Danish Agency for Higher Education
and Educational Support
Ministry of Science, Innovation
and Higher Education

TRAINING RECORD BOOK
SEAGOING SERVICE

SHIP'S MACHINIST

PUBLISHED BY THE DANISH AGENCY FOR HIGHER EDUCATION AND EDUCATIONAL SUPPORT

Version no. 1
27th of JANUARY 2012

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Preface

This Training Record Book forms the basis for documentation that the training programme to become a ship's machinist has been completed satisfactorily during seagoing practice.

The Training Record Book is used by craftsmen with certificate of apprenticeship on SU-terms and craftsmen with educational programme for ship's assistants on SVU-terms. Able ship's assistants and ship's mechanics, which is in possession of updated Training Record Books from the period of practice in their previous education, must not complete this Training Record Book.

The STCW Convention establishes the following requirements for practical training:

According to Regulation III/3 of the STCW Convention, the minimum requirement for onboard training before a certificate of competency as ship's machinist may be issued is as follows:

- During the practical training period, the trainee must have completed at least six months of engine room duty.
  The training programme must aim at and follow a Training Record Book approved by the Danish Agency for Higher Education and Educational Support.

The Training Record Book must be completed in accordance to the guidelines contained in this book, and it **must be presented for approval** at the College of Engineering after completion of the seagoing practice.

The Training Record Book may be requested from the College of Engineering providing training and from the Danish Agency for Higher Education and Educational Support. It can also be downloaded from the Danish Agency for Higher Education and Educational Support's website www.fivu.dk.

The trainee has a high degree of influence on the outcome of the training, and a positive attitude as well as co-operation on the part of the trainee is essential for a successful outcome. It is also very clear that a good result depends on a positive attitude on the part of the officers as well as on the shipping company following up on the progress of the individual trainee, co-ordinating and supporting, as this is imperative for maintaining a positive attitude on the part of the trainee. We all have a clear interest in Danish ships mechanists being well educated and trained, and the seagoing service is a very important element in the overall programme.

The Training Record Book has been drawn up in both Danish and English language. It is, of course, not required to fill in pages in both languages, but – if desirable – alternation between the two languages through chapters of the book is permitted.

There are no requirements for seagoing service being performed on specific types of ships, but in order to make the best use of the time at sea, subjects particular for a specific type of ship are mandatory if seagoing service has actually been performed on board that specific type of ship. When planning the on-board training, the senior officers should be aware, that the trainee may have only one period of time on board that particular type of ship.

Logbook

Instead of checking off items in the training forms (check lists) in the Training Record Book, the trainee can choose to keep a logbook where the trainee writes about onboard experience and observations related to the following subjects:

- Safety at sea, working environment and environmental protection. *Note that the check lists for safety at sea and introduction("Familiarization") must always be completed as quickly as possible after sign-on as the necessary routines are achieved;*
- Maintenance and repairs;
- Watch duties;
- Piping arrangements and tanks;
- Machinery;
- Electrical power supply and main switchboard.

The logbook should be used as documentation that the training objectives within the subjects of the Training Record Book have been met, and to ensure proper hand-over between the officers so that onboard training can be planned. The training officer regularly signs for review and approval of the logbook, as well as whenever a trainee or the training officer signs off the ship.

The logbook must be kept in accordance with the following guidelines:

- During seagoing service, the seafarer must write regularly about his experience and observations of the practice he or she is introduced to during service on board. These entries should become a book of reflections, a logbook.
- The trainee should write e.g. about the following in the logbook:
    - the ship's mechanist tasks during engine room watch at sea and in port, why these tasks are done, and what significance they have for safety, operation and navigation of the ship.
    - the tasks related to maintenance and repair work onboard, why they are performed, and what significance they have for the safety and operation of the ship.
- The pages of the logbook can bear headings stemming from subjects or problems experienced by the seafarer.
- The trainee should use his or her own words to describe how the individual elements of descriptions of objectives are employed onboard the ship, preferably based on real situations and tasks. The logbook should be prepared under guidance of the ship's officers and can contain both theoretical and practical considerations necessary for a full description of the subject.
- On this basis, eventually the trainee will be able to form his or her own basis for understanding and for establishing a good and sound safety culture, as well as the ability to analyse and assess comparatively complex situations in connection with watchkeeping, maintenance and repairs.

Guidelines for the trainee

- The Training Record Book is an important element of your continued training to become a ship's mechanist.

  Many of the subjects in the Training Record Book demand that you study in your spare time onboard the ship. However, general subjects relating to watchkeeping duty, safety, maintenance etc. can be carried out as a part of daily work onboard.

  The Training Record Book is your personal property, and it is expected that the book is kept in a safe manner, so that it will be in good condition at all times.

- The training outlined in the Training Record Book should not be considered mandatory, in that the only condition is that training be completed to the extent the ship's equipment, design, cargo and trade so allow. The general items must be completed.

- You are responsible for exploiting the seagoing service in the best possible way, so that you will get the best possible basis for your future work as a ship's mechanist.

  When you use the Training Record Book's training forms, do not try to merely get the greatest number of signatures for the different subjects and disciplines in order to get these checked off the list. The ship's officers should only sign with date/signature in the forms (or in the logbook) when you have obtained satisfactory routine. When the training objectives stated have been met, the ship's officers must sign them with date/signature in the far right column of the forms. **However, please notice that** even though you have obtained satisfactory routine for the subject to be checked off in the form, this does not necessarily mean that you should be exempted from learning more about the individual subject. For example, the subject *'the trainee must take active part in fire drills and evaluation of these'* must be continued throughout your seagoing service so that you may obtain the greatest possible experience and routine

  Furthermore, the ship's officers may add new relevant subjects and training objectives to the empty fields of the Training Record Book's forms.

- The Training Record Book, including any logbook, must be presented to the ship's management for inspection and review at least once every month and in connection with sign-on/sign-off.

- It is important that the ship's officers are careful to note any comments in the Training Record Book on the level of learning and routine that you have achieved in your performance of tasks onboard the ship.

  The Training Record Book can thus be used as written communication and documentation when training officers onboard the ship are replaced, or if you should change to another ship, so that continuity of your training programme is maintained and it is ensured that training in any weak areas will be continued throughout the duration of your practical training period.

You must remember,

- to complete the form ‘Particulars of the trainee’,
- to complete the training schemes regarding safety and shipboard familiarization as soon as possible upon joining the ship, when sufficient experience has been achieved,
- to complete the form ‘Particulars of the Ship’ during the fist period on board,
- to read the guidance from the company,
- to have the training schemes or the logbook endorsed with date/signature as well as remarks, when sufficient experience has been achieved,
- to present the Training Record Book and perhaps a logbook for the Officers at least once a month, and to obtain endorsement on the form in this book,
- to evaluate the training and the Training Record Book in accordance with the guidelines at the back of the book.
- to provide Training Record Book for approval of the College of Engineering after completing seagoing training.

PARTICULARS OF THE TRAINEE:
(To be filled in by the Trainee)

Family name_____

First name _____

_____

Cpr. nr. _____ **Date of birth** _____
(Danish citizens only) *(Non Danish citizens only)*

Home address

_____

_____

_____

_____

_____

Phone no.: _____

_____

Seaman's book no. _____ **Issue date** _____

Company _____

Address _____

_____

Guidelines for the ship's officers

- This Training Record Book is a requirement for ship's mechanists who want to obtain a certificate of competency as watchkeeping engineer or certificate of competency as mechanist 2nd class.

  Many of the subjects in the Training Record Book demand that the trainee studies in his or her spare time onboard the ship. However, general subjects relating to watchkeeping duty, safety, maintenance etc. can be carried out by the trainee as a part of his or her daily work onboard.

- The Danish Agency for Higher Education and Educational Support encourages the ship's officers to evaluate the Training Record Book regularly according to the guidelines at the back of the book.

- The Training Record Book is the trainee's personal property, and it is expected that the book is kept in a safe manner, so that it is in good condition at all times

- The training outlined in the Training Record Book should not be considered mandatory, in that it is only a condition that the training be completed to the extent the ship's equipment, design, cargo and trade so allow. The general items, including tasks and project work, however, must be completed.

- **The Danish Agency for Higher Education and Educational Support recommends that the ship's management appoint a training officer** from among the ship's officers. The training officer can be the trainee's contact person onboard the ship and the person concerned is responsible for ensuring that all parties comply with the guidelines of the Training Record Book. In consultation with the ship's management, the training officer can organise onboard training so that special account is taken of the trainees' individual background, time at sea, age etc.

- **The Training Record Book forms or the logbook**

  The trainee must regularly present the Training Record Book and/or the logbook to the ship's officers to obtain their approval and signature for completed training in the different subjects and disciplines. The books should also be presented to the ship's management for review/checking at least once every month and in connection with sign-on/sign-off. Furthermore, the ship's management may sign the form in this book.

  In the column for learning objectives a classification has been used in order to explain the conduct (behaviour) that the ship's assistant, who has completed the subject, must be able to show. The Officer may use the objectives by inserting **the trainee is able to**..... in front of the text in the scheme.

  Example: FIRE - OBJECTIVES to be read:
  The trainee is able to apply and participate in the Fire Muster at a functional level.
  The trainee is able to handle precautions to prevent fire in connection with loading and discharging.

The trainee is able to understand and use the safety signs and escape routes on board.

When the individual learning objectives have been met, the officers must tick off by date/signature in the training schemes. Please be aware that even if the ship's mechanist has obtained sufficient routine for the subject to be ticked off in the scheme, this does not mean that the trainee is to be exempted from further training or participation in the specified subjects. As an example, '*the trainee must participate actively in fire drills and evaluation of same*', which is a subject that is to be continued throughout the period of seagoing service in order for the trainee to get as much experience and routine as possible.

By using the training schemes it is not the objective in itself for the trainee to obtain as many endorsements in the different subjects and disciplines as possible in order to have these ticked off. **The officers must only endorse by date and signature when the trainee has obtained a satisfactory routine. The officers may add additional relevant subjects and learning objectives in the blank fields of the training schemes.**

- It is important, that the officers carefully makes remarks in the Training Record Book regarding the level of training and routine obtained by the trainee in performing practical work tasks on board.

  The Training Record Book may thereby be used as a written hand-over to relieving officers or in cases where the trainee is shifted to another ship during the seagoing practice.

- It is recommended that the ship management as far as possible is taking this training record book into consideration when planning the daily work for the trainee, while at the same time attaching focus on safety training.

- Engine room watchkeeping duty should be organised so that the trainee is given opportunity to stand watch during channel/canal passage, navigation in areas of dense traffic and while manoeuvring and emphasis should be put on understanding the necessity of complying with good discipline in the engine room, cf. Part VIII of the STCW Convention.

  In order to acquire a certificate of competency as ship's mechanist, the trainee must have completed at least six months of engine room watchkeeping duty during the total duration of his or her seagoing service according to Regulation III/3 of the STCW Convention.

REVIEW AND VERIFICATION OF THE TRAINING RECORD BOOK MUST BE CERTIFIED BY SENIOR OFFICERS ONCE A MONTH AND WHEN THE TRANEE SIGNS ON AND OFF THE SHIP.

SHIP'S NAME: STAMP	**REMARKS:**	**OFFICERS:** MASTER OR CHIEF ENGINEER	**DATE AND SIGNATURE:**

‘SAFETY FAMILIARIZATION’:

- Immediately after joining the ship the trainee must - as everybody else on board - receive training and instructions regarding fire precautions, abandoning ship and ship’s safety procedures. The Master or a designated officer must endorse the checklist below, when the trainee has received the necessary training and/or instructions.

The trainee must:

- be able to raise the alarm and act in accordance with the ship’s safety procedures.
- be able to use the ship’s safety equipment including personal safety equipment.
- act in accordance with the ship’s safety organization and in accordance with the boat-, fire, MOB, and other safety related muster lists at a functional level (taking into consideration that the trainee is supernumerary).
- have knowledge of the ship’s safety procedures and routines.

SUBJECT:	TRAINING OBJECTIVES:	DATE/SIGN.:
SAFETY-INSTRUCTIONS	communicate with crew members and other persons on board on safety matters.	
	understand and use the safety musters, safety information, -symbols, -signs, emergency escape routes and alarm signals.	
	know what to do if a person falls over board, if fire or smoke is detected, if the fire alarm or alarm for abandon ship is sounded.	
	know how garbage is to be handled to avoid pollution of the environment, and how to react in case pollution is observed.	
	take immediately action, in case of an accident or other medical emergency.	
	identify muster and embarkation stations and emergency escape routes.	
	locate and don life jackets.	
	raise the fire alarm and have a basic knowledge of using portable fire extinguishers.	
	close and open fire doors and weather- and watertight doors fitted in the ship, other than those for hull openings.	

‘SHIPBOARD FAMILIARIZATION’:

- As soon as possible after joining the ship, the trainee must receive detailed training and instruction in ship’s safety procedures, arrangements, work- and watchkeeping routines, organization etc.

- The trainee must be familiarized with the bridge, engine room, forecastle, poop deck, main deck and other working areas.

- The Master or a designated officer must endorse the checklist below when the trainee has received necessary training and/or instructions to perform the stated tasks and duties.

The trainee must:

- read and be able to demonstrate understanding of ship’s safety- and emergency procedures.
- demonstrate thorough knowledge of the ship arrangements and ordinary work- and watchkeeping routines.
- fill in the scheme ‘Particulars of the Ship’ during the first part of his or her assignment on board.

SUBJECT:	TRAINING OBJECTIVES:	DATE/SIGN.:
INTRODUCTION AFTER JOINING THE SHIP	explain general arrangements of the bridge, engine room, forecastle, main deck, poop deck and other working areas.	
	communicate with others on board regarding safety and ordinary work routines.	
	locate and use first aid equipment.	
	locate and use alarm activating points, alarm bells, fire extinguishers, hydrants, fire hoses.	
	understand ship’s instructions for prevention of pollution together with procedures on how to handle garbage etc.	
	understand special instructions/procedures regarding smoking, dressing, alcohol, drugs etc.	
	understand instructions regarding work hours, wake-up calls, eating time, slop chest etc.	

Particulars of the Ship

M.V.			
Port of Registry			
Type of Ship			
Call Sign		**IMO Number**	
Dimensions		**Lifesaving equipment**	
Lenght O.A.	m	Lifeboats (number)	
Breadth	m	Life-rafts (number)	
Depth	m	MOB-boat (type)	
Summer Draft	m	Lifeboat dimensions	
Summer Freeboard	m	Capacity per boat	
Net Tonnage		Capacity per life-raft	
Gross Tonnage		Davits (type)	
Deadweight	t	Lifebuoys (number)	
Light Displacement	t	Life jackets (number)	
Fresh Water Allowance	t	**Firefighting equipment**	
Immersion at Load Draft	t/cm	Fire Extinguishers (Number and capacity):	
Cargo Capacity	t	Dry powder	kg
Ballast Capacity	t	CO_2	kg
Fresh Water Capacity	t	Soda/Acid	kg
Engine Room		Foam	l
Main Engine(s) (type)		Fire hoses (number and size)	mm
Main Engine output	kW	Breathing app. (number)	
at revs per min.		Fire mans outfit (number)	
Bunker Capacity	t	Fixed Fire Fighting system:	
Daily Consumption	t	Engine (type)	
Service Speed	knts	Deck (type)	
Aux. Engine(s) (type)		**Cargo handling gear**	
Boilers (type)		Derricks/Cranes (number)	
Steering Gear (type)		Type and SWL	t
Bridge Equipment		Winches (type)	
Radar(s) (type)		Other cargo equipment	
ARPA (type)		Cargo Pumps (number/Type)	
Log (type)		Cargo Tanks (number)	
Gyro (type)		Ballast Tanks (number)	
Autopilot (type)		**Radio Equipment**	
Echo Sounder (type)		GMDSS equipment (type)	
ISC (type)			

To be completed by the Trainee.

Particulars of the Ship

M.V.			
Port of Registry			
Type of Ship			
Call Sign		**IMO Number**	
Dimensions		**Lifesaving equipment**	
Lenght O.A.	m	Lifeboats (number)	
Breadth	m	Life-rafts (number)	
Depth	m	MOB-boat (type)	
Summer Draft	m	Lifeboat dimensions	
Summer Freeboard	m	Capacity per boat	
Net Tonnage		Capacity per life-raft	
Gross Tonnage		Davits (type)	
Deadweight	t	Lifebuoys (number)	
Light Displacement	t	Life jackets (number)	
Fresh Water Allowance	t	**Firefighting equipment**	
Immersion at Load Draft	t/cm	Fire Extinguishers (Number and capacity):	
Cargo Capacity	t	Dry powder	kg
Ballast Capacity	t	CO_2	kg
Fresh Water Capacity	t	Soda/Acid	kg
Engine Room		Foam	l
Main Engine(s) (type)		Fire hoses (number and size)	mm
Main Engine output	kW	Breathing app. (number)	
at revs per min.		Fire mans outfit (number)	
Bunker Capacity	t	Fixed Fire Fighting system:	
Daily Consumption	t	Engine (type)	
Service Speed	knts	Deck (type)	
Aux. Engine(s) (type)		**Cargo handling gear**	
Boilers (type)		Derricks/Cranes (number)	
Steering Gear (type)		Type and SWL	t
Bridge Equipment		Winches (type)	
Radar(s) (type)		Other cargo equipment	
ARPA (type)		Cargo Pumps (number/Type)	
Log (type)		Cargo Tanks (number)	
Gyro (type)		Ballast Tanks (number)	
Autopilot (type)		**Radio Equipment**	
Echo Sounder (type)		GMDSS equipment (type)	
ISC (type)			

To be completed by the Trainee.

Particulars of the Ship

M.V.			
Port of Registry			
Type of Ship			
Call Sign		**IMO Number**	
Dimensions		**Lifesaving equipment**	
Lenght O.A.	m	Lifeboats (number)	
Breadth	m	Life-rafts (number)	
Depth	m	MOB-boat (type)	
Summer Draft	m	Lifeboat dimensions	
Summer Freeboard	m	Capacity per boat	
Net Tonnage		Capacity per life-raft	
Gross Tonnage		Davits (type)	
Deadweight	t	Lifebuoys (number)	
Light Displacement	t	Life jackets (number)	
Fresh Water Allowance	t	**Firefighting equipment**	
Immersion at Load Draft	t/cm	Fire Extinguishers (Number and capacity):	
Cargo Capacity	t	Dry powder	kg
Ballast Capacity	t	CO_2	kg
Fresh Water Capacity	t	Soda/Acid	kg
Engine Room		Foam	l
Main Engine(s) (type)		Fire hoses (number and size)	mm
Main Engine output	kW	Breathing app. (number)	
at revs per min.		Fire mans outfit (number)	
Bunker Capacity	t	Fixed Fire Fighting system:	
Daily Consumption	t	Engine (type)	
Service Speed	knts	Deck (type)	
Aux. Engine(s) (type)		**Cargo handling gear**	
Boilers (type)		Derricks/Cranes (number)	
Steering Gear (type)		Type and SWL	t
Bridge Equipment		Winches (type)	
Radar(s) (type)		Other cargo equipment	
ARPA (type)		Cargo Pumps (number/Type)	
Log (type)		Cargo Tanks (number)	
Gyro (type)		Ballast Tanks (number)	
Autopilot (type)		**Radio Equipment**	
Echo Sounder (type)		GMDSS equipment (type)	
ISC (type)			

To be completed by the Trainee.

SAFETY, WORK ENVIRONMENT AND PROTECTION OF THE ENVIRONMENT

OBJECTIVES:

- to expand knowledge of the theory of fire prevention and fire fighting on board ship, and to use the fire fighting equipment on board. To demonstrate precautions to prevent fire in connection with loading, discharging, maintenance work etc.

- to act in accordance with the ship's safety organisation and to participate in the fire-, boat-, MOB- and other safety musters at a functional level. Also to participate actively in all drills and subsequent evaluation of same.

- to use and maintain the ship's safety equipment under supervision and guidance.

- to know to the ship's safety procedures and routines.

- to understand treatment of dangerous substances, together with risks in using substances, chemicals and other materials in a work process.

- to have general understanding of environmental conditions regarding safety and labour. Also to have a detailed knowledge of how correctly to use equipment for personal protection.

- to have understanding for pollution prevention and protection of the environment, including procedures and instructions regarding pollution, handling of dangerous cargo, garbage management etc.

The Officers must be aware that even if the trainee has achieved sufficient routine in the subject to be ticked off in the scheme, this does not mean, that the trainee may be exempted from further training or participation in the specified subjects such as safety and work environment.

SUBJECT:	TRAINING OBJECTIVES:	DATE/SIGN.:
FIRE	apply and participate in the fire muster at a functional level.	
	understand and use the safety signs and escape routes on board.	
	use the ship's internal fire instructions.	
	participate actively in fire drills and evaluation of same.	
	handle precautions to prevent fire in connection with loading and discharging.	
	handle precautions to prevent fire in connection with maintenance work on board.	
	independently use, inspect and maintain fire hoses, nozzles and fire hydrants.	
	operate fire flaps, dampers and portable fire extinguishers.	

SUBJECT:	TRAINING OBJECTIVES:	DATE/SIGN.:
	attend to inspection and maintenance of fire flaps, dampers and portable fire extinguishers.	
	operate of fire doors, emergency stops and fire detectors.	
	operate ship's fixed fire extinguishing system (CO_2, powder, water and foam).	
	attend to start-up and maintenance of fire pumps.	
	attend to inspection and maintenance of breathing apparatus.	
	attend to inspection and maintenance of protective clothing.	
	attend to inspection and where appropriate participate under supervision in filling of air bottles.	
SAFETY EQUIPMENT	use and participate in the boat/MOB muster at a functional level.	
	understand and use of the ship's internal instructions for abandon ship.	
	participate actively in boat/MOB drills and evaluation of same.	
	use and participate in rescue planning and procedures.	
	carry out launching of the lifeboat and use of same.	
	go through the location, launching and use of life rafts.	
	carry out launching and use of the MOB-boat.	
	make use of life jackets and their location.	
	make use of lifebuoys, light, lifelines etc.	
	understand the use of GMDSS (distress signals).	
	make use of distress signals/pyrotechnics.	
	attend to inspection and maintenance of life saving equipment.	
	describe the use of radio medical.	

SUBJECT:	TRAINING OBJECTIVES:	DATE/SIGN.:
IN GENERAL (DRILLS)	comply with general safety procedures regarding grounding, collision etc.	
	explain the necessity of planning and conducting drills on board the ship.	
	to participate actively in all drills and subsequent evaluation of same	
	describe the ship's SMS (Safety Management System)	
	describe the ship's ISPS (International Ship & Port Facility Security Code)	
SAFETY AT WORK	use of personal protection equipment and safety equipment (safety shoes, helmet, ear protection).	
	comply with safety procedures regarding use of mechanical tools etc.	
	comply with safety procedures when using scaffolding/ boatswain's chair/life line aloft.	
	comply with safety procedures when using gas mask, chemical suit and other equipment in connection with dangerous goods	
	comply with safety procedures when handling dangerous goods.	
	comply with safety procedures when entering enclosed spaces.	
	comply with safety procedures when doing 'hot work'.	
	comply with safety procedures when mooring and anchoring.	
	comply with safety procedures when loading and discharging.	
	handle the gas detector, oxygen analyser and explosiometer.	
	participate in operational- and safety meetings.	
	comply with safety procedures when using ship's chemicals, solvents etc.	
	demonstrate the rules and regulations of the Danish Maritime Authority regarding safety at work and work environment.	
	explain the use of the IMDG-Code.	
	make use of the MAL-Code.	
	comply with ship's documentation, procedures, instructions etc. regarding safety and work environment.	
	describe the use of risk assessment and workplace instruction in practice.	

SUBJECT:	TRAINING OBJECTIVES:	DATE/SIGN.:
	describe the psychic and chemical work environment.	
	describe the risk assessment regarding the safety on board.	
	demonstrate knowledge of ship's instructions and procedures regarding work environment and safety.	
PROTECTION OF THE ENVIRONMENT	demonstrate the use of the ship's SOPEP plan.	
	comply with the ship's garbage management plans, posters, garbage log (ref. MARPOL Annex V).	
	use and participate in the anti-pollution muster at a functional level.	
	participate actively in the anti-pollution drills and evaluation of same.	
	use and participate in anti-pollution planning and procedures.	
	demonstrate placement and use of anti-pollution equipment.	
	comply with bunker-procedures and participate in the environmental contingency plan in connection with bunkering	

MAINTENANCE AND REPAIR

OBJECTIVES:

- use of the theory of practical maintenance and demonstrate general practical maintenance jobs on a cargo ship, including cleaning, prevention of rust and lubrication.
- make use of the tools applied in above work tasks.
- carry out practical assignments in connection with general on-board work and planning of smaller work tasks.
- carry out non-complicated work tasks within production, repair and maintenance of machinery, systems and components.

SUBJECT:	TRAINING OBJECTIVES:	DATE/SIGN.:
TREATMENT OF STEEL	practice treatment of steel surfaces before painting.	
	make use of types of paint to be used on board.	
	practice painting of steel surfaces.	
LUBRICATION	handle the use of plans for lubrication.	
	handle the use of lubricants on board.	
	handle the use of lubricating devices (apparatus) on board.	
	practice lubrication of moving parts on deck and in the engine room.	

SUBJECT:	TRAINING OBJECTIVES:	DATE/SIGN.:
CLEANING	practice cleaning of the ship (accommodation, engine room, stores room etc.)	
INSPECTION	demonstrate inspection of misc. types of ballast tanks and fresh water tanks.	
	demonstrate inspection of cargo holds and/or cargo tanks.	
	demonstrate inspection of void-spaces and/or cofferdam.	

WATCH DUTIES

OBJECTIVES:

- must have completed not less than 6 months seagoing service in the engine room in accordance with the STCW Convention – Regulation III/3.

- make use of knowledge regarding basic principles and valid regulations for watch keeping duties on board ships (engine), STCW Convention – Regulation VIII and 'Vagtholdsbekendtgørelsen'.

- carry out start and maintain operation of machinery, as well as analysing measured values and alarm values and take relevant action.

- to understand the use of logbooks, procedures, checklists, manuals, rules and regulations, instructions and certificates in connection with watchkeeping duties and normal operation on the bridge and in the engine room. *The subject 'Ships administration and daily operation' on the last page in this chapter shows a proposal to documents that must be completed on board.*

SUBJECT:	TRAINING OBJECTIVES:	DATE/SIGN.:
ENGINE ROOM WATCH-KEEPING	understand the contents of 'bekendtgørelse om vagthold i skibe (Vagthold i maskinen)' including: - principles of engine room watchkeeping - watch duties - performing the watch - standing orders and notifying the chief engineer - monitoring the engine room - arrival, departure and pilot on board - navigation in heavy weather and ice - ship at anchor	
PROCEDURE	understanding 'engine room procedures' and 'Engine Resource Management' including resources in connection with: - un-manned and manned engine room - watchkeeping during manoeuvres	
	carry out preparation of the engine room (control room) at arrival/departure	
	handle external communications during manoeuvres and normal operation (for example to bridge)	

START AND CONTROL	in connection with engine room watchkeeping, explain start-up and control in connection with: - main engine - purifiers - aux. engines - boilers, turbines and steam systems - provision stores and air-condition - start air system and work air system - bilge- and sludge system - ballast system - transfer- and bunker system - hydraulic systems and steering gear - freshwater generator and piping arrangement - electric supply and main switchboard - cargo handling system	
	use of procedures regarding changeover from manned to un-manned machinery space	
	use of records (logbook, engine-records etc.) related to change of watch	
	demonstrate the procedure for routine checking of engine room by engineer officer in charge of the watch	
	explain watchkeeping requirements during normal operation conditions, manoeuvres, at anchor, pilot on board, reduced visibility etc.	
	explain watchkeeping requirements in special conditions (unfavourable conditions, emergency steering etc.)	
ALARMSYSTEM	use the supervision-, alarm- and safety-system of the engine room including the values of measure and alarms and to demonstrate relevant action for: - main engine - purifiers - aux. engines - boilers, turbines and steam systems - provision stores and air-condition - start air system and work air system - bilge- and sludge system - ballast system - transfer- and bunker system - hydraulic systems and steering gear - freshwater generator and piping arrangement - electric supply and main switchboard - cargo handling system	
	carry out (under guidance) supervision and rounding in connection with manoeuvres and normal operation	
	use of fire extinguishing equipment in the engine room	
	explain the construction of the bridge control system	

WATCHKEEPING IN PORT	explain understanding of 'bekendtgørelse om vagthold i skibe (vagthold I havn)' including: - watch arrangements - taking over and performing the engine watch - standing orders and notifying the master - watchkeeping in port on ships carrying dangerous cargo	
	explain the contingency plans while in port	
SHIP ADMINI-STRATION AND NORMAL OPERATION	describe the logbooks, procedures, checklists, manuals, rules and regulations for instance: - engine log - oil record book - handbooks - manuals - drawings and plans - poster and instructions - procedures and instructions (ref. project work) - work environment documentation (ref. project work) - SOPEP plan - garbage plans - main certificates - equipment certificates - company instructions ('Captains Letters') - planned maintenance system - administration (management) system	

PIPING ARRANGEMENT AND TANKS

OBJECTIVES:

- to understand the necessity for and extent of the piping arrangements for the ship and its propelling machinery and their interrelationship during normal operation.
- carry out the operation of ballast, freshwater- and bilge system.
- carry out a normal inspection, maintenance and repair of the ship's piping system in accordance with instructions (example: ship's maintenance programme).

SUBJECT:	TRAINING OBJECTIVES:	DATE/SIGN.:
BALLAST-SYSTEM	explain the construction and purpose of the ballast system and the ballast tanks.	
	carry out operation of the ballast system, including pumping etc.	
	carry out normal inspection, maintenance and repair of the ballast system in accordance with instructions.	
	carry out sounding of tanks.	
FRESHWATER-SYSTEM	explain the construction and purpose of the freshwater system (piping arrangement, pumps, tanks etc.)	
	carry out a normal inspection, maintenance and repair of the freshwater system in accordance with instructions.	
BILGESYSTEM	explain the construction and purpose of the bilge pumping arrangement and the bilge separator.	
	carry out operation of the bilge system, including alarms, separator etc.	
	carry out a normal inspection, maintenance and repair of the bilge system in accordance with instructions.	
	demonstrate the control of bilge water and testing of the bilge alarm system.	
	demonstrate incineration of sludge and discharging of sludge	
PROPULSION MACHINERY PIPING ARRANGEMENT	explain the construction and purpose of the fuel oil system including bottom-, settling- and service tanks.	

SUBJECT:	TRAINING OBJECTIVES:	DATE/SIGN.:
FUEL OIL	carry out a normal inspection, maintenance and repair of: - supply pumps - filters - preheater - viscorator - fuel oil pumps	
	carry out fuel oil analysis and daily check of fuel oil in the service tanks	
FRESHWATER COOLING	explain the construction and purpose of the freshwater cooling system and the expansion tank.	
	carry out cooling water analysis and demonstrate use of chemicals.	
SEAWATER COOLING	explain the construction and purpose of the seawater cooling system and the sea filters.	
START AIR	explain the construction and purpose of the start air system and start air bottles.	
LUB. OIL	explain the construction and purpose of the lub.oil system and.	
	carry out check and maintenance of filters.	
	demonstrate sampling and analysing of lub.oil.	
	demonstrate change of lub. oil.	
IN GENERAL	carry out a normal inspection, maintenance and repair of the piping arrangement for the propelling machinery in accordance with instructions.	
DRY TANKS	explain the meaning of "cofferdam" and "void-space".	
	demonstrate inspection of cofferdam and void space.	

MACHINERY

OBJECTIVES:

- understand the structure and arrangements of machinery less than 3000 kW, and to obtain knowledge of the main parts/components of the machinery including their purpose and primary function.

- independent workmanship during planning and when carrying out maintenance and repair of machinery in normal situations as well as in adverse situations having regard to economic, safety and environmental conditions.

- carry out normal operation, repair and maintenance of diesel engine, boiler and turbine machinery, hydraulic and pneumatic plants as well as auxiliary- and service systems in accordance with instructions (foe example the planned maintenance system, procedures and manuals).

SUBJECT:	TRAINING OBJECTIVES:	DATO/SIGN.:
ENGINES	explain the construction and operation of the main engine	
	explain the construction and operation of the auxiliary engine	
	handle the start-up and operation of the lifeboat motor in accordance with instructions	
	explain the construction and operation of the stern tube gland	
PREPARATION, START-UP, OPERATION AND MAINTENANCE	handle making ready for operation, start-up, operation and stopping procedure for the main engine in accordance with instructions	
	handle making ready for operation, start-up, operation and stopping procedure for auxiliary engines in accordance with instructions	
	use of the most common types of filters and shut-off devices.	
	demonstrate inspection through scavenge ports.	
PISTON	demonstrate inspection of pistons and scavenging air receiver	
	demonstrate overhaul of pistons	
CYLINDER	demonstrate measurement of a cylinder liner	
	demonstrate replacement of a cylinder cover and liner	
	carry out inspection and control of bolts.	
VALVES	carry out replacement, overhaul, inspection and control of exhaust valves	

SUBJECT:	TRAINING OBJECTIVES:	DATO/SIGN.:
	carry out replacement, overhaul, inspection and control of fuel valves	
	carry out replacement, overhaul, inspection and control of starting air and safety valves	
	carry out inspection of moving parts	
BEARINGS	carry out inspection of bearings	
IN GENERAL	demonstrate emergency operation of the main engine	
	demonstrate auto log	
	carry out compression- and maximum pressure diagrams	
	carry out speed and consumption test	
	carry out inspection and control of the stern tube gland	
AUXILIARY UNITS:	explain the construction and operation of the turbo charger.	
TURBO CHARGER	demonstrate inspection, control and overhaul of the turbo charger in accordance with instructions	
STARTING AIR	explain the construction and operation of the starting air compressor	
	demonstrate inspection, control and overhaul of the starting air compressor in accordance with instructions	
PURIFIERS	explain the construction and operation of purifiers	
	demonstrate inspection, control and overhaul of the purifiers in accordance with instructions	
BOILERS	explain the construction and operation of the boilers including oil-fired boiler and exhaust boiler	
	explain the fuel oil system of the boiler, burner, soot blower, steam system, condensator and regulator	
	demonstrate analysis and treatment of boiler water	
	demonstrate inspection, control and overhaul of the boilers in accordance with instructions	
INCINERATOR	explain the construction and operation of the incinerator	
	demonstrate inspection, control and overhaul of the incinerator in accordance with instructions	
FRESHWATER GENERATOR	explain the construction and operation of the freshwater generator	

SUBJECT:	TRAINING OBJECTIVES:	DATO/SIGN.:
	demonstrate inspection, control and overhaul of the freshwater generator in accordance with instructions	
STEERING GEAR	explain the construction and operation of the steering gear	
	demonstrate inspection, control and overhaul of the steering gear in accordance with instructions	
PUMPS	explain the construction and operation of the pumps	
	demonstrate inspection, control and overhaul of the pumps in accordance with instructions	
REFRIGERATING PLANT	explain the construction and operation of the refrigerating plant	
	demonstrate inspection, control and overhaul of the refrigerating plant in accordance with instructions including filling of coolant, change of oil and control for leakage	
THRUSTERS	explain the construction and operation of the bow/stern thruster	
	demonstrate inspection, control and overhaul of the thrusters in accordance with instructions	
DECK MACHINERY AND	explain the deck machinery and its functions including: - winches - cranes - hatches - valves - hanging deck - ramps and doors - pumps	
HYDRAULIC SYSTEMS	demonstrate inspection, control and overhaul of the deck machinery and hydraulic systems in accordance with instructions	

ELECTRICAL POWER SUPPLY AND MAIN SWITCHBOARD

OBJECTIVES:

- to give an overview to the trainee of the ship's electrical power supply including generators, main switchboard and consumer units.

- to give an insight in dangers when handling the ship's electrical supply units, in order for the trainee during on-board service to avoid personal risks and also to avoid causing interruption in the operation of such units.

SUBJECT:	TRAINING OBJECTIVES:	DATE/SIGN.:
GENERATORS	explain the construction of the generator and its function.	
	explain the construction of the emergency generator and its function.	
	explain the coupling in/out of the misc. generators.	
	demonstrate the procedure regarding 'black-out'.	
SWITCHBOARDS	by use of a diagram, explain the construction of the main switchboard and its function.	
	make use of the various protection devices in the main switchboard .	
	explain essential consumer units and their functions.	
	explain the terms of more important and less important load on the electrical supply and the grouping of loads.	
IN GENERAL	make use of suitable instruments in connection with measuring on the electrical plants.	
	carry out check and maintenance of emergency batteries and emergency light.	
SAFETY	explain the main voltages.	
	explain the reasons for using direct current, two- and three-phase plants, batteries and safety voltage.	
	state the danger when using electrical welding equipment.	
	explain the areas of personal risk and danger when using power plants, and how they are switched off.	
	carry out precautions to prevent danger to personnel.	

SUBJECT:	TRAINING OBJECTIVES:	DATE/SIGN.:
	planning of work tasks on electrical plants in accordance with safety precautions, if any danger relating to contact, short circuit or fire.	

EVALUATION OF THE TRAINING RECORD BOOK

The Danish Agency for Higher Education and Educational Support will endeavour to continuously improve the quality of the Training Record Book. In this regard it is important that those using the book inform us of their experience with it.

Therefore, all proposals for improvement, any criticism, remarks etc. are most welcome. In particular the Danish Agency for Higher Education and Educational Support is interested in answers to the questions you may find on this page.

The Trainee is therefore requested to work out an evaluation in a free written form, which in connection with the presentation of the Training Record Book can be returned to the Danish Agency for Higher Education and Educational Support.

The Training Officer is similarly requested to evaluate the Training Record Book. The evaluation should be sent to the Danish Agency for Higher Education and Educational Support.

The Company is requested to assist the Trainee to carry out the training in according to the Training Record Book.

As a help to the evaluation the Danish Agency for Higher Education and Educational Support is interested to hear about:

- the range of the Training Record Book in proportion to the seagoing service?
- structure and content of the Training Record Book?
- use of objectives and taxonomy in the Training Record Book?
- the practical training during the seagoing service?
- the officers interest and engagement in the Trainee's seagoing service?

REMARKS:
(For the use of the ship's officer's)

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