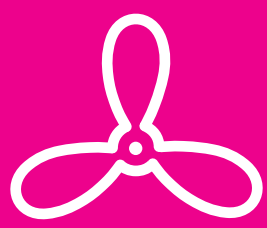
MINISTRY OF MARITIME AFFAIRS
AND INSULAR POLICY
SEAFARERS TRAINING DIRECTORATE

ON BOARD TRAINING RECORD BOOK FOR ENGINEER CADETS

(SECOND SEAGOING TRAINING PERIOD)

O.T.R.B. 2

ENGINE DEPARTMENT



PIRAEUS 2021

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MARITIME AFFAIRS AND TOURISM
SEAFARERS TRAINING DIRECTORATE

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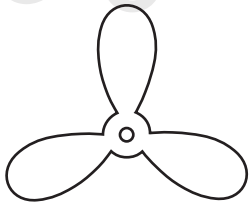

PIRAEUS 2021

INSTRUCTIONS

FOR THE DECK OR ENGINEER OFFICER IN CHARGE OF TRAINING

The present book contains the English translation of all the texts and tasks contained in the Greek on board training record book for deck/engineer cadets of the second seagoing training period and its purpose is to inform the deck or engineer officer in charge of training on board the vessel of the duties and tasks that the trainee has to carry out during his/her second mandatory seagoing service. The content of the book is laid out per page and task, just like it is presented in the corresponding Greek training record book. Any tasks in the Greek training record book that contain terms or information already written in English, have not been included in this book. Instead of them, a note has been written that refers to the information already included in the Greek training record book.

ΙΔΡΥΜΑ ΕΥΓΕΝΙΔΟΥ
1954

Pages 9-10

TRAINING REGULATION OF THE MERCHANT MARINE ACADEMIES (M.M.A.) FOR DECK AND ENGINE OFFICERS

ARTICLE 22

ON BOARD TRAINING SEAGOING SERVICE

1. (a) During the first seagoing training period the student is obliged to perform a seagoing service of 5-6 months and during the second seagoing training period a seagoing service of 6-7 months, provided that the overall length of both seagoing periods is not less than twelve (12) months.

(b) A student who, for whatever reason, has not completed the aforementioned designated seagoing service during the first or the second seagoing training period, may register for the 2nd or the 4th semester respectively, as long as the seagoing service s/he has completed is short of the minimum allowed limit of the first seagoing training period or the total of the minimum limits of both the first and the second seagoing training periods respectively, proportionate to the percentage (15%) of the absences mentioned in paragraph 1 of article 21 of the current Regulation (s/he should have completed a minimum seagoing service of at least four (4) months and seven (7) days and nine (9) months and ten (10) days respectively), provided that before graduating from the Academy and within the time limits determined in paragraph 9 of article 19 of the current Regulation, s/he shall have completed the mandatory overall twelve-month seagoing service.

(c) If the first and the overall (first + second) seagoing services have a shorter length than the limits mentioned in the previous case (b), it is possible for the student to exceptionally register for the 2nd or the 4th semester respectively, via a ministerial decision and under the following conditions:

1. The first seagoing service must have a minimum length of three (3) months or the first and the second seagoing services must have an overall minimum length of eight (8) months and have been assessed as successful by the bilateral assessment committee.
2. There is enough evidence for an Act of God or other reasons that justify the exceptional registration of the student.
3. The view of the Merchant Marine Academy Council is positive and
4. Before graduating from the Academy and within the time limits determined in paragraph 9 of article 19 of the current Regulation, the student shall complete the mandatory overall twelve-month seagoing service.

2. During each seagoing service the student has to complete:

(a) An on board training record book and

(b) A personal work logbook.

3. The ship's navigational or engineer officer in charge of training writes down an appropriate account regarding the trainee's general progress, which shall then be signed by the master and handed inside a sealed envelope to the trainee who has to deliver it to the Academy.

4. The student who has completed the first or the second seagoing service submits an application for his/her registration for the 2nd or the 4th semester respectively, attaching to it the on board training record book fully completed, the personal work logbook and the training officer's account enclosed in the sealed envelope. Then, s/he verbally supports the practical training s/he has had on board in the form of an interview, before a committee that consists of two instructors of maritime subjects of his/her specialty.

n the condition that an adequate number of instructors of maritime subjects of the student's specialty are not permanently employed in the Academy, casual associate instructors of maritime subjects may be members of the assessment committee.

5. After the student's interview has been completed and after taking into consideration the nav-

igational or engineer training officer's account, the above-mentioned committee decides whether the student's seagoing service was successful or not by writing a relevant report.

6. The committee's meetings, as well as the relevant reports, must be completed, in any case, before the beginning of the corresponding semester. In the case of a student's exceptional late registration as per article 3 of the current Regulation, the committee holds a meeting whenever it is required, after the beginning of the 2nd or the 4th semester until the date that the student is to be rejected due to absences.

7. If the seagoing service is ruled as unsuccessful, the student is obliged to perform it again and is excluded from attending the next semester at the Academy. The seagoing service is to be performed within the time limits determined in paragraph 5 of article 2 of the current Regulation.

8. The student who does not successfully complete the seagoing service for the second time until the beginning of the next semester, is permanently rejected from the Academy.

The student is also permanently rejected from the Academy when, although s/he had the right to perform the first or the second mandatory seagoing service:

(a) s/he does not show up at his/her Academy to register for the 2nd or the 4th semester respectively, within the limits determined in paragraphs 1 and 3 of article 3 of the current Regulation, during the current as well as the next academic year, or

(b) s/he does not show up at his/her Academy to register for the 2nd or the 4th semester respectively, within the limits determined in paragraphs 1 and 3 of article 3 of the current Regulation, during the current as well as the next academic year and if during the next academic year the seagoing service s/he has completed is ruled as unsuccessful, or

(c) if during the current academic year the seagoing service s/he has completed is ruled as unsuccessful and during the next academic year s/he does not show up at his/her Academy to register for the 2nd or the 4th semester respectively, within the limits determined in paragraphs 1 and 3 of article 3 of the current Regulation.

9. After the assessment of each mandatory seagoing service, the students' on board training record books (O.T.R.B) and personal work logbooks are kept in the Academy's secretariat for six (6) months and afterwards they are destroyed.

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STUDENT'S PERSONAL DETAILS

FULL NAME:……..... FATHER'S NAME:……
SEAMAN'S BOOK No.:…… DATE OF REGISTRATION:…… REGISTRATION No.:……..
STUDENT'S ORIGIN (1):…..…….
…….

VESSEL'S DETAILS

Vessel's s/n	Name and type of vessel (2)	Vessel's register	Date	
			Sign on	Sign off

(1) Specify the name of the student's Academy.
(2) M/V = Cargo vessel, M/T = Tanker, P/S = Passenger vessel, F/B = Ferry Boat, LNG or LPG = Gas Carrier, Ro/Ro = Roll on/Roll off, OBO = Oil Bulk Ore Carrier, etc.

SPECIMEN

SPECIAL ACCOUNT

For the student ……... (1)
The undersigned …… (2)
…….. (3) of the M/V …… (4) flying the …… flag, registered in ……., GRT ……
with …….. main engines, horsepower ……,
hereby report the following:

1. The student of the Merchant Marine Academy of …….. (5) …… (1) father's name …… (6) Seaman's Book No. …… signed on the vessel on …../…../20….. and signed off on …../…../20….. (7).

2. During his/her seagoing service s/he was occupied under my supervision and instructions as training officer in charge of practical training according to what is determined in the on board training record book of the Merchant Marine Academies (O.T.R.B. 2).

3. Further remarks:……
……
……
……
……

Date ……

The officer in charge

…… (8)

ATTESTED
Date ……
THE MASTER
Vessel's stamp – Signature

NOTE

This account is filled in after the completion of the second training seagoing service.
In case the training officer or the trainee sign off before the completion of the training seagoing service an account is written for the period of service until the day of discharge.
The new training officer writes a supplementary account.
(1) Student's full name.
(2) Training officer's full name.
(3) Master or Engineer.
(4) Vessel's name.
(5) Student's Academy.
(6) Father's name.
(7) The dates should be written in two digits (e.g. 07/02/2000).
(8) A signature and the ship's stamp are printed. If the training officer is not the Master, the Special Account is attested by the Master with his signature and the vessel's stamp.

Page 13

TASKS PROGRESS GUIDE

You may follow the progress of your tasks by crossing out the numbers of the tasks you have undertaken in the following table.

	"PARTICULARS OF THE VESSEL" completed	"FAMILIARISATION WITH THE VESSEL" carried out
First vessel		
Second vessel		
Third vessel		

NUMBERS OF TASKS (N/T)

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32

…….. The table goes up to number 141.

Pages 14-18

WEEK	NUMBER OF TASKS (N/T) UNDERTAKEN EVERY WEEK (1)					TOTAL OF TASKS	TRAINING OFFICER'S CERTIFICATION (2)
1st FROM:..... TO:.....						(in full)	..... (place) ..... (date) ..... (signature) (stamp)

In the rest of the table, up to page 18, only the serial number that refers to the weeks on board is changing (2nd to 30th week).

At the bottom of each page the following notes are included:

(1) Only one N/T is filled in each square. The blanks are crossed out with two diagonal lines.
(2) The training officer certifies that the tasks mentioned have been undertaken on board during the corresponding week.

Page 19

UNIT CONVERSION TABLE

METRIC m, cm, kg, M.T.			→	IMPERIAL ft, inch, LT, Pounds
millimetres	×	0,03937	→	inches
centimetres	×	0,3937	→	inches
metres	×	3,2808	→	feet
square metres	×	10,764	→	square feet
cubic metres	×	35,316	→	cubic feet
kilograms	×	2,2046	→	libres [1]
kilograms	×	0,0009842	→	long ton [2]
metric tons [3]	×	0,9842	→	long ton
TPC [4]	×	2,4998	→	TP1'' [5]
MTC [6]	×	8,2014	→	MT1'' [7]
m.rad	×	187,9767	→	ft x deg
specific gravity (MT/m^3)	×	0,0279	→	sp.grav (LT/f^3)
stowage factor (m^3/MT)	×	35,88	→	st.fac. (f^3/LT)
metric tons [8]	×	3,229	→	long tons [9]

ENGLISH ft, inch, LT, Pounds			→	IMPERIAL m, cm, kg, M.T.
inches	×	25,4	→	millimetres
inches	×	2,54	→	centimetres
feet	×	0,3048	→	metres
square feet	×	0,0929	→	square metres
cubic feet	×	0,0283	→	cubic metres
libres	×	0,45359	→	kilograms
long ton	×	1016,047	→	kilograms
long ton	×	1,016	→	metric tons
TP1''	×	0,4	→	TPC
MT1''	×	0,122	→	MTC
ft x deg	×	0,0053	→	m.rad
specific gravity (LT/f^3)	×	35,88	→	sp.grav (MT/m^3)
stowage factor (f^3/LT)	×	0,0279	→	st.fac. (m^3/MT)
long tons	×	0,3097	→	metric tons

RELATION BETWEEN VOLUME AND WEIGHT OF WATER

1 cubic metre of fresh water (specific gravity = 1) = 1 metric ton (1000 kg)
1 cubic metre of seawater (specific gravity = 1,025) = 1,025 metric tons (1025 kg)
1 cubic metre of seawater = 0,975 cubic metres

[1] Pounds or libres
[2] 1 Long ton = 2240 LBS
[3] 1 Metric ton = 1000 kg = 1 ton
[4] Metric tons per cm
[5] Long tons per inch
[6] Metric tons per cm
[7] Long tons per inch
[8] Metric tons
[9] Long tons

TRAINEE'S TASKS

Page 23

PARTICULARS OF THE VESSEL

Full knowledge of the vessel is a basic characteristic of a good officer. The completion of the table below will help you systematise and supplement your knowledge on this matter.
Instructions: It is essential that you complete both columns, SI (Metric system) and Imperial (English system). If the particulars of the vessel are provided in one unit system only, use the table on page 19 for the conversion. In the last column write the Greek translation of the terms mentioned in the first column.

FIRST VESSEL

VESSEL'S NAME			**Call Sign**
	S.I.	IMPERIAL	GREEK TRANSLATION OF THE FIRST COLUMN

Page 25

SECOND VESSEL

VESSEL'S NAME			**Call Sign**
	S.I.	IMPERIAL	GREEK TRANSLATION OF THE FIRST COLUMN

Page 27

FAMILIARISATION WITH THE VESSEL

FIRST VESSEL: ……

Complete the following items:

WHAT IS THE DISTRESS SIGNAL	
WHAT IS THE ABANDON SHIP ALARM SIGNAL	
WHAT IS THE FIRE ALARM SIGNAL	
WHAT IS THE FLOODING ALARM SIGNAL	
WHAT IS YOUR STATION WHEN ABANDONING THE VESSEL	
WHAT ARE YOUR DUTIES IN CASE OF FIRE	
WHAT ARE YOUR DUTIES IN CASE OF FLOODING	

TASKS OF FIRST PRIORITY	Training Officer's signature	Date
Bridge layout and equipment perfectly understood (instruments, equipment, switches, fuses etc.).		
First aid equipment and its keys located on board vessel.		
Fire fighting equipment (alarm activating points, alarm bells, extinguishers, hydrants, fire axes and hoses) located on vessel.		
Line throwing apparatus located on vessel.		
Distress rockets, flares and other pyrotechnics, breathing apparatus, fire-fighter's outfit and equipment located on vessel.		
Emergency stops for main engine located on deck and safety valves located on vessel.		
Watertight doors located on vessel and their operation comprehended (mechanic and manual).		
CO_2 bottle room located on vessel and system operation comprehended.		
Valves of smothering apparatus located in pump room, cargo tanks and cargo holds.		
Emergency fire pump located.		
Change of rudder from automatic to manual comprehended.		
Load lines (for a tanker) or cargo space layout (for a cargo vessel) comprehended.		

Page 28

FAMILIARISATION WITH THE VESSEL

SECOND VESSEL: ……

Complete the following items:

The table is similar to that of page 27.

Page 29

LIFESAVING APPLIANCES

Check the equipment and supplies of a lifeboat on your vessel and complete the following table.
LIFEBOAT No……. (……).

N/T 1

EQUIPMENT & SUPPLIES	GREEK TRANSLATION OF THE PREVIOUS COLUMN	Existing quantity inside the lifeboat	Quantity to be available as per SOLAS '74

Page 31

What measures are taken for the maintenance of the lifeboat equipment? What is the main reason for its damage?

Page 32

N/T	TASK
2	What are the minimum food rations and drinking water quantities according to the regulations for a lifeboat? Under which condition is it permitted to reduce the quantity of drinking water? …… …… ……
3	Complete the following information about the lifeboat in N/T 1. a) Lifeboat No. …… b) Construction material …… c) Length …… d) Breadth …… e) Lateral height …… f) Capacity in cubic metres …… g) Number of persons …… h) Floatation tanks: Material ……..... Volume ……. Which of the above-mentioned items must be marked on the lifeboat and where? What other items should be marked on the lifeboat and where? …… …… ……

Page 33

N/T	TASK
4	Complete the following table about the lifeboat in N/T 1. (Write the Greek translation in the brackets provided). ***The table included in the task is already written in English.*** If the expiry date is not marked, how can it be calculated? What are the manufacturer's instructions regarding the use of the above-mentioned emergency pyrotechnics? (If written in foreign language, copy them in that language and provide a Greek translation next to them). …… ……

Page 34

N/T	TASK
5	What measures should be taken so that: a) The lifeboat can be kept next to the embarkation deck. b) After embarkation, the lifeboat can be moved away smoothly (without any resistance) from the deck in order to be launched. …… …… ……
6	Describe the system through which the tackles of the lifeboat are freed. Also describe the relevant instructions and the conditions for its proper operation. What kind of hazards may arise due to bad operation or wrong handling? …… ……

Page 35

N/T	**Complete the following information regarding the propulsion engine of a lifeboat on your vessel.**
7	Manufacturer: …… Type: …… Serial No.: …… Horsepower: …… Number of cylinders: …… Fuel: …… Fuel tank capacity: …… How many hours can the engine operate with the fuel available in its tank? …… How many hours should the fuel be adequate as per SOLAS 1974? …… What is the number of the SOLAS regulation and paragraph that provide the above-mentioned details? …….. What is the cooling system of the engine? …….. …… What kind of maintenance is required for the engine? …… …… …… …… I hereby certify that the trainee has learnt how to operate the engine of the lifeboat mentioned above. …… (Training Officer's signature) …… (Date)

Page 36

N/T	**TASK**
8	What is the best way to embark a lifeboat? a. From the vessel …… …… b. From the water …… ……
9	How can you bring a liferaft that was inflated upside down back to normal position? …… ……
10	Write down how the liferafts should be launched according to the manufacturer's instructions and underline the most significant action. …… ……

Page 37

N/T	TASK
11	How many liferafts are there on board your vessel? What is their capacity? Which regulation states their number and capacity, and what exactly is required for your vessel? Where is each liferaft located? …… ……
12	Choose one of the vessel's liferafts and complete its particulars in the following table. Manufacturer:…… Type:…… Construction material:…… Serial number:…… Last test date:…… Next test date:…… Number of persons:…… What do the regulations require in case a vessel sinks without the liferaft having been launched to the water and how is this ensured on your vessel? …… ……

Page 38

N/T	TASK
13	Find out when the lifeboat launching system is tested and maintained. Describe in detail the maintenance work done and the safety measures taken to avoid any accidents for the crew. …… …… It is hereby certified that the trainee has participated in the following abandon ship drills during which the lifeboats were launched and the crew was trained. Date Initials Port No of lifeboat Type of training (rowing, … etc.)

Page 39

FIRE SAFETY

N/T	TASK
14	Complete the table: Type of fire Material burnt Appropriate fire-extinguishing means **A** **B** **C** **D** **E**
15	Translate the following terms and explain them: English Greek Interpretation Flash point Fire point Ignition temperature Spontaneous combustion Flammable mixture

Page 40

PORTABLE FIRE EXTINGUISHERS

Complete the following table regarding the portable fire extinguishers on board your vessel.

N/T **16**

Type	Total number of each type		Content in litres or kilograms	Test date	Types of fire for which it is dangerous	Types of fire for which it is effective	Number of charges	How do you establish that the fire extinguisher needs recharging
	Engine room and pump room	Remaining areas						
1	2	3	4	5	6	7	8	9

INSTRUCTIONS: (1) CO_2, Foam, etc. (5) If the dates are not the same, write the oldest. (6) and (7) the type of fire is to be entered with one of the letters A, B, C, D, E.

N/T	TASK
17	What dangers are connected with the use of each type of fire extinguishers? …… ……
18	Which types of fire extinguishers can be recharged on board the vessel? What does a recharge consist of for each type? How is recharging carried out? …… ……
19	How are the following checked and maintained: a) the fire hoses, b) the nozzles, c) the fire hydrants? …… ……
20	Complete the following table regarding the fire pumps on your vessel. Fire pump ( ) (1) No. (2) Where placed ( ) (3) Pump type ( ) (4) Capacity ( ) (5) Driven by: ( ) (6) *Instructions: a) Fill in the Greek translation in the brackets provided.* *b) Column (1) e.g. Sanitary, General service, Butterworth etc.*

Page 42

N/T	TASK
21	It is certified that the trainee has learnt how to operate the emergency fire pump and the emergency diesel generator. ..... (Training Officer's signature) ..... (Date)
22	Complete the table below regarding your vessel. ***The table included in the task is already written in English.*** **Note: Fill in the Greek translation in the brackets provided.*
23	What is the International Shore Connection? What is it used for? Where is it located on board your vessel? How many pieces does it consist of? Which pieces are they? ....
24	Complete the table below regarding your vessel. ***The table included in the task is already written in English.*** *Instructions: a) Fill in the Greek translation in the brackets provided.* *b) Column (1) in mm or inches.* *c) Column (2) in metres or feet.*

Page 43

N/T	TASK
25	What kind of flow is achieved in each one of the three positions of the nozzle in the sketch? 1. …… 2. …… 3. ……
26	The additional pipes in the sketch are used together with the nozzle of the previous task. How long is each one of them? What are they used for? What must the position of the lever be when additional pipes are used? …… …… ***Sketch:*** Bending angle 60º Bending angle 90º
27	**How often and in what way is the test of readiness and good operation of the items mentioned in N/T 27 to 33 carried out?** The fire detection system. …… ……
28	The alarm activating points and alarm bells. …… ……
29	The automatic sprinkler systems. …… ……
30	The fixed foam fire extinguishing systems. …… ……

Page 44

N/T	TASK
31	The fixed gas fire extinguishing systems (e.g. carbon dioxide CO_2) …… ……
32	The fixed steam fire extinguishing systems. …… ……
33	Other fire extinguishing systems available on your vessel. …… ……
34	Describe which fixed fire extinguishing systems are available on your vessel and which areas they are used for. …… ……
35	How many firemen's outfits are there available on your vessel? What parts do they consist of? Which regulation describes them? …… ……

Page 45

N/T	TASK
36	**How often and in what way are the readiness and good operation of the following checked?** a) The breathing apparatus with air pump. …… …… b) The self-contained breathing apparatus. …… ……
37	How does the user of a self-contained breathing apparatus make sure for how long s/he still has adequate air available? …… ……

Page 46

N/T	TASK
38	At what pressure does the warning whistle of the self-contained breathing apparatus on board your vessel start to sound? How many minutes is the oxygen available for after the warning whistle has sounded? …… ……
39	How is the good adjustment and air-tightness of the face mask tested? Why is this test necessary? …… ……
40	When the vessel sails in the open sea and a member of the crew falls overboard, mention the actions that the OOW on the bridge should do. …… ……

Page 47

N/T	TASK
41	What is the appropriate way for getting rid of pyrotechnics that have been replaced due to the fact that the expiry date was reached? Mention at least two reasons for which they should not be used for testing or training purposes. …… ……
42	Sketch in the form of a graph the fixed fire extinguishing system of the cargo spaces on board your vessel. It is sufficient to draw the branch inside a cargo hold or tank, but all valves and nozzles necessary for the operation of the system should be clearly drawn. Using this graph and referring to it, write down a detailed description of the system operation and specify those nozzles that must be opened and closed. If the vessel does not have a fixed fire extinguishing system for the cargo holds, complete the same task for the corresponding system inside the engine room. …… …… ……

Page 48

N/T	TASK
43	Briefly describe the operation of the fire detecting system on board your vessel and mention the spaces it monitors, the manufacturer and the type of the system. …… ……
44	Mention the radiocommunication devices of the life saving means on board your vessel and inside the lifeboats to be used for search and rescue. …… …… ……

Page 49

OCCUPATIONAL SAFETY

N/T	TASK
45	What measures are taken for the safe work outside the engine-room workshop when cutting torches and arc welding are used? …… ……
46	What are the safety measures for preventing accidents to persons who work on a scaffold? …… ……
47	**Mention the safety measures for avoiding occupational accidents when working:** a) With arc welding …… …… b) With oxygen …… ……

Page 50

OCCUPATIONAL SAFETY

N/T	TASK
47	c) With machine tools …… …… d) In enclosed spaces …… …… e) During paint work …… ……
48	Provide two examples of enclosed spaces in your vessel, the entry to which might be dangerous. Mention any special dangers that might exist in each one and the safety measures to be taken before entry is allowed. …… ……

Page 51

CARGO VESSELS

N/T	TASK
49	Show a plan view of the cargo holds, the cranes and the cofferdams of your vessel. …… ……

Page 52

N/T	TASK
50	Learn the fill-up method of the ballast tanks. Sketch the ballast tanks (using a tank plan view of the vessel) and the ballast line. …… ……

Page 53

N/T	TASK
51	Explain the meaning of the following terms regarding the operation of your vessel's cranes. a) Limit switch: …… …… b) Automatic overload cut aut: …… …… c) Indicator of safe working load: …… ……
52	Mention the situations when the Limit Switch is activated. …… ……
53	Mention the operation controls that a crane of your vessel has and what their purpose is. …… ……

Page 54

N/T	TASK
54	Mention the purpose and the functionality of the main parts of a crane. …… ……

Page 55

N/T	TASK
55	Mention the type and briefly describe the system or the way of opening and closing the cargo holds. …… ……
56	Study the instructions on keeping the Oil Record Book Part I for all ships, as well as the operations and complete pages 59-60 available for a voyage, in co-operation with the officer in charge (Chief Engineer or Chief Officer). …… ……

Pages 56-58

GUIDELINES

…on keeping the oil record book, “Part I”: machinery space operations.

I. GENERAL

1. Keeping the new oil record book is provided by MARPOL 1973/78 International Convention “prevention of pollution from ships”, which was certified by Greece with law 1269/82 (Governmental Gazette 89 A’/1982). Particularly, the obligation for keeping this book derives from Regulation 20 of Annex I of the said convention. The new oil record book, which is easy to use and uniform in all countries, fully corresponds to the requirements of the convention as a result of a decision made by the Marine Environment Protection Committee (MEPC).

2. An Oil Record Book “Part I” shall be carried on board every oil tanker of 150 gross tons and above and every other ship of 400 gross tons and above to record relevant machinery space operations. In addition, Oil Tankers of 150 gross tons and above shall carry an Oil Record Book “Part II” to record cargo and ballast operations.

II. OBLIGATIONS - RATIFICATIONS

3. The Oil Record Book is completed when one or more than one machinery space operations is performed:
   - ballasting or cleaning of oil fuel tanks,
   - discharge of dirty ballast or cleaning water from oil fuel tanks referred to under the previous section,
   - disposal of oil residues (sludge),
   - discharge overboard or disposal otherwise of bilge water which has accumulated in machinery spaces,
   - use of a separator,
   - several other similar operations (see below).

4. Keeping the Oil Record Book. The Oil Record Book Part I shall be kept in such a place as to be readily available for inspection at all reasonable times and, except in the case of unmanned ships under tow, shall be kept on board the ship. It shall be preserved for a period of three years after the last entry has been made.

5. According to article 46 of the State Maritime Law Code (Law 187/73, Governmental Gazette 261 A’/73) the oil record book is included among maritime documents which shall be carried aboard every ship. This book is kept by the master in accordance with the provisions of the international convention in force for the prevention of pollution from oil products (article 52 of the SLMC). It is completed by an engineer officer (Chief or Second Engineer) who is appointed by the Master.

6. The oil record book is examined by the Greek port or consular authorities and by the port authorities of the international convention member states.

7. The lack of the oil record book, its improper keeping and its not producing to the competent authorities at the port of destination whenever this is asked for, constitute a violation of article 4 and Annex I Regulation 20 of MARPOL. This shall be punished as per article 9 of Law 1269/82, in combination with articles 13 and 14 of Law 743/77 (Governmental Gazette 319 A’/1977) and is likely to establish sanctions provided from the national legislation of each member state of the convention.

III. MARPOL 1973/78 REQUIREMENTS

8. General. According to the provisions of MARPOL 73/78 international convention, strict criteria are established, amongst others, regarding the discharge of oil residues (sludge) or mixtures. The purpose of these provisions is the best protection of the marine environment from pollution caused by ships.

9. Special areas. According to Regulation 10 of Annex I of the international convention, certain environmentally sensitive sea areas are characterised as “special areas”, within which any discharge into the sea of oil or oily mixture from any oil tanker and any ship of 400 tons gross tonnage and above other than an oil tanker shall be prohibited. Such ships while in a special area shall retain on board all oil drainage and sludge, dirty ballast and tank washing waters and discharge them only to port reception facilities. According to the international convention, the special areas are the Mediterranean Sea area, the Black Sea area, the Red Sea area, the Baltic Sea area and the Persian Gulf area, the boundaries of which are clearly defined in the convention.

10. The aforementioned prohibition shall not apply to the discharge of clean or segregated ballast, which has been loaded in tanks exclusively used for ballast and are not, in any way, connected to the fuel tanks. These are the so-called “water ballast tanks” (WBT). It is prohibited to load these tanks with any kind of oil that has been concentrated on board (remainders, residues, etc.).

11. According to Regulation 9, par. 1(b) of Annex I of the international convention, any discharge into the sea of oil or oily mixtures from a ship of 400 tons gross tonnage and above other than an oil tanker and from an oil tanker of 150 tons gross tonnage and above, obliged to be provided with an oil record book (Part I), shall be prohibited except when all the following conditions are satisfied:
    a) the ship is not within a special area;
    b) the ship is more than 12 nautical miles from the nearest land;
    c) the ship is proceeding en route;
    d) the oil content of the effluent is less than 100 PPM (parts per million), and
    e) the ship has in operation an oil discharge monitoring and control system, oily-water separating equipment, oil filtering system or other installation as required by Regulation 16 of Annex I of the convention.

IV. OPERATIONS

12. Following the guidelines, all the machinery space operations are listed on the initial pages of the book (9 to 12). No entry shall be recorded by the master or the officers on these pages (see below).

13. Encoding of operations. All machinery space operations have been sorted out into 9 groups and are pointed out with the corresponding letters of the alphabet (code letters), as follows:
    (A) Ballasting or cleaning of oil fuel tanks;
    (B) Discharge of dirty ballast or cleaning water from oil fuel tanks referred to under section (A);
    (C) Collection and disposal of oil residues (sludge and other residues);
    (D) Non-automatic discharge overboard or disposal otherwise of bilge water which has accumulated in machinery spaces;
    (E) Automatic discharge overboard or disposal otherwise of bilge water which has accumulated in machinery spaces;
    (F) Condition of the filtering equipment;
    (G) Accidental or other exceptional discharges of oil;
    (H) Bunkering of fuel or bulk lubricating oil;
    (I) Additional operational procedures and general remarks.

Each of these operations includes items which are sorted out with item numbers (1, 2, 3…). For example an entry recorded in the book with the code (B)8 means:

- (B) Discharge of dirty ballast or cleaning water from oil fuel tanks referred to under section (A);
- 8 Ship's speed(s) during discharge.

V. ENTRIES

14. Following the coded operations, the rest of the pages follow (13 to 100) for the entries to be recorded. The pages are properly outlined, so as all relevant details regarding each operation of a certain entry shall be recorded.

    These details are:

    Voyage, date, code letter of the operation, item number of the operation and description of the operation if necessary.

15. The entries in the oil record book shall be recorded in Greek and English in a chronological order and signed by the officers in charge of the operations concerned (Chief Engineer, Second Engineer, etc.).

16. Example:
    On 10th October 1983 from 0600 to 0800 hours the ship was discharging via equipment that could produce effluent containing oil no more that 15 PPM. This shall be recorded in the oil record book as follows:
    - 10-10-83 -D- -14- From 0600 to 0800
    - -//- -D- -15.2- Officer's signature

17. Master's countersignature. At the bottom right-hand side of the page, the book is counter-signed by the master once the page is completed or the voyage has ended.

Pages 59-60

OIL RECORD BOOK (PART I)
OPERATIONS

(A) BALLASTING OR CLEANING OF OIL FUEL TANKS

1. Identity of tank(s) ballasted.
2. Whether cleaned since they last contained oil and, if not, type of oil previously carried.
3. Cleaning process.
  1. Position of ship and time at the start and completion of cleaning.
  2. Identify tank(s) in which one or another method has been employed (rinsing through, steaming, cleaning with chemicals; type and quantity of chemicals used in cubic metres).
  3. Identity of tank(s) into which cleaning water was transferred.
4. Ballasting.
  1. Position of ship and time at start and end of ballasting.
  2. Quantity in cubic metres of ballast if tanks are not cleaned.

(B) DISCHARGE OF DIRTY BALLAST OR CLEANING WATER FROM OIL FUEL TANKS REFERRED TO UNDER SECTION (A)

5. Identity of tank(s).
6. Position of ship at start of discharge.

7. Position of ship on completion of discharge.
8. Ship's speed(s) during discharge.
9. Method of discharge.
1. Through 15 ppm equipment.
2. To reception facilities.
10. Quantity discharged in cubic metres.

(C) COLLECTION AND DISPOSAL OF OIL RESIDUES (SLUDGE AND OTHER RESIDUES)

11. Collection of oil residues. (1)
Quantities of oil residues (sludge and other residues) retained on board. The quantity should be recorded weekly:
1. Identity of tank(s)……
2. Capacity of tank(s)……m^3
3. Total quantity of retention……m^3
12. Methods of disposal of residues. State quantity of oil residues disposed of, the tank(s) emptied and the quantity of contents retained in cubic metres.
1. To reception facilities (identify port). (2)
2. Transferred to another (other) tank(s) [indicate tank(s) and the total content of tank(s)].
3. Incinerated (indicate total time of operation).
4. Other method (state which).

(D) NON-AUTOMATIC DISCHARGE OVERBOARD OR DISPOSAL OTHERWISE OF BILGE WATER WHICH HAS ACCUMULATED IN MACHINERY SPACES

13. Quantity discharged or disposed of in cubic metres. (3)
14. Time of discharge or disposal (start and stop).
15. Method of discharge or disposal:
1. Through 15 ppm equipment (state position at start and end).
2. To reception facilities (identify port). (2)
3. Transfer to slop tank or holding tank [indicate tank(s) state quantity retained in tank(s) in cubic metres].

(E) AUTOMATIC DISCHARGE OVERBOARD OR DISPOSAL OTHERWISE OF BILGE WATER WHICH HAS ACCUMULATED IN MACHINERY SPACES

16. Time and position of ship at which the system has been put into automatic mode of operation for discharge overboard through 15 p.p.m. equipment.
17. Time when the system has been put into automatic mode of operation for transfer of bilge water to holding tank (identify tank).
18. Time when the system has been put into manual operation.

(F) CONDITION OF THE FILTERING EQUIPMENT

19. Time of system failure. (4)
20. Time when system has been made operational.
21. Reasons for failure.

(G) ACCIDENTAL OR OTHER EXCEPTIONAL DISCHARGES OF OIL

22. Time of occurrence.
23. Place or position of ship at time of occurrence.
24. Approximate quantity and type of oil.
25. Circumstances of discharge or escape, the reasons therefor and general remarks.

(H) BUNKERING OF FUEL OR BULK LUBRICATING OIL

27. Bunkering.
1. Place of bunkering.
2. Time of bunkering.
3. Type and quantity of fuel oil and identity of tank(s) [state quantity added in tonnes and total content of tank(s)].
4. Type and quantity of lubricating oil and identity of tank(s) [state quantity added in tonnes and total content of tank(s)].

(I) ADDITIONAL OPERATIONAL PROCEDURES AND GENERAL REMARKS

Page 63

TANKERS

N/T	TASK
57	Sketch the cargo tank and slop tank washing piping system (COW – crude oil washing). Use the relevant construction plans of the vessel (designs – tank clean lines – COW system pipes etc.) and describe the cargo tank and slop tank washing system. …… ……

Page 64

N/T	TASK
58	Briefly describe the opening and closing system of the holds (type – manufacturer etc.). …… ……

Page 65

N/T	TASK
59	Sketch the discharging system of the vessel as well as the way and the means discharging is carried out. It is recommended that you show the number, type and capacity of cargo pumps, stripping pumps, operating pressure, cross-section of relevant systems, etc. …… ……

Page 67

N/T	TASK
60	Sketch the main parts of the inert gas system and mention the purpose and the function of each part. (It is recommended that you mention the system type, the manufacturer, the units that its piping system consists of, the safety systems, etc.). …… ……

Page 69

N/T	TASK
61	Sketch the vessel's monitoring and control system for discharging oil overboard, as well as the small diameter line that ends in the manifolds. …… ……

Page 70

N/T	TASK
62	After studying and completing N/T 56, which refers to all ships (cargo vessels and tankers), do the same with this exercise that applies to tankers only. …… ……

Page 71

Plan view of cargo and slop tanks is already translated in English.

Pages 72-76

GUIDELINES

…on keeping the oil record book, "Part II": cargo / ballast operations.

I. GENERAL

1. Keeping the new oil record book is provided by MARPOL 1973/78 International Convention "prevention of pollution from ships", which was certified by Greece with law 1269/82 (Governmental Gazette 89 A'/1982). Particularly, the obligation for keeping this book derives from Regulation 20 of Annex I of the said convention. The new oil record book, which is easy to use and uniform in all countries, fully corresponds to the requirements of the convention as a result of a decision made by the Marine Environment Protection Committee (MEPC).

2. An Oil Record Book "Part II" shall be carried on board every oil tanker of 150 gross tons and above. In addition, these vessels shall carry an Oil Record Book "Part I".

II. OBLIGATIONS - RATIFICATIONS

3. The Oil Record Book is completed when one or more than one cargo / ballast operations is performed:
   - loading of oil cargo,
   - internal transfer of oil cargo during voyage,
   - unloading of oil cargo,
   - ballasting of cargo tanks or clean ballast tanks (CBT),
   - washing of cargo tanks with water or crude oil washing (COW),
   - discharge of ballast except from segregated ballast tanks (SBT),
   - discharge of water from slop tanks,
   - closing of all valves or similar devices after discharging residues overboard from slop tanks has finished,
   - closing of all necessary valves for isolating the clean ballast tanks from loading and stripping lines, after discharging residues from slop tanks has finished,
   - disposal of residues.

4. Keeping the Oil Record Book. The Oil Record Book Part II shall be kept in such a place as to be readily available for inspection at all reasonable times and, except in the case of unmanned ships under tow, shall be kept on board the ship. It shall be preserved for a period of three years after the last entry has been made.

5. According to article 46 of the State Maritime Law Code (Law 187/73, Governmental Gazette 261 A'/73) the oil record book is included among maritime documents which shall be carried aboard every ship. This book is kept by the master in accordance with the provisions of the international convention in force for the prevention of pollution from oil products (article 52 of the SLMC). It is completed by deck officers (Chief or Second Officer) who are in charge according to the Labour Regulation, on board cargo vessels and are appointed by the Master for performing the operations mentioned in par. 3.

6. The oil record book is examined by the Greek port or consular authorities and by the port authorities of the international convention member states.

7. The lack of the oil record book, its improper keeping and its not producing to the competent authorities at the port of destination whenever this is asked for, constitute a violation

of article 4 and Annex I Regulation 20 of MARPOL. This shall be punished as per article 9 of Law 1269/82, in combination with articles 13 and 14 of Law 743/77 (Governmental Gazette 319 A'/1977) and is likely to establish sanctions provided from the national legislation of each member state of the convention.

III. MARPOL 1973/78 REQUIREMENTS

8. General. According to the provisions of MARPOL 73/78 international convention, strict criteria are established, amongst others, regarding the discharge of oil residues (sludge) or mixtures. The purpose of these provisions is the best protection of the marine environment from pollution caused by ships.

9. Special areas. According to Regulation 10 of Annex I of the international convention, certain environmentally sensitive sea areas are characterised as "special areas", within which any discharge into the sea of oil or oily mixture from any oil tanker and any ship of 400 tons gross tonnage and above other than an oil tanker shall be prohibited. Such ships while in a special area shall retain on board all oil drainage and sludge, dirty ballast and tank washing waters and discharge them only to port reception facilities. According to the international convention, the special areas are the Mediterranean Sea area, the Black Sea area, the Red Sea area, the Baltic Sea area and the Persian Gulf area, the boundaries of which are clearly defined in the convention.

10. The aforementioned prohibition shall not apply to the discharge of clean or segregated ballast, which has been loaded in tanks exclusively used for ballast and are not, in any way, connected to the fuel tanks (segregated ballast tanks – SBT), or tanks that have previously been washed with water or crude oil. In the latter situation, those tanks intended to be used for clean ballast should be washed with water.

11. According to Regulation 9, par. 1(a) of Annex I of the international convention, any discharge into the sea of oil or oily mixtures from an oil tanker of 150 tons gross tonnage and above, shall be prohibited except when all the following conditions are satisfied:
    a) the tanker is not within a special area;
    b) the tanker is more than 50 nautical miles from the nearest land;
    c) the tanker is proceeding en route;
    d) the total quantity of oil discharged into the sea does not exceed for existing tankers 1/15,000 of the total quantity of the particular cargo of which the residue formed a part, and for new tankers 1/30,000 of the total quantity of the particular cargo of which the residue formed a part,
    e) the tanker has in operation, except as provided for in Regulation 15 (3) of Annex I of the convention, an oil discharge monitoring and control system and a slop tank arrangement as required by Regulation 15 of this Annex,
    f) the instantaneous rate of discharge of oil content does not exceed 60 litres per nautical mile. According to Regulation 15 par. 3(a) of the international convention, oil tankers of 150 tons gross tonnage and above shall be fitted with a recording device to provide a continuous record of the discharge in litres per nautical mile and total quantity discharged, or the oil content and rate of discharge. The requirements for these systems shall apply to existing oil tankers 3 years after the international convention has been put into force. In this situation, the instantaneous rate of discharge (R) 60 litres per nautical mile shall be calculated in the following way:

$$R = (PPM) \times (PR\ m^3/h) / 1000\ S$$

    - PPM means oil content of effluents,
    - PR means the discharge rate of the pump in m^3/h
    - S means the vessel's speed.

Example: We assume that a vessel is proceeding at a speed (S) of 15 knots and is discharging dirty ballast at a rate of discharge (PR) of 8000 m^3/h and the oil content is 30 ppm. According to what has been said in this paragraph the calculation is: R = (30 x 8000) / 15 x 1000 = 16 litres per nautical mile. Following measurements carried out, it has been proved that in order for the separation of oil and water to occur in the dirty ballast, at least 24 hours are required under favourable weather conditions. In this situation, the water which is below the separating line of oil / water contains 30 ppm of oil. Moreover, in order for the separation of oil residues transferred in the slop tank to occur, at least 36 hours are required under favourable weather conditions. In this situation, the water which is below the separating line of oil / water contains 150 ppm of oil. However, as long as the discharge of "water" is in progress, the separating surface between the two liquids (oil / water) is closing to the suction of the tank, the oil content is increasing and may reach 500 ppm, there is a possibility to reach 2000 or 3000 ppm rapidly. In that case, the person in charge of the system operation has to take the appropriate measures (visual observation of the water being discharged, reduction of the discharge rate, shutting down of the pump, etc.) in order to prevent pollution.

12. The above-mentioned discharge criteria are applied in the following disposal situations at sea:
    - residues/sludge of oil cargo,
    - residues of oil cargo coming from cargo tank washing,
    - dirty ballast that was loaded into cargo tanks,
    - residues in the bilges of the pump room,
    - residues from the engine room, but mixed in any way with the oil cargo or residues / sludge of the oil cargo. Such a case is, for instance, the transfer of residues from the engine room bilges to a cargo tank or a slop tank.

IV. <u>OPERATIONS</u>

13. Following the guidelines, all the cargo / ballast operations of an oil tanker are listed on the initial pages of the oil record book (13 to 19). No entry shall be recorded by the master or the officers on these pages (see below).

14. Encoding of operations. All cargo / ballast operations have been sorted out into 17 groups and are characterised with the corresponding letters of the alphabet (code letters), as follows:
    (A) Loading of oil cargo;
    (B) Internal transfer of oil cargo during voyage;
    (C) Unloading of oil cargo;
    (D) Crude oil washing (COW tankers only);
    (E) Ballasting of cargo tanks;
    (F) Ballasting of dedicated clean ballast tanks (CNT tankers only);
    (G) Cleaning of cargo tanks;
    (H) Discharge of dirty ballast;
    (I) Discharge of water from slop tanks into the sea;
    (J) Disposal of residues and oily mixtures not otherwise dealt with;
    (K) Discharge of clean ballast contained in cargo tanks;
    (L) Discharge of ballast from dedicated clean ballast tanks (CBT tankers only);
    (M) Condition of oil discharge monitoring and control system;
    (N) Accidental or other exceptional discharges of oil;
    (O) Additional operational procedures and general remarks;
    (P) Loading of ballast water;
    (Q) Re-allocation of ballast water within the ship;
    (R) Ballast water discharged to reception facility.

Each of these operations includes items which are sorted out with their item numbers (1, 2, 3…). For example an entry recorded in the book with the code (E)18 means:
- (E) Ballasting of cargo tanks;
- 18 Position of ship at start and end of ballasting.

V. ENTRIES

15. After the coded operations, the rest of the pages follow (21 to 100) for the entries to be recorded. The pages are properly outlined, so as all relevant details regarding each operation of a certain entry shall be recorded.
These details are:
Voyage, date, code letter of the operation, item number of the operation and description of the operation if necessary.

16. On page 5 there is a sketch of the sectional plan view of the cargo tanks and the slop tanks, which is recorded by the master on the date the oil record book is used for the first time. The identifying characteristics of the cargo tanks and their capacity in cubic metres or feet must be recorded on the outlined table of the same page. The capacity and depth of the slop tank(s) must be recorded at the bottom of the table.

17. The entries in the oil record book shall be recorded in Greek and English in a chronological order and signed by the officers in charge of the operations concerned (Chief Officer, Second Officer, etc.), who have performed the operation.

18. Example: On 10th October 1983, in position Lat……. Long……., from 0800 to 1300 hours, No. 2 central cargo tank was washed by means of fixed washing machines and the tank washings of approximately 2000 cubic metres were transferred to the slop tanks starboard and port. This shall be recorded in the oil record book as follows:
- 10-10-83 -G- -27- No. 2 centre
- -//- -G- -28- Lat……. Long…….
- -//- -G- -29- From 0800 to 1300
- -//- -G- -30- Fixed washing machines
- -//- -G- -31.2- 2000 S + P slop tanks

19. For oil tankers which are fitted with crude oil washing system (COW), besides recording data regarding crude oil washing operations, full personal details of the officer(s) in charge of specific operations shall be recorded at the bottom left-hand side of the pages used for the entries (full name – rank – certificate number – seaman's book number).

20. According to Resolution 15 (TSPP CONFERENCE) "Tanker safety and pollution prevention 1978", the officer who will be in charge of the operation and control of crude oil washing system (COW) must, in advance, among other responsibilities (Training Centre for Merchant Marine Officers certificate, full awareness regarding the content of the "Operation and equipment manual"), have carried out a full washing procedure with crude oil on board the vessel where they are going to sign in or on board another similar vessel (sister ship). At the bottom left-hand side of the page in the oil record book, a relevant entry should be made (as it has already been explained in paragraph 19 above).

21. Master's countersignature. At the bottom right-hand side of the page, the book is countersigned by the master once the page is completed or the voyage has ended.

Pages 77-81

OIL RECORD BOOK (PART II)
OPERATIONS

(A) LOADING OF OIL CARGO

1. Place of loading.
2. Type of oil loaded and identity of tank(s).
3. Total quantity of oil loaded [state quantity loaded in cubic metres at 15° C and the total content of tank(s) in cubic metres].

(B) INTERNAL TRANSFER OF OIL CARGO DURING VOYAGE

4. Identity of tank(s).
  1. From:
  2. To: [state quantity transferred and total quantity of tank(s) in cubic metres].
5. Was (were) the tank(s) in 4.1 emptied? (if not, state quantity retained in cubic metres).

(C) UNLOADING OF OIL CARGO

6. Place of unloading.
7. Identity of tank(s) unloaded.
8. Was (were) the tank(s) emptied? (if not, state quantity retained in cubic metres).

(D) CRUDE OIL WASHING (COW TANKERS ONLY)

(To be completed for each tank being crude oil washed)

9. Port where crude oil washing was carried out or ship's position if carried out between two discharge ports.
10. Identity of tank(s) washed. (1)
11. Number of washing machines in use.
12. Time of start of washing.
13. Washing pattern employed. (2)
14. Washing line pressure.
15. Time washing was completed or stopped.
16. State method of establishing that tank(s) was (were) dry.
17. Remarks. (3)

(E) BALLASTING OF CARGO TANKS

18. Position of ship at start and end of ballasting.
19. Ballasting process:
  1. Identity of tank(s) ballasted.
  2. Time of start and end.
  3. Quantity of ballast received. Indicate total quantity in cubic metres of ballast for each tank involved in the operation.

(F) BALLASTING OF DEDICATED CLEAN BALLAST TANKS (CBT TANKERS ONLY)

20. Identity of tank(s) ballasted.

21. *Position of ship when water intended for flushing, or port ballast was taken to dedicated clean ballast tank(s).*
22. *Position of ship when pump(s) and lines were flushed to slop tank.*
23. *Quantity of the oily water which, after line flushing, is transferred to the slop tank(s) or cargo tank(s) in which slop is preliminarily stored [identify tank(s)]. State the total quantity in cubic metres.*
24. *Position of ship when additional ballast water was taken to dedicated clean ballast tank(s).*
25. *Time and position of ship when valves separating the dedicated clean ballast tanks from cargo and stripping lines were closed.*
26. *Quantity of clean ballast taken on board in cubic metres.*

(G) CLEANING OF CARGO TANKS

27. *Identity of tank(s) cleaned.*
28. *Port or ship's position.*
29. *Duration of cleaning.*
30. *Method of cleaning. (4)*
31. *Tank washings transferred to:*
    1. *In reception facilities (state port and quantity in cubic metres). (5)*
    2. *Slop tank(s) or cargo tank(s) designated as slop tank(s) [identify tank(s); state quantity transferred and total quantity in cubic metres].*

(H) DISCHARGE OF DIRTY BALLAST

32. *Identity of tank(s).*
33. *Time and position of ship at start of discharge into the sea.*
34. *Time and position of ship on completion of discharge into the sea.*
35. *Quantity discharged into the sea in cubic metres.*
36. *Ship's speed(s) during discharge.*
37. *Was the discharge monitoring and control system in operation during the discharge?*
38. *Was a regular check kept on the effluent and the surface of the water in the locality of the discharge?*
39. *Quantity of oily water transferred to slop tank(s) [identify slop tank(s). State total quantity in cubic metres].*
40. *Discharged to shore reception facilities (identify port and quantity involved in cubic metres). (5)*

(I) DISCHARGE OF WATER FROM SLOP TANKS INTO THE SEA

41. *Identity of slop tank(s).*
42. *Time of settling from last entry of residues, or*
43. *Time of settling from last discharge.*
44. *Time and position of ship at start of discharge.*
45. *Ullage of total contents at start of discharge.*
46. *Ullage of oil / water interface at start of discharge.*
47. *Bulk quantity discharged in cubic metres and rate of discharge in cubic metres per hour.*
48. *Final quantity discharged in cubic metres and rate of discharge in cubic metres per hour.*
49. *Time and position of ship on completion of discharge.*
50. *Was the discharge monitoring and control system in operation during the discharge?*
51. *Ullage of oil / water interface on completion of discharge in metres.*

52. Ship's speed(s) during discharge.
53. Was a regular check kept on the effluent and the surface of the water in the locality of the discharge?
54. Confirm that all applicable valves in the ship's piping system have been closed on completion of discharge from the slop tank.

(J) DISPOSAL OF RESIDUES AND OILY MIXTURES NOT OTHERWISE DEALT WITH

55. Identity of tank(s).
56. Quantity disposed of from each tank (state the port and the quantity retained).
57. Method of the disposal:
1. To reception facilities (identify port and quantity involved in cubic metres). (5)
2. Mixed with cargo (state quantity).
3. Transferred to (an)other tank(s); identify tank(s); state quantity transferred and total quantity in tank(s) in cubic metres.
4. Other method (state which); state quantity disposed of in cubic metres.

(K) DISCHARGE OF CLEAN BALLAST CONTAINED IN CARGO TANKS

58. Position of ship at start of discharge of clean ballast.
59. Identity of tank(s) discharged.
60. Was (were) the tank(s) empty on completion?
61. Position of ship on completion if different from 58.
62. Was a regular check kept on the effluent and the surface of the water in the locality of the discharge?

(L) DISCHARGE OF BALLAST FROM DEDICATED CLEAN BALLAST TANKS (CBT TANKERS ONLY)

63. Identity of tank(s) discharged.
64. Time and position of ship at start of discharge of clean ballast into the sea.
65. Time and position of ship on completion of discharge into the sea.
66. Quantity discharged in cubic metres.
1. Into the sea, or
2. To reception facilities (identify port).
67. Was there any indication of oil contamination of the ballast water before or during discharge into the sea?
68. Was the discharge monitored by an oil content meter?
69. Time and position of ship when valves separating dedicated clean ballast tanks from the cargo and stripping lines were closed on completion of deballasting.

(M) CONDITION OF OIL DISCHARGE MONITORING AND CONTROL SYSTEM

70. Time of system failure.
71. Time when system has been made operational.
72. Reasons for failure.

(N) ACCIDENTAL OR OTHER EXCEPTIONAL DISCHARGES OF OIL

73. Time of occurrence.
74. Port or ship's position at time of occurrence.

75. Approximate quantity in cubic metres and type of oil.
76. Circumstances of discharge or escape, the reasons therefor and general remarks.

(O) ADDITIONAL OPERATIONAL PROCEDURES AND GENERAL REMARKS

TANKERS ENGAGED IN SPECIFIC TRADES

(P) LOADING OF BALLAST WATER

77. Identity of tank(s) ballasted.
78. Position of ship when ballasted.
79. Total quantity of ballast loaded in cubic metres.
80. Remarks.

(Q) RE-ALLOCATION OF BALLAST WATER WITHIN THE SHIP

81. Reasons for re-allocation.

(R) BALLAST WATER DISCHARGED TO RECEPTION FACILITY

82. Port(s) where ballast water was discharged.
83. Name or designation of reception facility.
84. Total quantity of ballast water discharged in cubic metres.
85. Date, signature and stamp of port authority official.

****1.** When an individual tank has more machines than can be operated simultaneously, as described in the Operations and Equipment Manual, then the section being crude oil washed should be identified, e.g. No2C, forward section.*
***2.** In accordance with the Operations and Equipment Manual, enter whether single-stage or multi-stage method of washing is employed. If multi-stage method is used, give the vertical arc covered by the machines and the number of times that arc is covered for that particular stage of the programme.*
***3.** If the programmes given in the Operations and Equipment Manual are not followed, then the reasons must be given under Remarks.*
***4.** Hand-hosing, machine washing and/or chemical cleaning. Where chemically cleaned, the chemical concerned and amount used should be stated.*

Pages 82-84

The tables on these pages are already written both in Greek and English.

Page 85

GENERAL QUESTIONS REGARDING THE VESSEL'S INSTALLATIONS

N/T	TASK
63	Sketch the general arrangement of the engine room installation. Mention the machinery inside the engine room and their purpose. What are the operation data of each piece of machinery (e.g. supply, pressure, power, revolutions, etc.)? …… ……

Page 89

N/T	TASK
64	Complete the details of the evaporator on board your vessel. Type and number …… Manufacturer …….. Operation pressure …… Daily fresh water generation (Lt/day) ……
65	Mention all actions required for stopping the evaporator during its operation at full water generation. …… ……

Page 90

N/T	TASK
66	Mention all actions required for operating the evaporator in order to switch from current situation to "OFF". …… ……

Page 91

N/T	TASK
67	Describe the operation of the evaporator in your vessel, using a sketch if you wish. Also, mention the purpose of all instruments that monitor the good operation of the evaporator. …… ……

Page 92

N/T	TASK
68	Describe the reversal system of your vessel. …… ……

Page 93

N/T	TASK
69	What is the viscosity and which measuring method is used on board your vessel? Describe this method. …… ……

Page 94

N/T	TASK
70	Make sure you learn and then describe how water-tightness is achieved at the point where the propeller shaft comes out in the sea (stern tube) and how the shaft is lubricated. …… ……

Page 95

N/T	TASK
71	Mention the type of governor used in the propulsion engine of your vessel. Also, mention the main units of the governor and their purpose. …… ……

Page 96

N/T	TASK
72	Show the calculation of the bunker quantity required for a complete voyage: that is, from the time loading begins to the time that discharging is finished. The voyage is hypothetical and you may calculate as you wish. Also, a safety margin must be included within the quantity of the bunkers. …… ……

Page 97

N/T	TASK
73	Write a Letter of order (requisition) to the owners of your vessel in English, in order to order two items for the purifier. Use the appropriate numbers (code No.) and items you will find in the operation manual. …… ……

Page 99

N/T	TASK
74	Mention the most important features of Diesel oil and Fuel oil. Also, comment on how these affect the operation of the engines. …… ……

Page 100

N/T	TASK
75	Translate the following symbols into Greek: **All the terms used are already written in English.**

Page 102

N/T	TASK
76	What is the critical point for the revolutions of the propulsion engine of your ship? What do you notice when the engine surpasses this point? …… ……

Page 103

N/T	TASK
77	Mention all the units that constitute the steering system of your vessel and then describe the purpose of each unit and how the orders from the bridge are carried out. …… ……

Page 104

N/T	TASK
78	Mention and describe all the units of the refrigeration plant on your vessel using a simple sketch outline. …… ……

Page 106

N/T	TASK
79	Mention the type of oily water separator used on your vessel and describe its operation. …… ……

Page 107

N/T	TASK
80	Sketch the sewage system and mention the wastewater processing carried out on board the vessel. …… ……

Page 108

N/T	TASK
81	Provide a full account of the Engine Control Room, referring to the reasons for which you consider it useful. What other compartments is it connected with and its operation is substituted for? Also, mention whatever you think is useful. …… ……

Page 110

N/T	TASK
82	Study and mention those activities that take place in order to carry out manoeuvres and control the vessel: a. from the Control room b. from the navigation bridge …… ……

Page 111

N/T	TASK
83	Describe the failure alarm system of your vessel. Mention which parameters it is activated by and show how they alert and record danger in case of a failure. …… ……

Page 112

N/T	TASK
84	What are the sensors (instruments) that provide information to the Automatic Control System (A.C.S.) of the main engine? Mention the indications that what the sensors detect range to. …… ……

Page 113

MAIN OR AUXILIARY BOILERS

N/T	TASK
85	Complete the following information regarding the main or the auxiliary boiler. Type and number …… Manufacturer …… Operation pressure …… Steam temperature …… Number of burners …… Steam generation Kgr/Hr …… Use of boiler …… Consumption ……
86	Sketch a middle section of the boiler (main or auxiliary) and describe its operation. …… ……

Page 115

N/T	TASK
87	What is the process of firing a boiler and how is this connected with the circuit? …… ……

Page 116

N/T	TASK
88	Mention what type of glass gauge is used on your vessel and describe its operation. …… ……

Page 117

N/T	TASK
89	Describe the operation of the safety valves on the steam chamber and mention the pressures these are adjusted to. …… ……

Page 118

N/T	TASK
90	Mention the purpose of the exhaust gas analyzer used on your vessel and describe its operation, referring to its type and manufacturer. …… ……

Page 119

N/T	TASK
91	Using a sketch, describe the boiler feed water level control system on your vessel. …… ……

Page 121

N/T	TASK
92	Mention the details of the boiler room control panel (automatic – manual). Sketch the main parts and write down what the purpose of each part is. …… ……

Page 123

N/T	TASK
93	Describe the routine maintenance, as well as any other repair work or inspection of the boiler was carried out during your seagoing service on board the vessel. …… ……

Page 124

ELECTRICAL INSTALLATION

N/T	TASK
94	Fighting a fire in installations which was caused by voltage. Which firefighting means are used and what precautions should be taken? …… ……
95	What kind of first aid should be provided in case of electrocution? …… ……

Page 125

N/T	TASK
96	What are the types of electric current, what is their voltage and what is their use on a vessel? …… ……

Page 126

N/T	TASK
97	What are the sources of generation of various voltages on the vessel? …… ……
98	What are the main characteristics of the vessel's generators (voltage, intensity, frequency, etc.)? …… ……

Page 127

N/T	TASK
99	Mention in detail the system(s) used on your vessel for the generation of direct current (D.C.). …… ……

Page 128

N/T	TASK
100	Which instruments are available on your vessel for measuring the electrical insulation resistance? Mention the type, the model and the manufacturer. …… ……

Page 129

N/T	TASK
101	Describe in detail the procedure for measuring the insulation resistance of the vessel's generators. …… ……

Page 130

N/T	TASK
102	During the examination of the electrical insulation resistance of the coils, is their temperature also measured? Why? …… ……
103	How often is the insulation resistance of the vessel's electrical machinery measured? …… ……

Page 131

N/T	TASK
104	For what reason, apart from avoiding the risk of electrocution, should the coils of the generators be grounded for a certain time period? …… ……
105	Ask the vessel's engineers or the electrician whether there have been any low insulation measurements. If any, what caused them and what measures had been taken for their elimination? …… ……

Page 132

N/T	TASK
106	What are the common causes of damage to the electrical insulations? …… ……

Page 133

N/T	TASK
107	How are electric motors, generators and other appliances on your vessel cleaned so as to maintain electrical insulation at high rates? …… ……
108	What precautions should be taken during the use of dissolvers and why? …… ……

Page 134

N/T	TASK
109	What purpose does the shore-based power supply serve and where is the power supply panel placed? …… ……
110	What necessary measures are taken during the connection of the vessel to the shore-based power supply and who is responsible for this connection? …… ……

Page 135

N/T	TASK
111	Describe the process of connecting a generator to the electrical power distribution network, when another generator is already connected to it, in order to equally share the charge. Pay special attention to the indications on the instruments of the control panel (generator paralleling). …… ……

Page 136

N/T	TASK
112	Describe the process of disconnecting a generator from the electrical power distribution network, while it was in operation at the same time together with another generator. Pay special attention to the indications on the instruments of the control panel (generator deparalleling). …… ……

Page 137

VESSEL WITH A DIESEL ENGINE PROPULSION INSTALLATION
(INTERNAL COMBUSTION ENGINE)

(not to be completed by students who have signed on vessels with a turbine installation)

N/T	TASK
113	Complete the characteristics of the main engine: Type and number …….. Manufacturer …….. R.P.M. …….. Piston diameter …….. Piston stroke ……... Shaft power S.P. (kW) …….. Number of cylinders …….. Oil viscosity …… Type of reducers (if any) …….. Type of thrust bearing ……... Specific fuel consumption (kg/BHP.h or kg/kWh) …… Total oil tank capacity (m^3) ……...
114	Mention the following regarding the exhaust turbocharger of the main engine: a) How it operates b) Why it is fitted in the installation …… ……

Page 139

N/T	TASK
115	Describe in detail the adjustments made to the main engine and the generator. …… ……

Page 141

N/T	TASK
116	Describe in detail, using a sketch if necessary, the cooling-lubrication of pistons. a) with a crosshead and b) without a crosshead …… ……

Page 143

N/T	TASK
117	During the inspection of the main engine or the generator - Which accurate measuring instruments are used for pistons and jackets? - What are the permitted allowances? - What measurements are carried out? (a relative sketch is required to indicate the measurement points) …… ……

Page 145

N/T	TASK
118	Describe under which circumstances the change from heavy fuel to light fuel is carried out. If this is carried out automatically, explain under which circumstances this change takes place and how it is carried out. …… ……

Page 146

N/T	TASK
119	How does the change from light fuel to heavy fuel affect the operation of the main engine? …… ……

Page 147

N/T	TASK
120	Draw a sketch of the starting air mains from the air reservoirs to its input in the cylinders. Provide a detailed description of the mains. …… ……

Page 149

N/T	TASK
121	Describe the exhaust gas examination method. What are the consequences of the various forms of exhaust gases to the main engine power? …… ……

Page 150

N/T	TASK
122	What does pre-ignition mean, how does it affect the operation of the main engine and how is that restored? …… ……

Page 151

N/T	TASK
123	Mention the devices and machinery that are fitted in between the main engine and the propeller. Also, mention for what purpose each one is fitted separately. …… ……

Page 152

N/T	TASK
124	What are the preparations and the necessary conditions for measuring the deflections of the crank cheeks? Carry out a cross examination of the measurements received with the manufacturer's data and mention the methods of treatment obtained from the vessel (if necessary). …… ……

Page 153

N/T	TASK
125	What are the preparations and the necessary conditions for obtaining indicator diagrams? Attach any indicator diagrams you obtained (together with the training officer) on your vessel. How did you calculate the mean pressure (Pm) and what conclusions did you arrive at? …… ……

Page 155

N/T	TASK
126	What routine work is carried out regarding the main engine when preparing for departure (STAND BY) and what routine work is carried out for restoring after arrival (F.W.E.)? …… ……

Page 157

N/T	TASK
127	Mention when and how many inspections or (principal) repairs were carried out in the engine during your seagoing service on board the vessel. …… ……

Page 159

VESSEL WITH A STEAM TURBINE PROPULSION INSTALLATION

(not to be completed by students who have signed on vessels with a diesel engine installation)

N/T	TASK
128	Complete the characteristics of the main engine: Type and number …….. Manufacturer …….. R.P.M. …….. Type and number of boiler(s) …….. Type of reducers ……... Type of thrust bearing …….. Temperature and pressure of boiler's superheated vapour ……... Steam generation (kgr/hr) …….. Number of burners per boiler …….. Oil viscosity …….. Shaft power S.P. (kW) …….. Specific fuel consumption (kgr/shaft kWh) …….. Main steam turbine condenser vacuum (Bar) ……... Total oil tank capacity (m^3) ……... ……
129	Mention the type of the main condenser on your vessel. Describe its operation, as well as the auxiliary machinery and appliances that serve and monitor its normal operation. …… ……

Page 161

N/T	TASK
130	Mention the details of the engine room control panel (automatic-manual). Draw a sketch of its main parts and describe their purpose. …… ……

Page 163

N/T	TASK
131	If blow downs are used in the steam turbine of your vessel, what are they used for and what are their details (pressure, temperature, etc.)? …… ……

Page 164

N/T	TASK
132	Mention the steam de-super heating devices used in the boiler rooms. What is their purpose and how is de-super heating carried out? …… ……

Page 165

N/T	TASK
133	What does “boiler carry over” mean and why could it have destructive effects to steam turbines? …… ……

Page 166

N/T	TASK
134	Provide a sketched layout of the deaerator. What safety arrangements is it fitted with and what is each one of them intended for? …… ……

Page 168

N/T	TASK
135	Mention how many stages the main condenser’s injectors of your vessel have and how they attain the vacuum of the condenser. …… ……
136	What are the main causes of vacuum drop to the main condenser? …… ……

Page 169

N/T	TASK
137	What is the purpose of feed water preheaters? Draw a sketch of the preheaters in the boiler feed water mains (legend). …… ……

Page 171

N/T	TASK
138	Using a sketch, describe the gland water-tightness system of the main turbines (carbon packing). …… ……

Page 173

N/T	TASK
139	What are the details of the steam that enters the generators? What percentage of the boilers' steam-generating capacity is absorbed by generators and what is their corresponding power? …… ……

Page 174

N/T	TASK
140	What routine work is carried out regarding the main turbine when preparing for departure and what routine work is carried out for restoring after arrival (F.W.E.)? …… ……

Page 175

N/T	TASK
141	Describe the routine maintenance as well as any other repair or inspection of the turbine, during your seagoing service on board the vessel. …… ……

CONTENTS

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ΙΔΡΥΜΑ ΕΥΓΕΝΙΔΟΥ
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