the STCW Code.

SEA GOING PHASE TRAINING RECORD BOOK

Guidance for the Chief Engineer and Shipboard Training Officer

Guidance for on-board instructors.

1. Before giving instruction in a particular skill or ability for the purpose of initialing this training record book (TRB), the instructor should (a) be qualified under the relevant regulations to give such instruction, and (b) determine that the candidate is qualified on the basis of prior experience and/or training, to receive such instruction. The instructor should also review the TRB to identify what training the candidate has already completed, and what training remains to be conducted.

2. In designing an on-board training activity, the instructor should have clear, measurable, training objectives. These should be organized by reference to other related skills and abilities needed by the student to achieve the level of competence being pursued. The training objectives should be approved by the responsible person supervising the training and assessment program.

3. The instructor should conduct training only when the necessary equipment is operational and will be available throughout the training exercise.

4. The instructor should follow an outline, checklist, or training plan which organizes information and instructional activities in a logical and progressive manner.

5. Instructional activities should make effective use of available teaching media such as videotape, personal computers, and models.

6. The instructor should ensure the candidate has sufficient opportunities to observe the skill or ability being properly performed. When the skill or ability requires the use of certain shipboard equipment, the instructor should ensure that the candidate is given adequate opportunities for hands-on use of that equipment along with constructive comments directing the candidate to preferred or proper ways of using the equipment.

7. Instruction should include explanations of misuse or improper procedure; problems that may be encountered and proper corrective actions to take; and descriptions of important differences which may exist from ship to ship.

8. The instructor should periodically use a reliable means of assessment to determine that candidate is in fact making progress toward the objectives stated for the instructional activity.

9. When the instructor is inexperienced, arrangements should be made for his or her early training activities to be monitored by the person responsible for supervising the training and assessment program, with the aim of ensuring that training activities are conducted in the most effective manner possible.

Guidance for on-board assessors/designated examiners

10. Before assessing the performance of a particular skill or ability for the purpose of initialing this TRB, the assessor should (a) be qualified under the relevant regulations to perform the assessment; and (b) determine that the candidate is qualified on the basis of prior experience and/or training, to be assessed. The assessor should also review the TRB to identify what training and assessment the candidate has already completed, and what training or assessment remains to be conducted.

11. In designing an on-board assessment activity, the assessor should have clear, measurable, assessment objectives. These should be organized by reference to other related skills and abilities needed by the student to achieve the level of competence being pursued. The training objectives should be approved by the person responsible for supervising the training and assessment program.

12. The following guidelines are taken from section B-II/1 of the STCW Code for the conduct of assessment and should be taken into account:

.1 The 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:

.1.1 work competently in different ships and across a range of circumstances;

.1.2 anticipate, prepare for, and deal with contingencies; and

.1.3 adapt to new and changing requirements.

.2 The criteria for evaluating competence (column 4 of table A-III/1 of the STCW Code) 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.

.3 Evaluation of competence is the process of:

.3.1 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-III/1; and

.3.2 judging that evidence against the criteria specified in the standard.

.4 The arrangements for evaluating competence should be designed to take account of different methods of assessment which can provide different types of evidence about the candidate's competence, e.g.:

.4.1 direct observation of work activities (including seagoing service);

.4.2 skills/proficiency/competency tests;

.4.3 projects and assignments;

.4.4 evidence from previous experience; and

.4.5 written, oral and computer-based questioning techniques.

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

13. Before conducting the assessment, the assessor should --

.1 familiarize him or herself with the assessment criteria [in column 4 of the relevant tables in section A-III/1 of the STCW Code] to ensure that the assessment activities will be effective and comprehensive;

.2 develop scenarios which involve a sequence of events that require the candidate to exercise good judgment in a realistic amount of time; that include distracters (such as equipment malfunctions) which test the candidate's ability to react properly to abnormal or emergency circumstances; and that require the candidate to make effective use of all relevant and available human resources, hardware and information.

.3 ensure the necessary equipment is operational and will be available throughout the assessment activity;

.4 be able to articulate the parameters or thresholds which will, under the circumstances, represent an acceptable level of performance;

.5 clearly explain to the candidate the purpose of the activity and the steps he or she is to take during the demonstration of the skill or ability;

.6 ensure that the candidate (a) can concentrate on the task(s) at hand; (b) will not receive unauthorized assistance during the assessment process; and (c) is not in a position to "learn the test" by watching the performance of other candidates;

.7 inform the candidate as to the scope and depth of knowledge to be assessed, the length of time allowed for the demonstration, and the effect of failing to perform part of the demonstration properly; and establish the candidate's willingness to be assessed under the circumstances presented.

14. The assessor should continuously observe the candidate during performance of the skill or ability and should only note in the training record book when the performance is acceptable. In the event the candidate does not perform a critical phase of the assessment exercise at an acceptable level of proficiency, assessment should be suspended and should not be conducted until further instruction is provided.

15. Successful or acceptable performance should be based on the candidate's proved ability to safely perform:

.1 the assigned tasks in accordance with competency criteria identified in the training record book;

.2 such tasks in a manner which demonstrates that the required level of skill, knowledge and ability was never in serious doubt; and

.3 such tasks in a manner which demonstrates sound and professional judgment.

16. Unsuccessful or unacceptable performance may be based on the candidate's failure to prove his or her ability in accordance with paragraph 14, or because the candidate otherwise performs improperly in the judgment of the assessor, based on events such as the following:

.1 an action, or lack of action, by the candidate which required corrective action or intervention by the assessor to prevent injury, damage, or the development of a hazardous condition;

.2 the candidate failed to use proper procedures (including appropriate communication procedures);

.3 the candidate failed to take prompt corrective action when required.

17. Normally, a single demonstration of skill immediately following instruction should not be relied upon as the sole basis for judging competence.

18. When the assessor is inexperienced, arrangements should be made for his or her early assessment activities to be monitored by the person responsible for the training and assessment program, with the aim of ensuring that assessment activities are conducted in the most effective manner possible.

MODEL TRAINING RECORD BOOK FOR CANDIDATES FOR CERTIFICATION AS OFFICERS IN CHARGE OF AN ENGINEERING WATCH OR DESIGNATED DUTY ENGINEERS

Subject Outline

1	Marine engineering
2	Electrical, electronic and control engineering
3	Maintenance and repair
4	Controlling the operation of the ship and care for persons on board

Personal History

Photo

Full Name

Permanent Address

Date of Birth

Seaman's Registration Number

Training College

Shipping Companies undertaking training and their addresses

Government Administration Department issuing the Training and Assessment Record Book

Date of Issue _____

ENGINEER OFFICER IN CHARGE OF A WATCH:

SHIP DATA

SHIP REFERENCE NUMBER _____

SHIP NAME MV_____ CALL SIGN_____

General Data

Port of registry _____

Gross registered tons _____

Net registered tons _____

Deadwight _____

Load displacement _____

Cargo _____

Length Overall (m) _____

Beam (m) _____

Summer Draft loaded (m) _____

Service speed (knots) _____

Shaft power (kW) _____

Propellers _____

Service r.p.m. _____

Bunker capacity _____

Daily fuel consumption _____

Fuel type and viscosity _____

Emergency gear No. Capacity

Lifeboats

Rafts
Fire-fighting pumps

SHIP SERVICE RECORD

SHIP REF. NO.	NAME OF SHIP/PORT OF REGISTRY	SERVICE PERIOD				SIGNATURE OF MASTER
		Dates		Service		
		Joining	Leaving	m	d	
		g				

SUPERVISING ENGINEER REVIEW OF TRAINING PROGRESS

Ship	Comments	Name of Shipboard Training Officer	Initials	Date

CHIEF ENGINEER'S INSPECTION OF RECORD BOOK

Ship	Comments	Name of Master	Chief Engineer's Initials	Date	Ship's Official Stamp

COMPANY TRAINING OFFICER'S INSPECTION OF RECORD BOOK

Company Name	Comments	Name of Company Training Officer	Initials	Date

SAFETY FAMILIARIZATION

Ship Ref. No.						
Task/Duty	Officer's Initials/Date	Officer's Initials/Date	Officer's Initials/Date	Officer's Initials/Date	Officer's Initials/Date	Officer's Initials/Date
Be able to: Communicate with other persons on board on elementary safety matters						
Understand safety information symbols, signs and alarm signal						
Know what to do if: A person falls overboard Fire or smoke is detected The fire or abandon ship alarm is sounded						
Be able to: Identify muster and embarkation stations and emergency escape routes						
Locate and don life jackets						
Raise the alarm and have a basic knowledge of the use of portable fire extinguishers						
Take immediate action upon encountering an accident or other medical emergency before seeking further medical assistance on board						
Close and open the fire, weathertight and watertight doors fitted in the particular ship, other than those for hull openings						

SHIPBOARD FAMILIARIZATION*

Ship Ref. No						
Task/Duty	**Officer's Initials/Date**	**Officer's Initials/Date**	**Officer's Initials/Date**	**Officer's Initials/Date**	**Officer's Initials/Date**	**Officer's Initials/Date**
Watchkeeping procedures and arrangements: Visit engine room and other work areas						
Get acquainted with main and auxiliary engines and other engine equipment and displays						
Activate, under supervision, equipment to be used in routine duties						
Safety and emergency procedures: Read and demonstrate an understanding of your Company's Fire and Safety Regulations						
Demonstrate recognition of the alarm signals for: **FIRE** **EMERGENCY** **ABANDON SHIP**						
Locate medical and first aid equipment						
Locate fire-fighting equipment: alarm activating points, alarm hells, extinguishers, hydrants, fire axes and hoses						

Locate: Rocket line throwing apparatus						
Distress rockets, flares and other pyrotechnics						
Breathing apparatus and fire-fighter's outfits, etc						
Locate and explain how to operate emergency deck stop mechanism for main engines, including other emergency stop valves						

Ship Ref. No						
Task/Duty	**Officer's Initials/Date**	**Officer's Initials/Date**	**Officer's Initials/Date**	**Officer's Initials/Date**	**Officer's Initials/Date**	**Officer's Initials/Date**
Safety and emergency procedures (continued): Locate $C0_2$ or halon bottle room, **and** control valves for smothering apparatus in **pump** rooms, cargo tanks and holds						
Locate and explain the operation of the emergency pump						
Environmental protection: Get acquainted with :the procedure for handling garbage, rubbish and other wastes						
the use of garbage compactor or other equipment as appropriate						
Insert Boat and Fire Muster Stations and other *details in the* ***appropriate space, ask the Shipboard Training Officer 10 sign in the space provided***						
Ship's Name						
Boat Muster Station						
Fire Muster Station						
Shipboard Training Officer						
Shipboard Training Officer						
Date						

III- PROPULSION PLANT

a-1 Technical details - diesel propulsion plant

	Main engine
-	make, type and building year
-	principal dimensions: cylinder bore piston stroke
-	ratio crank length/connecting rod length
-	construction
-	output
-	number of cylinders
-	reversible or non-reversible
-	2 or 4-stroke process
-	scavenging system
-	supercharging system
-	trunkpiston or crosshead construction
-	direct or indirect injection
-	number of inlet and outlet valves
-	highest and lowest number of revolutions
-	kind of fuel
-	compression pressure
-	maximum combustion pressure
-	lube oil pressure behind last bearing
-	specific fuel consumption
-	method of starting
	Coupling/reduction gearing
	-
	-
	-
-	reduction rate
-	type of toothing
-	operation of coupling
	Remarks Review by supervising engineer _____ _____ (Initials) (Date)

III - PROPULSION PLANT (cont'd)

a-2 Technical details - steam propulsion plant

Main turbine
- manufacture, type year built
- type of turbine, drive system
- type and number of stages HP turbine
- type and number of stages LP turbine
- number of RPM (HP and LP)
- power out put
- inlet steam pressure
- inlet steam temperature
- extractions steam pressure
- reheat steam pressure and temperature
- exhaust steam pressure
- exhaust steam temperature
- type of governor and trip mechanisms
Reduction gear assembly
- manufacture, type, year built
- reduction ratio
- type of teeth
- name each type of gear of assembly
Main boiler
- Manufacture, type, year built
- steam generating capacity
- steam pressure/temperature
- combustion control system/burner management system
- feed water control system
- superheat steam temperature control
- type of desuperheater
- type of economizer/airheater
- soot blower arrangement
- safety value arrangement

-	list of boiler mounting and internals
-	fuel system (number of pumps and heaters)
-	air register
-	fuel atomizer system
Remarks:	Review by supervising engineer ____ ____ (Initials) (Date)

III - PROPULSION PLANT (cont'd)

a -3 Technical details - general

Thrust block

- type
- separate or built-in

Shafting

- components
  - maximum revolution/minute
  - type of stem tube and gland
  - type and number of bearings

Propeller

- make, type
- fixed/controllable pitch/contra rotation
- number of blades
- right/left handed
- pitch

Thrusters (Bow and/or Stern)

- number
- location
- make, type, year of construction
- type of drive
- maximum electrical power consumption
- maximum output power
- steering gear
- manufacture, type, year built
- pump, ram arrangements
- follow up arrangements
- emergency arrangements

Remarks: Review by supervising engineer

_____ _____
(Initials) (Date)

III- PROPULSION PLANT

b-1 Assignment Diesel propulsion plant

Describe, based on a short outline of the main engine and associated auxiliary systems, as an operational entity, the possibility for control from control room and bridge console.

Also mention possible emergency devices and their control.

Describe the actions to be taken to maintain the main engine in good operational condition.

Please include:

- the cylinder pressures
- power output
- exhaust gas temperatures of each cylinder as well as temperatures before and after supercharger exhaust and air cooler temperatures and pressure
- cooling and lubricating system details
- type of fuel injection
- fuel temperature and viscosity

Number of pages of assignment……

Review by supervising engineer

_____ _____
(Initials) (Date)

III- PROPULSION PLANT

b-2 Assignment steam plant

Describe, based on a short outline, the main steam and water cycle and associated auxiliary system found on board your vessel as an operational entity for the possibility of control from a control room and bridge console.

Also include emergency devices and their control.

Describe the actions to be taken to maintain the main boiler and turbine in good operational condition.

Please include operating parameters for:

- condensate system (i.e. condenser, pump, heater)
- air ejector/pump
- feedwater system (i.e. deaerator, feed pump)
- combustion air heaters
- main and auxiliary piping system
- combustion control system
  - fuel oil system
  - lube oil system
  - sea water cooling system
- evaporator/condenser system

Review by supervising engineer

_____ _____
(Initials) (Date)

Number of pages of assignment:

IV - AUXILIARY SYSTEMS

a Technical details

A Prime movers of generators		
Diesel engine	-	number on board
	-	manufacture, type and building year
	-	power output
	-	number of revolutions
	-	two or four-stroke process
	-	type of scavenging and turbo charging
	-	type of fuel
	-	engine starting equipment
	-	maximum compression pressure
	-	maximum combustion pressure
	-	specific fuel consumption
	-	governor and trip details
Turbine	-	manufacture, type and building year
	-	type, of turbine(s)
	-	number of stages
	-	reduction gear
	-	number of revolutions
	-	power output
	-	live steam pressure
	-	quality of steam
	-	exhaust steam pressure
	-	governor and trip details
Emergency diesel generator	-	manufacture, type and building year
	-	two four-stroke process
	-	power output
	-	way of starting
	-	number of revolutions
	-	government details

Continuation technical details

B Fuel system		
Fuel transfer pumps	-	number on board
	-	type
	-	capacity
Fuels	-	available types
Tanks -	-	capacity fuel storage tank(s)
	-	capacity settling tank(s)
	-	capacity day tank(s)
	-	capacity sludge tank(s)
Fuel cleaning system	-	make and year of manufacture
	-	number of purifiers
	-	type of purifiers
	-	capacity of purifiers
	-	number of clarifiers
	-	type of clarifiers
	-	capacity of clarifiers
Fuel heater	-	type
Viscosity controller	-	type
Fuel blending system	-	type
	-	capacity
C Lubricating oil system		
Main lub-oil pumps	-	number on board
	-	type
	-	capacity
Lub **oil purifiers**	-	number on board
	-	type

Continuation technical details

D	**Fresh-water system**	
Fresh water evaporator	-	number on board
	-	type
	-	heating medium
E	**Refrigerating plant for cargo and refrigerated spaces**	
Cargo		
Refrigerated holds	-	number on board
	-	volume of each hold
	-	working principle
Compressors	-	number on board
	-	working principle
	-	make, type and year of construction
	-	power consumption
	-	refrigerant (primary and/or secondary)
	-	cooling agent
	-	cooling capacity
	-	capacity control
Provision		
Chill box	-	number on board
	-	working principle
	-	temperature
	-	way of cooling
Freeze box	-	number on board
	-	working principle
	-	temperature

Continuation technical details

Compressors	-	number on board
	-	working principle
	-	manufacturer, type and year of construction
	-	power consumption
	-	refrigerant (primary and\or secondary)
	-	cooling agent
	-	cooling capacity
F Starting, control and general air systems		
Starting air compressors	-	number on board
	-	working principle
	-	manufacturer, type and year of construction
	-	capacity
	-	working pressure
	-	stage cooling temperatures
General air compressors	-	number on board
	-	working principle
	-	manufacturer, type indication, year of construction
	-	capacity
	-	working pressure
Control air compressors	-	number on board
	-	working principle
	-	manufacturer, type indication , year of construction
	-	capacity
	-	working pressure
	-	type of cooling
Associated air system equipment	-	filters
	-	dryers
	-	reducers
	-	gauging
	-	pressure vessels
	-	relieving devices
	-	starting air valves
	-	starting air motor
G Auxiliary boilers		
Oil-fired steam boilers and system	-	number on board
	-	working principle
	-	manufacturer, type, year of construction
	-	working pressure
	-	safety devices, alarms and controls

- capacity
- burner management
- combustion control

Oil-fired thermal	-	number on board
Oil heater	-	working principle
	-	manufacturer, year of construction
	-	type
	-	working pressure
	-	capacity
	-	control systems
Exhaust gas steam boilers **Oil heater**	-	number on board
	-	working principle
	-	manufacturer, year of construction
	-	capacity
	-	control systems
Hydraulic systems	-	pumps
	-	pipe and hoses
	-	filters
	-	Strainers
	-	high pressure vessels
	-	reducers
	-	valves
	-	relieving devices
	-	control systems
Cooling water system	-	fresh water cooling system
	-	sea water cooling system

Remarks:

Review by supervising engineer

.....

(**Initials**) (**Date**)

IV - AUXILIARY SYSTEMS FOR DIESEL PROPELLED SHIPS

b Assignment

Almost all ships are equipped with a heat generating plant. This plant may consist of:

.1 an oil-fired steam boiler

.2 an oil-fired thermal oil heater

.3 an exhaust gas boiler combined with the boiler sub 1

.4 an exhaust gas boiler combined with the heater sub 2

.5 an exhaust gas heater combined with heater sub 2

The steam as produced by a plant sub 1 or 3 may- except for heating purposes - may also be used for driving pumps and generators.

Give a description based on a diagram of the design, operation and control of plants mentioned above sub 1 through 5. The following items should be dealt with:

a) the circuit of the generated steam or heated oil

b) preparation to be made before the plant is put into operation. For the plants sub 3 and 4 right order to be kept: first the oil-fired boiler, next the exhaust gas boiler

c) putting it into operation and the required checks during firing-up for both oil-fired and exhaust gas boilers

d) checks and boiler control during operation

e) automatic control for starting up and shutting down the exhaust gas boiler and oil-fired boiler

f) safety-devices of the plant; mandatory safety requirements

g) starting up, running and shutting down an existing turbo-generator

h) the testing and treatment of boiler and feed water

i) the specific checks and safety measures in case of thermal oil being used

j) condensate system

k) evaporation system

Review by supervising engineer

Number of pages of assignment:……

…… ……
(Initials) (Date)

V - ELECTRICAL PLANT

a Technical details-main, Auxiliary, Emergency, Distribution Panels, Switch Gear

Generators

voltage

- number on board
- manufacturers and years of construction
- voltage
- frequency
- apparent power
- power and service factor
- method of cooling generator

Shaft generators

- number on board
- manufacturer, year of construction
- voltage
- frequency
- apparent power
- power and service factor
- method of drive
- maximum and minimum permissible revolutions of the driving engine
- method of frequency and voltage control

Emergency generator

- …..on board
- manufacturer, type, year of construction
- apparent power
- power and service factor
- method of drive

Continuation technical details

Converters and rectifiers

- number on board
- working principle
- incoming and outgoing voltage
- incoming and outgoing current
- consumed and produced power

Transformers

- number on board
- working principle
- purpose
- primary and secondary voltage and current
- apparent power

Battery sets

- number on board
- working principle (primary and secondary)
- voltage
- maintenance procedures
- ventilation requirements
- battery charger

Remarks: persons	Review by supervising _____ _____ (Initials) (Date)

CHAPTER VIII-ELECTRICAL INSTALLATION

The assignment for this subject is to be carried out in a very detailed manner. Knowledge is basically obtained from instruction manuals. However, the necessary skills often underdeveloped. I t is desirable that the ship's management is able to find opportunities to involve trainees, as much as possible, in solving problems in this field.

b Assignment

The electrical supply to the main switch board is accomplished by generators. The ship's supply is distributed from the main switch board.

1 Describe, on the basis of a diagram, how two generators are switched on to the ship's mains. Indicate how these generators work in parallel mode.

2 In a case where the ship is equipped with a shaft generator, the parallel operation of the shaft generator and a diesel generator is to be described.

Indicate in both cases how the generators are protected and how load-sharing is accomplished. Some safety devices have a time-delay. Mention these and explain why a time-delay is needed. How are these safety devices tested?

In case two generators are running in parallel and the total load than the maximum permissible load of one generator, then indicate in what way a total power supply shutdown is prevented, if one of the generators shuts down due to a prime mover failure. In case of a main generator failure the electrical supply is partly taken over by the emergency generator or a battery set via switchboard. Describe:

a how the emergency generator is started; and'

b how the battery set switched on.

Which machinery and devices are required to be connected to both the main and the emergency switchboard and why? Indicate how the emergency generator is prevented from overloading due to too much equipment being connected to the emergency switchboard. Which safety devices are fitted at the emergency switchboard and why?

Is there a switch connection between the emergency and main switchboard?

Describe how the electrical supply is started up again after (whether or not fictitious) a power failure has occurred.

engineers Number of pages of assignment:……	Review by supervising …….. ……. (Initials) (Date)

VI-CARGO HANDLING AND STOWAGE

a Technical details

Cargo pumps (where appropriate)

- number on board
- manufacturer, year of construction
- working principle
- capacity
- maximum working pressure
- method of drive
- method and location of control and monitors

Ballast pumps

- number on board
- manufacturer, year of construction
- working principle
- capacity
- maximum working pressure
- method of drive
- method and location of control and monitors

Stripping pumps

- number on board
- manufacturer, year of construction
- working principle
- capacity
- maximum working pressure
- method of drive
- method and location of control and monitors

Insert gas plant

- working principle
- capacity
- method and location of controls and monitors

Tank wash installation

- working principle
- capacity
- cleaning solvent

Remarks:	Review by supervising engineer …… ……..

(Initials) (Date)

VI- CARGO HANDLING AND STOWAGE

b Assignment

Make a report about cargo handling and stowage, concerning a part of the voyage in which there is a port of loading, a section of the voyage and a port of unloading. In the report the following subjects should be dealt with:

- information-exchange between shore and ship concerning the cargo, such as booking, shore preparation, stevedoring, special requirements
- preparing the ship for cargo carriage
- considerations leading to the chosen way of stowage, taking into account stability, trim, the occurrence of longitudinal stresses and potential for damage control
- loading the ship or part of it together with its interesting aspects; the stowage plan and possible annexes, including stability and trim calculations
- the use of cargo handling equipment
- the care of the cargo during the voyage
- making preparation for and the actual unloading of the cargo
- measures to be taken in connection with safety of crew, cargo and environment
- possible financial and legal aspects such as ship's involvement in settlement of claims. Notice of readiness, time sheet.

Review by supervising engineer

Number of pages of assignment:……

…….. ……..
(Initials) (Date)

VII-AUTOMATIC TECHNOLOGY

a Technical details

General

Answering the following questions depends a great deal on how the machinery inside and outside the engine room is automatied: centralized by means of one or more computers, or decentralized with separate controllers, or a combination of both.

For all the parameters to be controlled which are listed separately below, the following characteristics should be mentioned (the entire control system need not to be described):

General	- whether it concerns a control, adjustment or alarm system - its location and from where it is operated - how is the measured signal fed to the computer
Centrally controlled means	- how does the computer interfere in the process and with what - sort and type of sensors, A/D and D/A conversion - the measuring principle
Decentrally controlled	- make and type of measuring transduce or sensor - make and type of controller used - make and type of correcting unit (e.g. control valves) - make and type of positioners - medium used for transmitting the measuring and control signals

Centralized automation

- make and type of computer(s)
- part of the system controlled by the computer
- size and division of computer memory
- way of input and output of signals (D/A and D/A conversion)
- possibility for emergency operation
- emergency voltage control

Controlled parameters

number of revolutions

- main engine(s)
- auxiliary engine
- auxiliary turbine
- bow/stern thruster(s)

Continuation technical details

Angle

- automatic pilot
- heel/automatic trim system
- heel/stabilizers

Temperatures

- cylinder cooling-water/hot cooling-water circuit
- piston cooling-water/cooling oil
- lubricating oil
- secondary cooling-water circuit
- seawater circulating system
- incinerator
- cargo refrigerating plant
- provisions refrigerating plant
- air treatment system
- oil-fired thermal oil boiler
- exhaust gas thermal oil boiler

Pressures

- starting air
- control air
- general air
- whistle air
- lub oil main engine
- control oil main engine
- lub oil pressure auxiliary engines
- hydraulic oil for hull gates and valves
- steering engine oil
- oil-fired boiler
- exhaust gas boiler

Continuation technical details

Physical properties

- viscosity of fuel main engine
- quality of condensate
- oxygen content in inert spaces
- tank atmosphere
- exhaust gases of oil-fired boiler

Levels

- bilge water
- ballast tanks
- fuel tanks
- boiler water
- lub oil main engine
- steering engine oil

Remote control

- hatches
- side parts
- fuel tank valves
- watertight doors
- rudder

VII-AUTOMATION TECHNOLOGY

b Assignment

Choose and describe a separate control loop (somewhere) on board of the ship, like viscosity control, automatic pilot, a self-tension winch, a temperature, speed or pressure control. Such as:

- watertight sliding doors
- bow ports, sidedoors
- self-tension winches
- thrusters, cranes
- steering gear

Explain the operation of the equipment used.

To be expanded

Seen by supervisor

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(Initials) (Date)

Number of pages of assignment

VIII-SAFETY AND ENVIRONMENTAL PROTECTION, INSPECTION, MAINTENANCE AND REPARIS

a Technical details

A Fire extinguishing system	
Fire pumps	- number on board - working principle - method of drive - capacity - pressure - location on board - operating positions
Emergency fire pump	- working principle - capacity - method of drive - location on board - operating positions
Fixed fire-fighting installation(s)	- working principle - protected space(s) - operating positions
Sprinkler installation	- working principle - protected space(s)
Fire detection system	- number on board - protected space(s)
Hydrants	- number on board
International shore connection	- number on board - location
Control systems	- location (s)

Continuation technical details

B Bilge pumping arrangement	
Bilge ejector	- number on board - location - capacity
Bilge pumps	- number on board - location - working principle - capacity - operating positions
C Life saving equipment	
Lifeboats	- number on board - working principle
Inflatable rafts	- number on board - manufacturer - number of persons
Rescue boats	- working principle - number of persons
Launching appliances	- number on board - working principle
Lifebuoys	- number on board - working principle
Lifejackets	- number on board - working principle - location
Immersion suits	- number on board - working principle

Continuation technical details

D	**Environmental protection**	
Sewage treatment plant	-	working principle
	-	capacity
Bilge water treatment	-	working principle
	-	capacity
	-	system of control
	-	number of PPM of the effluent
Incinerator plant	-	working principle
	-	capacity
	-	substances to be burnt
	-	required fuel
	-	maximum working temperature
Ballast water monitor	-	working principle
	-	system of control

Remarks:	**Review by supervising engineer**
	…….. …….. **(Initials) (Date)**

b Assignment

Repairs and maintenance tasks have to be carried out in consultation with the supervisor. When the trainee takes part in repair or maintenance work, then the report should contain the following points for emphasis:

1. reason for the repairs or the maintenance work
2. preparatory work
3. actual work, disassembly, etc.
4. condition of the opened device/machinery
5. measurements to be carried out and the results thereof
6. assembly of the component or the entire device/machinery
7. making it operational again and testing it
8. final conclusion about the possible cause and consequences; the question of who is guilty to be left out of consideration
9. possible theoretical considerations as a basis for the findings

The extend of the repair and maintenance tasks should (preferably) be such that the above-mentioned points can be included in the report, as far as possible accompanied by repair sketches and drawings used.

Review by supervising engineer

…….. ……..
(Initials) (Date)

Number of pages of assignments:……

Aeng2

Function: **Marine engineering at the operational level**

Competence 1: **Use of appropriate tool for fabrication and repair operations typically performed on ships**

No.1	TASKS	CRITERIA FOR SATISFACTORY PERFORMANCE	Ship Ref. No.	Assignment Completed					
			Date	Date	Confirmed by qualified instructor	Date	Confirmed by qualified assessor	Type of Assessment	Remarks
1.1	Reorganize characteristics and limitations of materials used in construction and repair onboard	Identification of important parameters for fabrication of ship related components is appropriate							
1.2	Select and use special tools for work on specific machinery and equipment i.e. pumps, purifiers, reducers	Correct hand and machine tools, tools are chosen and used in accordance with instructions, manuals and good workmanship							
1.3	Select and use appropriate material	The selected material is suitable for the part(s) to be fabricated or repaired							
1.4	Use machine tools and equipment for fabrication and repair	Use of equipment and machine tools is appropriate and safe and fabrication is to designated tolerances							

Function: **Marine engineering at the operational level**

Competence 2: Use of hand tools and measuring equipment for dismantling, maintenance, repair and assembly of shipboard plant and equipment

No.2	TASKS	CRITERIA FOR SATISFACTORY PERFORMANCE	Ship Ref. No.	Assessment completed					
			Da	Date	Confirmed by qualified instructor	Date	Confirmed by qualified assessor	Type of Assessment	Remarks
2.1	Select and use hand tools for dismanting, inspecting, repairing and reassembling equipment	Hand tools are properly selected and used for adjustments and calibrations and for dismantling and re-assembling of machinery and equipment							
2.2	Select and use general and special measuring equipment	The selected measuring instruments used for adjustments, calibrations, repair and maintenance of machinery and equipment are relevant for the task, correct measures are taken and checked for compliance with stated tolerances							
2.3	Locate and use relevant manuals and interpret drawings, diagrams, sketches and instructions	The instructions, drawings and diagrams relevant for the job are quickly identified and properly used							

Function: **Marine engineering at the operational level**

Competence 3: **Use of hand tools, electrical and electronic measuring and test equipment for locating and repairing faults and malfunctions**

No.3	TASKS	CRITERIA FOR SATISFACTORY PERFORMANCE	Ship Ref. No.	Assignment Completed					
				Date	Confirmed by qualified instructor	Date	Confirmed by qualified assessor	Type of Assessment	Remarks
3.1	Locate and interpret relevant manuals	The selected manuals, drawings and diagrams are appropriate and quickly located							
3.2	Select test and measuring equipment	Section of test and measuring equipment is appropriate							
3.3	Use and interpret test and measuring equipment reading	Use of test and measuring equipment is appropriate and interpretation of results is accurate							
3.4	Evaluate the necessity for taking corrective action with or without assistance	Selection of proper equipment and procedures for the conduct of repair and maintenance is in accordance with manuals and good practices							
3.5	Repair faults and correct malfunctions	The situation is assessed correctly and the action taken acceptable. Commissioning and performance testing of equipment and systems brought back into service after repair is in accordance with manual and good practices							

Function: **Marine engineering at the appropriate level**

Competence: **Maintain a safe engineering watch**

No.4	TASKS	CRITERIA FOR SATISFACTORY PERFORMANCE	Ship Ref. No.	a Assignment Completed					
				Date	Confirmed by qualified instructor	Date	Confirmed by qualified assessor	Type of Assessment	Remarks
4.1	List or orally explain the reasons an officer in charge of the engineering watch shall not hand over the watch to the relieving officer	Explanation is consistent with requirements in section A-VIII/2, paragraph 56, of the STCW Code							
4.2	Explain the starting orders and special instructions of the chief engineer officer relating to the operation of the ships systems and machinery	Explanation is satisfactory to the assessor							
4.3	Explain the nature of all work being performed on machinery and systems, the personnel involved, and potential hazards	Explanation is satisfactory to the assessor							

Function: **Marine engineering at the operational level**

Competence 4: **Maintain a safe engineering watch**

No.4	TASKS	CRITERIA FOR SATISFACTORY PERFORMANCE	Ship Ref. No.	Assignment Completed					
				Date	Confirmed by qualified instructor	Date	Confirmed by qualified assessor	Type of Assessment	Remarks
4.4	Determine the level and, where applicable, the condition of water or residues in bilge, ballast tanks, slop tanks, reserve tanks, fresh water tanks, sewage tanks and any special requirements for use or disposal of the contents thereof	Explanation is consistent with requirements in section A-VIII/2, paragraph 56, of the STCW Code							
4.5	Determine the condition and level of fuel in the reserve tanks, settling tank, day tank, and other fuel storage facilities	Determination are correct							
4.6	Determine any special requirements relating to sewage system disposals and the acceptable alternative	Ability to correctly explain acceptable alternatives for sewage system disposals							

	for such disposals for the duration of the voyage								

Function: **Marine engineering at the operational level**

Competence 4: **Maintain a safe engineering watch**

No.4	TASKS	CRITERIA FOR SATISFACTORY PERFORMANCE	Ship Ref. No.	A Assignment Completed					
				Date	Confirmed by qualified instructor	Date	Confirmed by qualified assessor	Type of Assessment	Remarks
4.7	Determine the condition and mode of operation of the various main and auxiliary systems, including the electrical power distribution system	Determinations are correct							
4.8	Determine, where applicable, the condition of monitoring and control console equipment, and which equipment is being operated manually	Determination are correct							
4.9	Describe potential adverse conditions that could result from bad weather, ice, contaminated water, or shallow water	Descriptions are complete and accurate							

Function: **Marine engineering at the operational level**

Competence 4: **Maintain a safe engineering watch**

No.4	TASKS	CRITERIA FOR SATISFACTORY PERFORMANCE	Ship Ref. No.	Assignment Completed						
			Date	Date	Confirmed by qualified instructor	Date	Confirmed by qualified assessor	Type of Assessment	Remarks
4.10	Determine, where applicable, the condition and mode of operation of automatic boiler controls such as flame safeguard control system, limit control system, combustion control system, fuel supply control system, and other equipment related to the operation of steam boilers and explain the function of each	Correct determination and satisfactory explanation							
4.11	Determine any special modes of operation dictated by equipment failure or adverse ships conditions and describe how various how	Correct determination and satisfactory explanation							

	various equipment failures or adverse ship condition could potentially dictate special modes of operation								

Function: **Marine Engineering at the operational level**

Competence 4: **Maintain a safe engineering watch**

No.4	TASKS	CRITERIA FOR SATISFACTORY PERFORMANCE	Ship Ref. No.	Assignment Completed					
			Date	Date	Confirmed by qualified instructor	Date	Confirmed by qualified assessor	Type of Assessment	Remarks
4.17	Identify all escape routes from the machinery spaces	All escape routes are properly identified							
4.18	Describe the various engine-room alarm systems and distinguish between the various alarms, especially the fire-extinguishing media alarm	Description is accurate							
4.19	Operate the propulsion equipment in response to needs for changes in direction or speed	Capability for operation is satisfactory							

Function: **Marine engineering at the operational level**

Competence 4: Maintain a safe engineering watch

No.4	TASKS	CRITERIA FOR SATISFACTORY PERFORMANCE	Ship Ref. No.	Assignment Completed						
			Date	Date	Confirmed by qualified instructor	Date	Confirmed by qualified assessor	Type of Assessment	Remarks
4.20	Determine and describe all preventive maintenance, damage control, or repair operations to be performed during the engineering watch. Describe how all machinery to be worked on is isolated, bypassed, or adjusted. Record all work carried out on the watch	Determinations are complete; descriptions are satisfactory; and work performed is properly recorded							
4.21	Inspect the machinery in the charge of the officer in charge of the engineering watch. Describe the condition of all such machinery	Condition is accurately described							

Function: **Marine engineering at the operational level**

Competence 4: **Maintain a safe engineering watch**

No.4	TASKS	CRITERIA FOR SATISFACTORY PERFORMANCE	Ship Ref. No.	Assignment Completed					
			Date	Date	Confirmed by qualified instructor	Date	Confirmed by qualified assessor	Type of Assessment	Remarks
4.22	Make rounds of the machinery and steering-gear spaces for the purpose of observing and reporting equipment malfunctions or breakdowns and performing under direction routine adjustments, required upkeep, and other necessary tasks. Describe potential malfunctions and breakdowns	Performance and disemption are satisfactory and accurate							
4.23	Describe actions that would be necessary in case of damage resulting from equipment breakdown, fire, flooding, rupture, collision, grounding, or other causes in order to	Descriptions are satisfactory							

	contain the effects								

Function: **Marine engineering at the operational level**

Competence 4: **Maintain a safe engineering watch**

No.4	TASKS	CRITERIA FOR SATISFACTORY PERFORMANCE	Ship Ref. No.	Assignment Completed					
			Date		Confirmed by qualified instructor	Date	Confirmed by qualified assessor	Type of Assessment	Remarks
4.24	Record all events related to the main and auxiliary machinery which have occurred during the engineering watch	Records are suitable							
4.25	Describe special watchkeeper precautions to be taken under adverse conditions in rough seas, restricted visibility, coastal and congested waters, and at anchor	Descriptions are satisfactory							
4.26	Describe the procedures for taking over the engineering watch in port	Description includes the requirements of section A-VIII/2, part 4-2, of the STCW Code							
4.27	Describe the	Description includes the							

	procedures for performing the engineering watch in port	requirements of section A-VIII/2, part 4-4, of the STCW Code							

Function: **Marine engineering at the operational level**

Competence 5: **Use of English in written and oral form**

No.5	TASKS	CRITERIA FOR SATISFACTORY PERFORMANCE	Ship Ref. No.	Assignment Completed					
			Date	Date	Confirmed by qualified instructor	Date	Confirmed by qualified assessor	Type of Assessment	Remarks
5.1	Use engineering publications operational manuals and fault finding instructions written in English	The publications and manuals relevant to the engineering duties are correctly interpreted							
5.2	Fill in standard engineering reports and forms in English	All reports and forms relevant to the engineering duties are correctly filled							
5.3	Communicate with members of the watch, in a multilingual crew, in safety related duties	All orders and information related to Watchkeeping duties are correctly understood and acted upon those concerned							

Function: **Marine engineering at the operational level**

Competence 6: **Operate main and auxiliary machinery and associated control systems**

No.6	TASKS	CRITERIA FOR SATISFACTORY PERFORMANCE	Ship Ref. No.	Assignment Completed					
				Ddate	Confirmed by qualified instructor	Date	Confirmed by qualified assessor	Type of Assessment	Remarks
6.1	Prepare main machinery for departure	All checks and actions are carried out in accordance with laid down instructions and all auxiliary and control systems are functioning properly. All relevant checks and actions are recorded							
6.2	Prepare and test the steering gear for departure	All checks and actions are carried out in accordance with laid down instructions and all control systems are functioning properly. All relevant checks and actions are recorded							
6.3	Prepare auxiliary machinery for operation	All checks and actions are carried out in accordance with laid down instructions and all auxiliary and control systems are functioning properly. All relevant checks and actions are recorded							
6.4	Operate steam boilers, including combustion control and burner management systems	The equipment is operated in accordance with instructions and good practice. All instruments are monitored, necessary adjustments made and required actions taken on and properly recorded							

6.5	Check steam boiler water level	Water level is checked in accordance with instruction manual and good practice and necessary action is taken when water level is abnormal							
6.6	Locate common faults in machinery and plants, in engine room boiler room and steering gear room and take action necessary to prevent damage	The causes of machinery malfunctions are promptly identified and action is taken to ensure the overall safety of the ship and the plant having regard to the prevailing circumstances and conditions							

Function: **Marine engineering at the operational level**

Competence 7: **Operate pumping systems and associated control systems**

No.7	TASKS	CRITERIA FOR SATISFACTORY PERFORMANCE	Ship Ref. No.	Assignment Completed					
			Date		Confirmed by qualified instructor	Date	Confirmed by qualified assessor	Type of Assessment	Remarks
7.1	Operate bilge and ballast pumping systems	The operations are carried out in accordance with established rules and procedures. The marine environment is in no way polluted by improper operation or negligence							
7.2	Operate fuel pumping systems	The operations are carried out in accordance with established rules and procedures. The marine environment is in no way polluted by improper operation or negligence							
7.3	Operate cargo pumping systems (liquid cargo ship)	The operations are carried out in accordance with established rules and procedures. The marine environment is in no way polluted by improper operation or negligence							
7.4	Perform routine pumping operations	Operations are planned and carried out in accordance with established rules and procedures to ensure safety of operations and avoid pollution of the marine environment							

Function: **Electrical, electronic and control engineering**

Competence 1: Operate alternators, generators and control systems

No.	TASKS	CRITERIA FOR SATISFACTORY PERFORMANCE	Ship Ref. No.	Assignment Completed					
			Date		Confirmed by qualified instructor	Date	Confirmed by qualified assessor	Type of Assessment	Remarks
1.1	Locate and use relevant manuals, drawings, diagrams and instructions	The instructions and manuals relevant for safe and efficient operations are quickly identified and properly used							
1.2	Prepare for starting, coupling (connecting)and change over alternators or generators	Operations are planned in accordance with established procedures and instructions							
1.3	Start, couple and change over alternators or generators	The operations are carried out as planned and all machinery and equipment are functioning satisfactorily							
1.4	Location of common faults and action to prevent damage	The causes of malfunction are promptly identified and actions are designed to ensure the overall safety of the ship and the plant having regard to the prevailing circumstances and conditions							
1.5	Identify ship's electrical distribution system	Diagrammatic sketch from generator to final breaker panels, including							

		circuit breakers trips, transformers, fuses, supply voltages, shore connections and emergency switchboard connection							

Function: **Electrical, electronic and control engineering**

Competence 1; Operate alternators, generators and control system

No.	TASKS	CRITERIA FOR SATISFACTORY PERFORMANCE	Ship Ref. No.	Assignment Completed					
			Date		Confirmed by qualified instructor	Date	Confirmed by qualified assessor	Type of Assessment	Remarks
1.6	Locate all electronic control equipment as found in ship's spaces	The list include control function description manufacture, power supply operating voltage							
1.7	Identify all ship's electronic monitoring equipment	List should include function, location manufacture, power supply and operating voltage							
1.8	Describe main engine throttle control system	Sketch should include block diagram of major components and explanation of operation including alternate means of controlling throttle							
1.9	Describe electronic steering gear control system	Sketch should include block diagram of major components and explanation of operation including alternate means of controlling steering							
1.6	Describe ships internal communication system	Sketch should include block diagram of major components and explanation of operation							

Function: **Electrical, electronic and control engineering**

Competence 2: **Maintain alternators, generators and control systems**

No.2	TASKS	CRITERIA FOR SATISFACTORY PERFORMANCE	Ship Ref. No.	Assignment Completed					
			Date		Confirmed by qualified instructor	Date	Confirmed by qualified assessor	Type of Assessment	Remarks
2.0	Carry out routine testing and maintenance on electrical components	Items include circuit breakers, trips motor starters, controllers, generators, lights, batteries alarm systems. Submit report of results							

Acon2F
Function: **Controlling the operation of the ship and care for persons on board at the operational level**

Competence: **Ensure compliance with pollution prevention requirements (STCW Code, Table A-III/1)**

No.1	TASKS	CRITERIA FOR SATISFACTORY PERFORMANCE	Ship Ref. No.	Assignment Completed					
			Date		Confirmed by qualified instructor	Date	Confirmed by qualified assessor	Type of Assessment	Remarks
1.1	Ensure that procedures are agreed and observed and all scuppers are blocked before bunkering	The operations are fully observed, all scuppers are blocked and pipes and hoses inspected before bunkering takes place.							
1.2	During relevant drills initiate immediate investigation to detect the source of pollution	All available resources are utilized to detect the source and the master or appropriate authorities are informed							
1.3	During relevant drills stop or prevent leakage and spills of harmful liquids and solids substances	The situation is thoroughly assessed and the actions taken are well organized and exercised with due consideration taken to the extent of the pollution							
1.4	Have all tanks and compartments sounded if any damage is suspected	The soundings are readily available and the results immediately reported to the master							

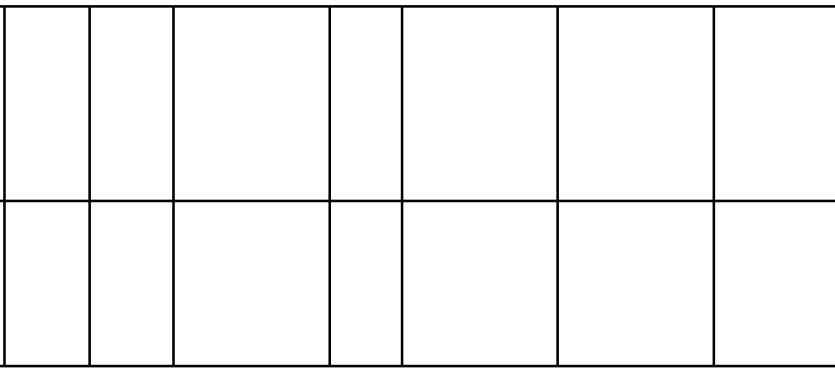
1.5	Carry out bilge, ballast and bunkering operations	All operations are carried out in accordance with MARPOL and due regard paid to Shipboard Oil Pollution Emergency Plan (SOPEP)							

Function: **Controlling the operation of the ship and care for persons on board at the operational level**

Competence: **Maintain seaworthiness of the ship (STCW Code, Table A-III/1)**

No.	TASKS **Monitor stowage and securing of cargoes**	CRITERIA FOR SATISFACTORY PERFORMANCE	Ship Ref. No.	Assignment Completed					
				Date	Confirmed by qualified instructor	Date	Confirmed by qualified assessor	Type of Assessment	Remarks
2.1	Inspect hull and hull openings, compartments, hatch covers, equipment and complement and take action if any defects are detected	The inspection is properly carried out, due regards paid to the prevailing circumstances and areas where defects are most likely to occur. Any defect is immediately reported and recorded and the suggested or executed action adequate for the situation							
2.2	Ensure that all loose objects are securely fastened to avoid damage	Inspection is carried out al regular intervals and more frequently in heavy weather or if other incidents occur. Heavy or otherwise dangerous objects are given the highest priority and good seamanship exercised.							
2.3	Arrange for regular control measures to ensure watertight integrity.	Peaks, bilge, tanks and other compartments are sounded regularly, the results recorded and any irregularities reported and examined further.							

2.4	Calculate stability, trim and stresses using stability trim, and stress tables, diagrams and stress calculating equipment.	Ensure that stability conditions comply with the IMO intact stability criteria under all conditions of loading
2.5	During relevant drills take actions to ensure and maintain the watertight integrity of the ship.	Actions to ensure and maintain the watertight integrity of the ship are in accordance with accepted practice.



Function: **Controlling the operation of the ship and care for persons on board at the operational level**

Competence: **Prevent, control and fight fires on board (STCW Code, Tables A-III/1)**

No.	TASKS Prevent fires on board	CRITERIA FOR SATISFACTORY PERFORMANCE	Ship Ref. No.	Assignment Completed					
				Date	Confirmed by qualified instructor	Date	Confirmed by qualified assessor	Type of Assessment	Remarks
3.1	Operate fire and smoke detecting equipment.	The equipment is tested and operated in accordance with manufacturer's manuals and ship-specific instructions.							
3.2	Ensure that all persons on watch are able to detect and correct hazardous situations and actions and keep the ship clean and tidy	Watch personnel make regular inspections in areas exposed to ignition. Easily inflammable material is put in safe places and the watch demonstrate an attitude of alertness and readiness to respond to fires.							
3.3	Make the watch locate and use fire-fighting appliances and emergency escape routes and sound alarm	Every person on watch can use portable or otherwise adequate fire-extinguishers for small fires, demonstrate ability to find emergency escape routes and raise the alarm							

Function: **Controlling the operation of the ship and care for persons on board at the operational level**

Competence: **Prevent, control and fight fires on board (STCW Code, Tables A-III/1)**

No.	TASKS Prevent fires on board	CRITERIA FOR SATISFACTORY PERFORMANCE	Ship Ref. No.	Assignment Completed					
				Date	Confirmed by qualified instructor	Date	Confirmed by qualified assessor	Type of Assessment	Remarks
4.1	Locate fire-stations and demonstrate proper use of fixed installations and other fire-fighting appliances and agents.	All stations are located and the most suitable one in the event of a fire. Proper equipment and extinguishing agents selected for the various materials on fire.							
4.2	Locate and use fire-protective equipment (fireman's outfit, including, breathing apparatus).	The equipment is quickly donned and used in a way that no accidents are likely to occur.							
4.3	Demonstrate ability to act in accordance with the fire-fighting plan during fire-drills.	During debriefing after an exercise or a real fire extinguishing action the reasons for each action taken, including the priority in which they were taken, are explained and accepted as the most appropriate.							
4.4	During relevant drills carry out rescue operations wearing breathing apparatus.	The breathing apparatus is tested and used in accordance with manufacturers manual and the operation is successful.							

Function: **Controlling the operation of the ship and care for persons on board at the operational level**

Competence: **Prevent, control and fight fires on board (STCW Code, Tables A-III/1)**

No.	TASKS Operate life-saving appliances	CRITERIA FOR SATISFACTORY PERFORMANCE	Ship Ref. No.	Assignment Completed					
				Date	Confirmed by qualified instructor	Date	Confirmed by qualified assessor	Type of Assessment	Remarks
5.1	Organize abandon ship drills	On sounding the alarm all persons meet at the designated life-boat station wearing life jackets or immersion suits and carry out their duties on request.							
5.2	Demonstrate the ability to organize and supervise the launching, handling and recovery of life boat.	Correct orders for embarkation, launching, immediately clearing the ship's side, safely handling the boat under motor, oars or sail as appropriate, and safe boat recovery.							
5.3	Demonstrate the ability to organize and supervise the launching or throwing overboard a liferaft, and manoeuvre it clear of ship's side.	The duties for the persons designated for the raft are clearly allocated and orders efficiently executed							
5.4	Demonstrate proper use of radio life-saving appliances, satellite,	Equipment is operated in accordance with manufacturer's instruction.							

	EPIRPS and SARTs.								
5.5	Ensure that all survival craft launching equipment on board is functioning.	Equipment is maintained in accordance with manufacturer's instructions and regulatory requirements.							
5.6	Ensure rations on board survival craft are adequate.	Food and water are sufficient for the survival craft designated complements.							
5.7	Ensure that equipment on board survival craft is adequate.	Equipment such as pyrotechnics, signaling equipment, all meet regulatory requirements.							

Function: **Controlling the operation of the ship and care for persons on board at the operational level**

Competence: **Apply medical first aid on board (STCW Code, Table A-III/1)**

No.	TASKS Apply medical first aid on board	CRITERIA FOR SATISFACTORY PERFORMANCE	Ship Ref. No.	Assignment Completed					
				Date	Confirmed by qualified instructor	Date	Confirmed by qualified assessor	Type of Assessment	Remarks
6.1	During relevant drills stop excessive bleeding, ensure breathing and put casualties in proper position.	The actions demonstrated are in compliance with accepted recommendations given in international medical first aid guidance.							
6.2	During relevant drills detect sign of shock and heat stroke and act accordingly	The treatment recommended or given is adequate. Ability to request Radio Medico for advice is demonstrated.							
6.3	During relevant drills treat burns, scalds, fractures and hypothermia	Recommended guidelines for proper actions are explained and the basic principles for avoiding hypotherminal are demonstrated.							
6.4	During relevant drills, locate and access shipboard medicine and equipment.	Ability to access the medical cabinet in a timely way.							

Function: **Controlling the operation of the ship and care for persons on board at the operational level**

Competence: **Monitor compliance with legislation requirements (STCW Code, Table A-III/1)**

No.	TASKS Monitor compliance with legislation	CRITERIA FOR SATISFACTORY PERFORMANCE	Ship Ref. No.	Assignment Completed					
				Date	Confirmed by qualified instructor	Date	Confirmed by qualified assessor	Type of Assessment	Remarks
7.1	State where laws, rules and regulations concerning ship operation and pollution prevention are available	The statement given is correct and includes relevant bodies or organizations which may be contacted to attain special information or guidance which is not easily accessible							
7.2	Use legislation to ascertain due approach to solve questions encountered during onboard operations.	Legislative requirements relating to safety of life at sea and protection of the marine environment are correctly identified.							

Function: **Maintenance and repair at the operational level**

Competence: **Maintain marine engineering systems including control systems**

No.	TASKS **Monitor compliance with legislation**	CRITERIA FOR SATISFACTORY PERFORMANCE	Ship Ref. No.	Assignment Completed					
				Date	Confirmed by qualified instructor	Date	Confirmed by qualified assessor	Type of Assessment	Remarks
1.1	Locate and use relevant manuals and interpret drawings, sketches and instructions	The instructions and drawings relevant for the job are quickly identified and properly used.							
1.2	Select and use special tools for work on machinery and equipment.	Correct tools are chosen and used without causing any damage to machinery or equipment							
1.3	Use machine tools and equipment for fabrication and repair.	The selected material is suitable for the parts to be fabricated and the work is carried out within the designed tolerances.							
1.4	Ensure safety for all persons working on plant or equipment	Isolation, dismantling and re-assembly of plant and equipment is in accordance with accepted practices and procedures to ensure safety or operations.							
1.5	Undertake the following								

	maintenance and repair to the main engine								

Function: **Maintenance and repair at the operational level**

Competence: **Maintain marine engineering systems including control systems**

No.	TASKS	CRITERIA FOR SATISFACTORY PERFORMANCE	Ship Ref. No.	Assignment Completed					
				Date	Confirmed by qualified instructor	Date	Confirmed by qualified assessor	Type of Assessment	Remarks
1.5.1	Use turning gear, place notices, record and take all safety precautions.	Take all safety precautions and display notice that turning gear is engaged. Obtain bridge clearance before turning engine.							
1.5.2	Carry out a crank case inspection and make a written report.	Work is carried out with manufacturers recommendations or acceptable practices.							
1.5.3	Take crankshaft deflection readings	Work is carried out with manufacturers recommendation or acceptable practices.							
1.5.4	Inspect, check condition, wear and clearances, overhaul and test: 1. fuel injection valves 2. air start valves 3. relief valves 4. exhaust valves 5. fuel pumps	Work is carried out according to the instructions of the manufacturer's manual and the necessary safety criteria.							

Function: **Maintenance and repair at the operational level**

Competence: **Maintain marine engineering systems including control systems**

No.	TASKS	CRITERIA FOR SATISFACTORY PERFORMANCE	Ship Ref. No.	Assignment Completed					
				Date	Confirmed by qualified instructor	Date	Confirmed by qualified assessor	Type of Assessment	Remarks
1.5.5	Replace and/or overhaul the following components, checking and adjusting clearances where appropriate: 1. large bore or trunk pistons 2. cylinder heads 3. turbochargers 4. top end bearings 5. bottom end bearings 6. main bearing 7. piston-rod scraper rings 8. cross head guides 9. tie bolts 10. holding down bolts and chocks	Work is carried out according to the instructions of the manufacturers manual and the necessary safety criteria. The clearances are correctly adjusted.							
1.6	Undertake the following maintenance and repair to the auxiliary boiler.								

No.	TASKS	CRITERIA FOR SATISFACTORY PERFORMANCE	Ship Ref. No.	Assignment Completed					
				Date	Confirmed by qualified instructor	Date	Confirmed by qualified assessor	Type of Assessment	Remarks
1.6.1	Take a boiler out of service. Isolate Blow a boiler down. Open up a boiler	Task is carried out in accordance with the manufacturer's instructions and accepted practices. Necessary safety criteria are taken care of.							
1.6.2	Examine a boiler, reporting on its conditions: 1. internally 2. externally	Task is carried out in accordance with the manufacturer's instructions and accepted practices. Necessary safety criteria are taken care of.							
1.6.3	Inspect water gauge fittings and check that passages, cocks and valves are clear.	Task is carried out in accordance with the manufacturer's instructions and accepted practices. Necessary safety criteria are taken care of							
1.6.4	Open up and inspect: 1. safety valves 2. feed check valves	Task is carried out in accordance with the manufacturer's instructions and accepted practices. Necessary safety criteria are taken care of							

No.	TASKS	CRITERIA FOR SATISFACTORY PERFORMANCE	Ship Ref. No.	Assignment Completed					
				Date	Confirmed by qualified instructor	Date	Confirmed by qualified assessor	Type of Assessment	Remarks
1.7	Undertake the following maintenance and repair to deck machinery and survival equipment								
1.7.1	Carry out routine maintenance on: 1. anchor windlass 2. cargo winches 3. cargo cranes 4. mooring winches 5. capstans 6. survival craft and launching gear 7. hatch covers	The work is carried out in accordance with the instructions of the manufacturer's manual and necessary safety precautions							
1.7.2	Steering gear: 1. make routine check and test on system during voyage	Perform in accordance with manufacturer's recommendations.							

2.	check level of hydraulic fluid and purge air from the system as appropriate	Follow manufacturer's recommendations or acceptable engineering practice.					

SPECIFIC CRITERIA FOR ASSESSMENT:

INFORMATION TO BE USED IN

CONJUNCTION WITH

OR AS

A SUPPLEMENT TO COAST GUARD-ACCEPTED

TRAINING RECORD BOOKS

ENCLOSURE [3]

EXPANDING THE CRITERIA TO EFFECTIVELY ASSESS THE TASKS, DUTIES, AND SKILLS OF CANDIDATES PROVIDED TRAINING IN APPROVED OR ACCEPTED COURSES TO OBTAIN A MERCHANT MARINERS LICENSE

1. Each program of training is required to use a Training Record Book (TRB) to document the progress and success of each individual during the period of training. The TRB is to document the tasks, duties and skills required of a licensed officer in charge of a navigational watch or engineer officer in charge of an engine room watch.
2. The IMO model training record books provide the tasks and criteria for satisfactory performance of training and/or assessment.
3. Throughout the IMO model TRBs the criteria has been provided for qualified instructors and assessors to expand upon and to develop their own specific criteria for assessment in determining the competency of the trainee.
4. However, there is concern for the potential lack of consistency as dozens of assessors strive to create their own specific criteria for assessment.
5. One method to employ in overcoming this potential deficiency, is to have each training organization develop a specific criteria for assessment to reflect the goals of training, particularly those specific to a particular training program.
6. The specific criteria for assessment would be forwarded to the vessel upon which the trainees would be assigned.
7. Assessors and ship board supervisors, through their operational experience, would be able to witness and thereby determine if the trainee were able to effectively demonstrate their ability and skills in completing the objectives of the TRB while aboard ship.
8. Specific criteria for assessment will need to be established prior to any assessment. The following example of expanded criteria should provide sufficient guidance for developing additional areas of assessment.

Figure A represents the tasks and criteria for satisfactory performance of the Function and Competence 1, presented in the IMO model TRB for Engineer Officer in Charge of an Engine Room Watch, tasks 1.2, 1.3 and 1.4

Figure A

Function: Electrical, electronic and control engineering at the operational level

Competence: Operate alternators, generators and control systems

Knowledge, understanding and proficiency: - **Generating plant**:

- Appropriate basic electrical knowledge and skills.
- Preparing, starting, coupling and changing over alternators or generators.
- Location of common faults and action to prevent damage.

Controls systems:

- Location of common faults and action to prevent damage.

Criteria for evaluating competence:

- Operations are planned and carried out in accordance with established rules and procedures to ensure safety of operations.

The above statements provide a basis upon which an engineer can be deemed as competent for the task. However, in order to appropriately evaluate the performance of the trainee, the stipulated criteria needs to be expanded upon. Additional evaluation criteria should be developed by an experienced and qualified assessor into a set of specific criteria to determine (in this example) the "appropriate basic electrical knowledge and skills; the preparation for starting, coupling and changing over alternators (or generators).

The following statements represent ***one*** conceptual expansion and application of the specific criteria for assessment as previously stipulated in the IMO model TRB.

Figure B

Knowledge, understanding and proficiency: - **Generating plant**:
(Assessor is to initial each item as completed, noting order of performance as an indication of appropriate planning on the part of the trainee.)

Pre-start inspection - Steam turbine and alternator:

- Inspects alternator for loose cable connections, brush rigging and loose items that may damage unit during start up.
- Inspects couplings between turbine/reduction gear and alternator for readiness.
- Inspects governor unit, reduction gear casing, and bearing housings for indications of lubrication leaks.
- Inspects manual overspeed trip for excessive wear.
- Determines level of lube in sump and adds lube oil as necessary
-
- Manually trips and resets overspeed trip to determine if mechanism operates without binding.

Pre-start inspection - Auxiliary condenser and equipment:

- Inspects auxiliary circulator pump and its piping for leaks and cracks.
- Inspects that all required valves are open to auxiliary circulator as required.
- Inspects auxiliary condensate pump and its piping for leaks and cracks.
- Inspects for visible level of condensate in hot well.
- Inspects that all required valves are open to auxiliary condensate pump as required.
- Inspects auxiliary circulator and condensate pump motor controllers for readiness and determines re yet to be corrected.

Prepares turbo-generator for start-up

Begins raising vacuum:

- Starts auxiliary circulator.
- Vents off condenser heads and observes stability of circulated water pressure.
- Starts auxiliary condensate pump.

easons if tagged/locked out has

- Adjusts opening of recirculating valve to maintain visible level of condensate in hot well.
- Returns to operating level and applies gland seal steam to turbine rotor.
- Admits operating steam to air ejectors, adjusting supply pressure as necessary.
- Returns below to determine visible level in hot well, adjusting recirculating valve as necessary.

Rolls over turbo-generator - (vacuum has reached 18-22 inches):

- Starts lube oil supply to unit (obtains assistance if pump is hand driven)
- Set throttle valve
- Slowly opens throttle valve to gradually increase speed.
- Allows unit to idle for even warming
- Applies lube oil and alternator cooling water as necessary
- Conducts inspection below and adjusts condensate recirculating valve as necessary.

Paralleling alternator with operating unit

- Adjusts voltage
- Turns on synchroscope and observes direction and speed of rotation.
- Adjusts speed and direction of rotation.
- Closes oncoming unit breaker to stop synchroscope at 12 o'clock
- Divides load evenly between on-line and in-coming units, observing available switch board meters.

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