



**ФЕДЕРАЛЬНОЕ АГЕНТСТВО МОРСКОГО И РЕЧНОГО ТРАНСПОРТА**  
**ФГБОУ ВО «ГУМРФ имени адмирала С.О. Макарова»**  
**АРКТИЧЕСКИЙ МОРСКОЙ ИНСТИТУТ ИМЕНИ В.И. ВОРОНИНА**  
– филиал Федерального государственного бюджетного образовательного учреждения высшего образования  
«Государственный университет морского и речного флота имени адмирала С.О. Макарова»

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**КОМПЛЕКТ КОНТРОЛЬНО-ОЦЕНОЧНЫХ СРЕДСТВ  
ПО УЧЕБНОЙ ДИСЦИПЛИНЕ**

**ОГСЭ.04 ИНОСТРАННЫЙ ЯЗЫК В ПРОФЕССИОНАЛЬНОЙ ДЕЯТЕЛЬНОСТИ**

**ПРОГРАММЫ ПОДГОТОВКИ СПЕЦИАЛИСТОВ СРЕДНЕГО ЗВЕНА**  
**по специальности**  
**26.02.05 Эксплуатация судовых энергетических установок**

**квалификация**  
**техник-судомеханик**

**АРХАНГЕЛЬСК**  
**2022**

СОГЛАСОВАНО  
Заместитель директора по учебно-методической работе

 Л.Б. Чиркова

« 20 » май 2022 г.

ОДОБРЕНО  
на заседании цикловой комиссии  
инотсранного языка

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« 23 » май 2022 г.

#### РАЗРАБОТЧИК:

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Комплект контрольно-оценочных средств по учебной дисциплине ОГСЭ.04 Иностраный язык в профессиональной деятельности разработан в соответствии с Федеральным государственным образовательным стандартом среднего профессионального образования, утвержденным приказом Министерства просвещения Российской Федерации от 26 ноября 2020 г. № 674 (зарегистрирован Министерством юстиции Российской Федерации 03 февраля 2021 г., регистрационный № 62346) по специальности 26.02.05 Эксплуатация СЭУ, рабочей программой учебной дисциплины для Арктического морского института имени В. И. Воронина, реализующего программы подготовки членов экипажей морских судов, а также с учётом профессиональных компетенций, определённых требованиями МК ПДНВ (Раздел А-III/1 Обязательные минимальные требования для дипломирования вахтенных механиков с обслуживаемым или периодически не обслуживаемым машинным отделением).

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**1. ПАСПОРТ КОМПЛЕКТА КОНТРОЛЬНО-ОЦЕНОЧНЫХ СРЕДСТВ  
ПО УЧЕБНОЙ ДИСЦИПЛИНЕ  
ОГСЭ.04 Иностраный язык в профессиональной деятельности**

**1.1. Область применения контрольно-оценочных средств**

Контрольно-оценочные средства (далее – КОС) являются частью нормативно-методического обеспечения системы оценивания качества освоения обучающимися программы подготовки специалистов среднего звена по специальности 26.02.05 Эксплуатация судовых энергетических установок и обеспечивают повышение качества образовательного процесса.

КОС по учебной дисциплине представляет собой совокупность контролирующих материалов, предназначенных для измерения уровня достижения обучающимся установленных результатов обучения.

КОС по учебной дисциплине используется при проведении текущего контроля успеваемости и промежуточной аттестации обучающихся в виде дифференцированного зачёта.

**1.2. Результаты освоения учебной дисциплины, подлежащие проверке**

Код ПК, ОК, ЛР	Умения	Знания
ПК 2.1	– использовать стандартные фразы ИМО при действиях в чрезвычайных ситуациях (У1);	– стандартных фраз ИМО, используемых при действиях в чрезвычайных ситуациях (З1);
ПК 2.3	– использовать стандартные фразы ИМО при организации различных видов тревог (У2);	– стандартных фраз ИМО, используемых при организации различных видов тревог (З2);
ПК 2.4	– использовать стандартные фразы ИМО при различных авариях (У3);	– стандартных фраз ИМО, используемых при различных авариях (З3);
ПК 2.5	– использовать средства английского языка при оказании первой помощи, в том числе под руководством квалифицированных специалистов с применением средств связи (У4);	– лексики, используемой при оказании первой помощи, в том числе под руководством квалифицированных специалистов с применением средств связи (З4);
ПК 2.6	– использовать стандартные фразы ИМО при оставлении судна (У5);	– стандартных фраз ИМО, используемых при оставлении судна (З5);
ПК 2.7	– использовать стандартные фразы ИМО при предупреждении и предотвращении загрязнения водной среды (У6);	– стандартных фраз ИМО, используемых при предупреждении и предотвращении загрязнения водной среды (З6);
ПК 3.2	– использовать средства английского языка при инструктаже и контроле исполнителей на всех стадиях работ (У7);	– правил построения предложений (З7); – основных общеупотребительных глаголов (бытовая и профессиональная лексика) (З8); – лексического минимума, относящегося к описанию предметов, средств и процессов

		<p>профессиональной деятельности (39);</p> <p>– особенностей произношения (310);</p>
К.2	<p>– использовать английский язык при обслуживании и ремонте оборудования машинного отделения, несении и передаче вахты, докладах о работе главного двигателя и механизмов (У8);</p> <p>– понимать общий смысл произнесённых высказываний на известные темы (профессиональные и бытовые) (У9);</p> <p>– понимать тексты на базовые профессиональные темы (У10);</p> <p>– участвовать в диалогах на знакомые общие и профессиональные темы (У11);</p> <p>– строить простые высказывания о себе и о своей профессиональной деятельности (У12);</p> <p>– кратко обосновывать и объяснять свои действия (текущие и планируемые) (У13);</p> <p>– писать простые связные сообщения на знакомые или интересующие профессиональные темы (У14);</p>	<p>– правил построения предложений (37);</p> <p>– основных общеупотребительных глаголов (бытовая и профессиональная лексика) (38);</p> <p>– лексического минимума, относящегося к описанию предметов, средств и процессов профессиональной деятельности (39);</p> <p>– особенностей произношения (310);</p> <p>– правил чтения текстов профессиональной направленности (311);</p>
ОК 1	<p>– распознавать, коммуникативную задачу в профессиональном и социальном контексте, искать информацию, необходимую для ее решения, выполнять задачу и оценивать результат коммуникативных действий (самостоятельно или с помощью наставника) (У15);</p>	<p>– алгоритмов выполнения и оценки результатов решения коммуникативных задач (312);</p>
ОК 2	<p>– определять необходимые источники информации и структурировать получаемую информацию (У16);</p> <p>– применять средства информационных технологий для решения коммуникативных задач (У21);</p>	<p>– информационных источников, применяемых в профессиональной деятельности (313);</p> <p>– средств информационных технологий, необходимых для решения коммуникативных задач (317);</p>
ОК 3	<p>– планировать и реализовывать собственное профессиональное и личностное развитие (У17);</p>	<p>– возможных траекторий профессионального развития и самообразования (314);</p>
ОК 4	<p>– использовать английский язык при эффективном взаимодействии с коллегами, руководством, клиентами в ходе профессиональной деятельности (У18);</p>	<p>– разговорных фраз для организации эффективного общения с коллегами, руководством, клиентами в ходе профессиональной деятельности (315);</p>
ОК 5	<p>– грамотно излагать свои мысли на государственном языке при выполнении переводов текстов профессиональной</p>	<p>– особенностей перевода технических текстов/сообщений (316);</p>

	направленности (У19);	
ОК 6	– описывать значимость своей специальности (У20);	– лексического минимума, относящегося к описанию предметов, средств и процессов профессиональной деятельности (39);
ОК 09	– понимать общий смысл произнесённых высказываний на известные темы (профессиональные и бытовые) (У9); – понимать тексты на базовые профессиональные темы (У10); – участвовать в диалогах на знакомые общие и профессиональные темы (У11); – строить простые высказывания о себе и о своей профессиональной деятельности (У12); – кратко обосновывать и объяснять свои действия (текущие и планируемые) (У13); – писать простые связные сообщения на знакомые или интересующие профессиональные темы (У14);	– правил построения предложений (37); – основных общеупотребительных глаголов (бытовая и профессиональная лексика) (38); – лексического минимума, относящегося к описанию предметов, средств и процессов профессиональной деятельности (39); – особенностей произношения (310); – правил чтения текстов профессиональной направленности (311);
ЛР 14	– проявлять сознательное отношение к непрерывному образованию в сфере английского языка, как условию успешной профессиональной и общественной деятельности (У22);	– требований ПДНВ к вахтенному механику в сфере английского языка (318); – возможных траекторий профессионального развития и самообразования (319).

Освоение содержания учебной дисциплины обеспечивает достижение обучающимися следующих личностных результатов программы воспитания:

<b>Личностные результаты реализации программы воспитания, определённые отраслевыми требованиями к деловым качествам личности</b>	
<b>Код</b>	<b>Формулировка</b>
<b>ЛР 14</b>	Проявляющий сознательное отношение к непрерывному образованию как условию успешной профессиональной и общественной деятельности

В рамках программы учебной дисциплины обучающиеся должны иметь профессиональные навыки, знать и уметь в соответствии с МК ПДНВ

Функция: Судовые механические установки на уровне эксплуатации (Глава III «Стандарты в отношении машинной команды». Раздел А-Ш/1 «Обязательные минимальные требования для дипломирования вахтенных механиков судов с обслуживаемым или периодически не обслуживаемым машинным отделением». Таблица А-Ш/1 «Спецификация минимального стандарта компетентности для вахтенных механиков судов с обслуживаемым или периодически не обслуживаемым машинным отделением»):

	<b>графа 1</b>	<b>графа 2</b>
<b>Код</b>	<b>Сфера компетентности</b>	<b>Знание, понимание и профессиональные навыки</b>
ПК	Использование английского языка в	Достаточное знание английского

1.17 (К 21)	письменной и устной форме	языка, позволяющее лицу командного состава использовать технические пособия и выполнять обязанности механика
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## 2. КОДИФИКАТОР ОЦЕНОЧНЫХ СРЕДСТВ

Функциональный признак оценочного средства (тип контрольного задания)	Метод/форма контроля
Практическое задание	Практические занятия, дифференцированный зачёт





### 3. СИСТЕМА ОЦЕНКИ ОБРАЗОВАТЕЛЬНЫХ ДОСТИЖЕНИЙ ОБУЧАЮЩИХСЯ ПО КАЖДОМУ ОЦЕНОЧНОМУ СРЕДСТВУ

Оценка индивидуальных образовательных достижений по результатам текущего контроля и промежуточной аттестации производится в соответствии с универсальной шкалой (таблица)

Процент результативности (правильных ответов)	Качественная оценка индивидуальных образовательных достижений	
	балл (отметка)	вербальный аналог
90-100	5	отлично
80-89	4	хорошо
70-79	3	удовлетворительно
менее 70	2	неудовлетворительно

Критерии оценки выполненного практического задания

Оценка 5 («отлично») ставится за работу, выполненную полностью без ошибок и недочётов.

Оценка 4 («хорошо») ставится за работу, выполненную полностью, но при наличии в ней не более одной негрубой ошибки и одного недочёта, не более трёх недочётов.

Оценка 3 («удовлетворительно») ставится, если обучающийся правильно выполнил не менее 2/3 всей работы или допустил не более одной грубой ошибки и двух недочётов, не более одной грубой и одной не грубой ошибки, не более трёх негрубых ошибок, одной негрубой ошибки и трёх недочётов, при наличии четырёх-пяти недочётов.

Оценка 2 («неудовлетворительно») ставится, если число ошибок и недочётов превысило норму для оценки 3 или правильно выполнено менее 2/3 всей работы.

Критерии оценки ответов в ходе устного опроса

Оценивается правильность ответа обучающегося на один из приведённых вопросов.

При этом выставляются следующие оценки:

«Отлично» выставляется при соблюдении обучающимся следующих условий:

– полно раскрыл содержание материала в объёме, предусмотренном программой, содержанием лекции и учебником;

– изложил материал грамотным языком в определенной логической последовательности, точно используя специализированную терминологию и символику;

– показал умение иллюстрировать теоретические положения конкретными примерами, применять их в новой ситуации при выполнении практического задания;

– продемонстрировал усвоение ранее изученных сопутствующих вопросов, сформированность и устойчивость используемых при ответе умений и навыков;

– отвечал самостоятельно без наводящих вопросов преподавателя.

Примечание: для получения отметки «отлично» возможны одна-две неточности при освещении второстепенных вопросов или в выкладках, которые обучающийся легко исправил по замечанию преподавателя.

«Хорошо» - ответ обучающегося в основном удовлетворяет требованиям на оценку «отлично», но при этом имеет один из недостатков:

– в изложении допущены небольшие пробелы, не исказившие логического и информационного содержания ответа;

– допущены один-два недочёта при освещении основного содержания ответа,

исправленные по замечанию преподавателя;

– допущены ошибка или более двух недочётов при освещении второстепенных вопросов или в выкладках, легко исправленные по замечанию преподавателя.

«Удовлетворительно» выставляется при соблюдении следующих условий:

– неполно или непоследовательно раскрыто содержание материала, но показано общее понимание вопроса и продемонстрированы умения, достаточные для дальнейшего усвоения программного материала, имелись затруднения или допущены ошибки в определении понятий, использовании терминологии и выкладках, исправленные после нескольких наводящих вопросов преподавателя;

– обучающийся не справился с применением теории в новой ситуации при выполнении практического задания, но выполнил задания обязательного уровня сложности по данной теме;

– при знании теоретического материала выявлена недостаточная сформированность основных умений и навыков.

«Неудовлетворительно» выставляется при соблюдении следующих условий:

– не раскрыто основное содержание учебного материала;

– обнаружено незнание или непонимание обучающимся большей или наиболее важной части учебного материала;

– допущены ошибки в определении понятий, при использовании терминологии и иных выкладках, которые не исправлены после нескольких наводящих вопросов преподавателя;

– обучающийся обнаружил полное незнание и непонимание изучаемого учебного материала или не смог ответить ни на один из поставленных вопросов по изучаемому материалу.

Критерии оценки выполнения практических работ и индивидуальных (в т.ч. зачётных) заданий:

1. Задание считается выполненным безупречно, если результат практической работы получен при правильном ходе решения задания и аккуратном выполнении.

2. Задание считается невыполненным, если обучающийся не приступил к его выполнению или допустил в нем погрешность, считающуюся, в соответствии с целью работы, ошибкой.

В ходе оценивания выполнения практических и индивидуальных заданий используется пятибалльная система оценок. Положительная оценка («3», «4», «5») выставляется, когда обучающийся показал владение основным умениями в рамках выполнения практической работы или индивидуального задания:

1. «Отлично» выставляется при соблюдении следующих условий:

– обучающийся самостоятельно выполнил все этапы решения задач в рамках выполнения практических и индивидуальных заданий;

– работа выполнена полностью и получен верный ответ или иное требуемое представление результата работы.

2. «Хорошо» выставляется при соблюдении следующих условий:

– работа выполнена полностью, но при выполнении обнаружилось недостаточное владение навыками работы с инструментарием (оборудование, приборы и т.п.) в рамках

поставленной задачи;

– правильно выполнена большая часть работы (свыше 85 %);

– работа выполнена полностью, но использованы наименее оптимальные подходы к решению поставленной задачи.

3. «Удовлетворительно» выставляется при соблюдении следующих условий:

– работа выполнена не полностью, допущено более трёх ошибок, но обучающийся владеет основными навыками работы с инструментарием (оборудование, приборы и т.п.), требуемым для решения поставленной задачи.

4. «Неудовлетворительно» выставляется при соблюдении следующих условий:

– допущены существенные ошибки, показавшие, что обучающийся не владеет обязательными знаниями, умениями и навыками работы на ПК или значительная часть работы выполнена не самостоятельно.

Критерии оценки в ходе экзамена

В основе оценки при сдаче экзамена лежит пятибалльная система (5 «отлично», 4 «хорошо», 3 «удовлетворительно», 2 «неудовлетворительно»).

1. Ответ оценивается на «отлично», если обучающийся исчерпывающе, последовательно, грамотно и логически стройно излагает материал по вопросам билета (теста), не затрудняется с ответом при видоизменении задания, свободно справляется с решением практических задач и способен обосновать принятые решения, не допускает ошибок.

2. Ответ оценивается на «хорошо», если обучающийся твёрдо знает программный материал, грамотно и по существу его излагает, не допускает существенных неточностей при ответах, умеет грамотно применять теоретические знания на практике, а также владеет необходимыми навыками решения практических задач.

3. Ответ оценивается на «удовлетворительно», если обучающийся освоил только основной материал, однако не знает отдельных деталей, допускает неточности и некорректные формулировки, нарушает последовательность в изложении материала и испытывает затруднения при выполнении практических заданий.

4. Ответ оценивается на «неудовлетворительно», если обучающийся не раскрыл основное содержание материала, допускает существенные ошибки, с большими затруднениями выполняет практические задания.

## **4. БАНК КОМПЕТЕНТНОСТНО-ОЦЕНОЧНЫХ МАТЕРИАЛОВ ДЛЯ ОЦЕНКИ УСВОЕНИЯ УЧЕБНОЙ ДИСЦИПЛИНЫ**

### **4.1 Текущий контроль**

#### **4.1.1 ТЕСТОВЫЕ ЗАДАНИЯ**

1. Комплект оценочных заданий №1. Входной контроль.

#### **Тестовое задание № 1**

*Выберите единственный вариант ответ*

**1. В каком из следующих слов звук, передаваемый буквой «о», отличается от остальных?**

a) phone, b) know, c) sorry,

**2. Выберите правильный вариант предложения.**

- a) He likes to watch TV in the evening
- b) He likes in the evening to watch TV
- c) He like to watch TV in the evening.

**3. Выберите правильный артикль:**

... *Jack London is a well-known American writer.*

- a) a;
- b) the;
- c) -

**4. Определите тип вопроса.**

*My father travels a lot, doesn't he?*

- a) альтернативный
- b) разделительный
- c) специальный

**5. Выберите правильную форму существительного.**

*The ..... comes every morning.*

- a) postman
- b) postmen
- c) postmans

**6. Выберите необходимое местоимение.**

*He likes .... profession.*

- a) her
- b) his
- c) its

**7. Выберите правильную форму глагола to be.**

*There ..... books on the shelf.*

- a) is
- b) are
- c) am

**8. Выберите правильную степень сравнения.**

*He is ..... student of our group.*

- a) better
- b) the best
- c) the most best

**9. Выберите правильный предлог.**

*I go ..... the school.*

- a) to
- b) on
- c) at

**10. Выберите правильную форму глагола to have.**

*She ..... a lot of job.*

- a) have
- b) has

**11. Какой вопрос относится к подчеркнутому слову?**

*Mary loves Nick, her neighbour.*

- a) Who loves Nick?
- b) Whom does Mary love?
- c) What is Nick?
- d) Why does Mary love Nick?

**12. Соедините названия англоязычных стран с их столицами:**

- |                  |                     |
|------------------|---------------------|
| 1) The USA       | a) London           |
| 2) Great Britain | b) Canberra         |
| 3) Australia     | c) Washington, D.C. |

**13. Составьте предложения:**

- 1) do the shopping/I/every Saturday/at the market
- 2) has/he/already/this work/done

**Тестовое задание №2****I. Выберите правильный вариант ответа:**

1. *The capital of Russia is...*  
a) Moscow; b) Washington; c) London
2. \_\_\_\_\_ *is the deepest lake in our country.*  
a) Victoria; b) Baikal; c) Ladoga
3. *Moscow was founded (основан) by Yuri Dolgoruky in ...*  
a) 1147; b) 1148; c) 1149
4. *There are many sights in Moscow:*  
a) Red Square; b) the Kremlin; c) the Tretyakov Gallery; d) the British museum
5. *The Bolshoi Theatre is one of the famous theatres in...*  
a) Moscow; b) Arkhangelsk; c) London
6. *The State Moscow University was founded in ...*  
a) 1755; b) 1756; c) 1757
7. *The Moscow Metro began its work on the 15th of May, 19...*  
a) 1935; b) 1936; c) 1937
8. *The 22nd Olympic Games were held in Moscow in 19...*  
a) 1980; b) 1981; c) 1982
9. *The flag of Russia consists of 3 stripes: .....*  
a) white, blue and red; b) black, blue and red; c) black, blue and white
10. *The Kremlin chiming clock is in ...*  
a) the Bell Tower of Ivan the Great; b) the Water Tower; c) the Spasskaya Tower.
11. \_\_\_\_\_ *is the work of the famous Russian architects Barma and Postnik.*  
a) The Kazan Cathedral; b) The Vassily Blazhenny Cathedral; c) The Uspensky Cathedral.
12. *Arkhangelsk was founded by the order of the Russian tsar Ivan IV in ...*  
a) 1693; b) 1584; c) 1755
13. *What Russian tsar does Arkhangelsk owe its origin to?*  
a) Peter I; b) Ivan IV; c) Vasili III
14. *What was the name of the first ship built at the shipyard founded by Peter I?*  
a) «St Paul»; b) «St Peter»; c) « St Catherine»
15. *How many bridges connect the suburbs of Arkhangelsk with the center?*  
a) three; b) two; c) four
16. *What is the largest river of the Arkhangelsk Region?*  
a) the Northern Dvina ; b) the Pinega c) the Mezen
17. *What is the main town of the region?*  
a) Velsk; b) Severodvinsk; c) Arkhangelsk
18. *What is the main industry in Arkhangelsk region?*  
a) textile; b) oil; c) timber

19. *London stands on the river ....*  
 a) the Northern Dvina; b) the Thames; c) Rheine
20. *The capital of the UK of Great Britain and Northern Ireland is ....*  
 a) Scotland; b) London; c) Edinburgh
21. *The UK consists of 4 countries: \_\_\_\_\_, \_\_\_\_\_, \_\_\_\_\_, \_\_\_\_\_.*
22. *The capital of Wales is ...*  
 a) Edinburgh; b) Cardiff; c) Belfast
23. *The symbol of England is ....*  
 a) shamrock; b) thistle; c) red rose
24. *There are many places of interest in London:*  
 a) Trafalgar Square; b) the National Gallery; c) the Spasskaya Tower; d) St. Paul's Cathedral
25. *Big Ben is the name of:*  
 a) the clock tower  
 b) the architect  
 c) the church
26. *Which bridge is in London?*  
 a) Brooklyn Bridge  
 b) Tower Bridge  
 c) Boston Bridge
27. *The Queen lives in:*  
 a) the Tower of London  
 b) the Houses of Parliament  
 c) Buckingham Palace
28. *Buckingham Palace is*  
 a) the Queens Residence;  
 b) the House of Prime Minister;  
 c) the Seat of the British Government.
29. *The Tower of London is*  
 a) the museum now;  
 b) the prison;  
 c) the fortress.
30. *The monument to Admiral Nelson is*  
 a) in Piccadilly Circus;  
 b) in Trafalgar Square;  
 c) in Whitehall.
31. *Westminster Abbey is*  
 a) the museum;  
 b) an old and beautiful church;  
 c) the governmental office.
32. *Oxford Street is*  
 a) famous for its shops;  
 b) the place where government offices are;  
 c) famous for monuments.
33. *Speakers corner is*  
 a) in Green Street;  
 b) in Regents Park;  
 c) in Hyde Park.
34. *St. James Park is*  
 a) near Trafalgar Square;

- b) next to Buckingham Palace;
  - c) the biggest park in London.
35. *London Zoo is*
- a) in Regents Park;
  - b) near Trafalgar Square;
  - c) in Hyde Park.

**II. Соотнесите достопримечательности Лондона с правильным описанием.**

<b>1. The City of London</b>	a. was built after the Great Fire of London.
<b>2. Buckingham Palace</b>	b. is for Queen Elizabeth ' home where she often stays at Christmas and Easter.
<b>3. Trafalgar Square</b>	c. was a fortress, a palace, a prison, a zoo, and now it is a museum.
<b>4. Royal Opera House</b>	d. is where the Queen lives.
<b>5. St Paul's Cathedral</b>	e. was built to remember the battle of Trafalgar.
<b>6. Oxford Street</b>	f. is London's biggest art museum.
<b>7. The National Gallery</b>	g. is the lake in the middle of Hyde Park.
<b>8. Windsor Castle</b>	h. is one of the most famous libraries in the world.
<b>9. Westminster Abbey</b>	i. is Britain's main banking centre.
<b>10. The Speaker's Corner</b>	J. is London's main shopping centre.
<b>11. The Tower of London</b>	k. is in Covent Garden.
<b>12. Regent's Park</b>	l. is famous for its lake as well as for London Zoo.
<b>13. The Serpentine</b>	m. is the largest private collection in the world.
<b>14. The Queen's Gallery</b>	n. is in Hyde Park where anyone can make a speech.
<b>15. The British Museum</b>	o. is famous for the Poet's Corner.

**Тестовое задание № 3**

1. Greenpeace
  - a) Protects people
  - b) Protects the environment
  - c) Protects cities and towns.
2. Pollution is
  - a) good for people
  - b) can kill people
  - c) good for the nature
3. Recycling is
  - a) a computer game
  - b) going on a bicycle again
  - c) using litter again
4. Air pollution is dangerous because
  - a) you can't hear
  - b) you can't see
  - c) you can't breathe.
5. We can help animals if we

- a) put them in the zoo.
  - b) don't kill them
  - c) don't cut down the forests.
6. There will be no air without
- a) fish
  - b) trees
  - c) animals.
7. Litter is
- a) a place
  - b) measure for water
  - c) rubbish
8. What must you do with litter?
- a) drop it
  - b) pick it up
  - c) burn it.
9. Plants
- a) pollute air
  - b) grow in the forest
  - c) grow in the sea.
10. We can help the fish if
- a) we buy an aquarium
  - b) we don't pollute rivers and lakes and oceans
  - c) we save water.

#### Тестовое задание № 4

1. .... you help me with my homework?
- a) may
  - b) can
  - c) need
3. We ..... leave now or we'll be late.
- a) has to
  - b) must
  - c) can
4. Your glass is empty. . . . I refill it ?
- a) will
  - b) must
  - c) shall
5. Well , you . . . .tell me anything if you don't want to.
- a) couldn't
  - b) mustn't
  - c) needn't.
6. ...you speak any foreign language?
- a) may
  - b) can
  - c) should
7. You ... do your homework every day.
- a) must
  - b) have to
  - c) could
8. You have been working for the whole day. You ... have a rest.



- a) should
  - b) ought to
  - c) could
9. .... I have one of these cakes?
- a) may
  - b) must
  - c) have to
10. You ...have left your purse in the bus.
- a) should
  - b) ought to
  - c) could
11. We ...to back home because it started raining.
- a) must
  - b) had to
  - c) will be able to
12. He has a high temperature, he ... visit a doctor.
- a) will have to
  - b) ought to
  - c) could
13. He has bought a car so he ... go on foot any longer.
- a) can
  - b) doesn't have to
  - c) could
14. Children ...respect their parents.
- a) have to
  - b) ought to
  - c) could
15. Soon you ... swim very well.
- a) could
  - b) ought to
  - c) will be able to
16. Must I do this work today? -Yes, you ...
- a) may
  - b) must
  - c) have to

2. Комплект оценочных заданий №2 по Разделу 1. Общение на общепрофессиональные и повседневные темы.

Тема 1.3 Общение в экипаже (Аудиторная работа).

Вариант 1

*1 Прочтите текст, поставьте рядом с номерами пропущенных в тексте слов буквы соответствующих по смыслу слов из списка (одно слово – лишнее):*

I usually get up at a quarter to seven, jump out of bed and do my morning 0\_\_\_\_\_. Then I go to the bathroom, wash myself and clean my teeth with a tooth-brush. This takes me ten or fifteen minutes. Then I dress and sit down to table to 1\_\_\_\_\_ my breakfast - a cup of tea or coffee, an egg, bread and butter. After breakfast I go to the Institute 2\_\_\_\_\_ bus as I live far away.

My lessons begin at 9 o'clock. We have six lessons every day. At twenty past twelve we have a lunch hour at the dining room of our Institute. At ten minutes to three the lessons 3\_\_\_\_\_ over, and I go home if I am not on watch.

When I get home from the Institute, I have dinner, it usually 4\_\_\_\_\_ two courses: some meat or fish and stewed fruit or ice-cream for dessert.

After dinner I help my mother to wash up dishes, then I do my lessons - it usually 5\_\_\_\_\_ me about two hours. At eight or nine o'clock I have supper: some salad, a slice of sausage and bread, sour milk or cereal. If I have free time I listen to music, watch TV or play computer games or go for a walk with my friends.

- a are
- b takes
- c by
- d have
- e consists of
- f ~~exercises~~
- g clean

*Пример оформления ответа: 0 f*

*2 Выберите букву, под которой находится верный вариант пропущенного глагола:*

*Пример оформления ответа: 0 b*

1. There ... no cabins on this deck but there are cabins on the third deck.

- a) is
- b) are
- c) have

2. We usually ... at this port twice a year.

- a) calls
- b) call
- c) are calling

3. Look! The Radio Officer ... the radio.

- a) is repairing  
b) repair  
c) repairs
4. Last year we often ... to the cinema together.  
a) went  
b) had gone  
c) go
5. I ... you in three days.  
a) sees  
b) saw  
c) will see
6. I ... a telegram to the port.  
a) had already sent  
b) have already sent  
c) already sent
7. I will sign the contract if I ... it.  
a) liked  
b) will like  
c) like
8. He ... in the competition yesterday.  
a) took part  
b) take part  
c) takes part
9. We seldom ... the theatre.  
a) are visiting  
b) visit  
c) visits
10. My friend told me that he ... well.  
a) works  
b) will work  
c) worked
11. The pilot ... many questions about the passage.  
a) was asked  
b) were asked  
c) ask
12. The ship ... the channel.  
a) has just entered  
b) have just entered  
c) just enter
13. We ... all the cargo 15 minutes ago.  
a) loaded  
b) has loaded  
c) loading
14. I ... a new book to my friends.  
a) am reading  
b) read

c) reading

15. You ... a new book today.

a) bought

b) buy

c) have bought

Вариант 2

*1 Прочтите текст, поставьте рядом с номерами пропущенных в тексте слов буквы соответствующих по смыслу слов из списка (одно слово – лишнее):*

The Russian Federation is the **0**\_\_\_\_\_ country in the world. It occupies about one-seventh of the earth's surface. It covers the eastern part of Europe and the northern part of Asia. Its total area is about 17 million 1\_\_\_\_\_ kilometres. The country is bordered by 12 seas of 3 oceans: the Pacific, the Arctic and the Atlantic. In the south, Russia 2\_\_\_\_\_ on China, Mongolia, Korea, Kazakhstan, Georgia and Azerbaijan. In the west it borders on Norway, Finland, the Baltic States, Belorussia, and the Ukraine. It also has 3\_\_\_\_\_ with the USA.

There is hardly a country in the world where such a variety of scenery and vegetation can be found. We have steppes in the south, plains and forests in the midland, tundra and taiga in the north, highlands and deserts in the 4\_\_\_\_\_.

There are two great plains in Russia: the Great Russian Plain and the West Siberian Lowland. There are several mountain chains on the country's territory: the Urals, the Caucasus, the Altai and others. The largest mountain chain, the Urals, 5\_\_\_\_\_ Europe from Asia.

a borders

b square

c separates

d washed

e east

f ~~largest~~

g sea-borders

*Пример оформления ответа: 0 f*

*2 К словам из первой колонки подберите правильный перевод терминов по устройству судна из второй колонки*

1 Настил двойного дна	A Steering gear
2 Машинное отделение	B Double bottom plating
3 Палуба надстройки	C Propulsion installation
4 Ахтерпик	D Chain locker
5 Гребное устройство	E Engine room
6 Рулевое устройство	F Poop
	G Afterpeak

*Пример оформления ответа: 0 M*

Вариант 3

*1 Прочтите текст, поставьте рядом с номерами пропущенных в тексте слов буквы соответствующих по смыслу слов из списка (одно слово – лишнее):*

It's hard to imagine our lives without Internet **0** \_\_\_\_\_. It seems that Internet has created a new history and has changed everything around. It is not only used for information, but also for 1 \_\_\_\_\_ communication.

Originally Internet was a military experiment in the USA of 60-s but soon it became clear that everyone in the world can use it.

One of the obvious advantages of Internet is its efficiency. From one side, it's great to have everything right here online, from the other side, it's a shame that people have stopped reading paper books and newspapers. That's because all books or prints can 2 \_\_\_\_\_ online, as well as all films and programs.

You can find the information you're looking for in 5 seconds. Just google it and here is the answer. It is very 3 \_\_\_\_\_ for all people. In spite of all the good sides Internet has, there are some drawbacks. First of all, they are viruses, which can be very 4 \_\_\_\_\_ for any computer. That's why it's good to have reliable anti-virus software installed. And there is a lot of violence and cruelty online. Nevertheless, every day millions of people turn on their computers and start 5 \_\_\_\_\_ the worldwide net, because it's the easiest and quickest way to stay informed.

- a shows
- b surfing
- c convenient
- d dangerous
- e global
- f ~~nowadays~~
- g be found

*Пример оформления ответа: 0 f*

*2 Выберите букву, под которой находится верный вариант пропущенного глагола:*

*Пример оформления ответа: 0 b*

1. There ... a cabin for the Master on the fourth deck between the radio room and the Chief Engineer's cabin.

- a) is
- b) have
- c) are

2. Watch Officer always ... a pilot.

- a) speaking
- b) speaks

- c) speak
3. Look! The ratings ... the deck.
- a) sweeps
  - b) is sweeping
  - c) are sweeping
4. Yesterday I ... my documents.
- a) find
  - b) had found
  - c) found
5. I ... the crew in three days.
- a) will join
  - b) joined
  - c) joins
6. Yesterday in the evening the third mate ... charts.
- a) was correcting
  - b) were correcting
  - c) have corrected
7. I ... a message to the ship's owner.
- a) have just sent
  - b) has just sent
  - c) had just sent
8. I will go to the Institute if I ... well.
- a) am
  - b) will be
  - c) was
9. He ... in sport competition.
- a) took part
  - b) taking part
  - c) take part
10. We often ... abroad together.
- a) goes
  - b) go
  - c) have gone
11. My brother told me that he ... well.
- a) will not study
  - b) does not study
  - c) did not study
12. I ... to my crewmate now.
- a) am speaking
  - b) is speaking
  - c) are speaking
13. The captain ... many questions about the damage of cargo.
- a) were asking
  - b) were asked
  - c) was asked

14. We ... all the cargo yesterday.

- a) loads
- b) loaded
- c) are loading

15. The teacher has already written examples on the blackboard.

- a) have already written
- b) has already written
- c) already written

#### Вариант 4

*1 Прочтите текст, поставьте рядом с номерами пропущенных в тексте слов буквы соответствующих по смыслу слов из списка (одно слово – лишнее):*

Scientists say that in future the average person will live to 90 or 100 with healthier **0** \_\_\_\_\_ and better medical care.

But today we continue to stuff ourselves with fast food. We are always in a 1 \_\_\_\_\_, we have no time to enjoy a home-cooked dinner with family and friends. Chips and pizzas are fattening, cola spoils our teeth and coffee shortens our lives.

If we eat too much, we'll become obese, and obesity leads to heart disease, diabetes and other 2 \_\_\_\_\_ illnesses.

Lack of exercise is another serious problem. We spend hours in front of our computers and TV-sets. Few of us do morning exercises. We walk less, because we 3 \_\_\_\_\_ to use cars or public transport. Research shows, however, that young people who don't take enough exercise often suffer from heart attacks.

Many young people smoke and drink. Cigarette-smoking kills about 3 million people every year. Many of them aren't even smokers but live or work with heavy smokers. Tobacco and drinks companies 4 \_\_\_\_\_ enormous sums of money in advertising their products. For them cigarettes and alcoholic drinks mean money. For us they mean disease and even death.

We all know that the healthier we are, the better we feel. The better we feel, the 5 \_\_\_\_\_ we live. So why not take care of ourselves?

- a serious
- b prefer
- c longer
- d invest
- e repair
- f ~~lifestyles~~
- g hurry

*Пример оформления ответа: 0 f*

*2 Выберите букву, под которой находится верный вариант пропущенного глагола:*

*Пример оформления ответа: 0 b*

1. The engine room ... below the first deck.

- a) is

- b) are  
c) am
2. We often ... to the cinema together.  
a) goes  
b) go  
c) am going
3. Look! It ... .  
a) rains  
b) is raining  
c) raining
4. Two days ago I ... the contract.  
a) signed  
b) was signed  
c) sign
5. I ... the crew in a week.  
a) will meet  
b) met  
c) was meeting
6. Yesterday in the morning he ... English.  
a) was studying  
b) studied  
c) was studied
7. I ... a car.  
a) have just bought  
b) am just buying  
c) just bought
8. I will meet you if I ... time.  
a) will have  
b) have  
c) had
9. Watch Officer ... watch on the bridge.  
a) keeps  
b) keep  
c) are keeping
10. He ... in the meeting.  
a) took part  
b) take part  
c) are taking part
11. He ... to the captain.  
a) is already speaking  
b) has already spoken  
c) already speaks
12. My friend told me that he ... at sea.  
a) is  
b) will be  
c) was



13. The captain ... many questions during the excursion.

- a) were asked
- b) was asked
- c) have asked

14. The dockers ... extraweights on deck last time.

- a) don't load
- b) didn't load
- c) didn't loaded

15. The teacher ... the classroom.

- a) just enters
- b) have just entered
- c) has just entered

#### Вариант 5

*1 Прочтите текст, поставьте рядом с номерами пропущенных в тексте слов буквы соответствующих по смыслу слов из списка (одно слово – лишнее):*

It's hard to imagine our lives without Internet **0**\_\_\_\_\_. It seems that Internet has created a new history and has changed everything around. It is not only used for information, but also for 1\_\_\_\_\_ communication.

Originally Internet was a military experiment in the USA of 60-s but soon it became clear that everyone in the world can use it.

One of the obvious advantages of Internet is its efficiency. From one side, it's great to have everything right here online, from the other side, it's a shame that people have stopped reading paper books and newspapers. That's because all books or prints can 2\_\_\_\_\_ online, as well as all films and programs.

You can find the information you're looking for in 5 seconds. Just google it and here is the answer. It is very 3\_\_\_\_\_ for all people. In spite of all the good sides Internet has, there are some drawbacks. First of all, they are viruses, which can be very 4\_\_\_\_\_ for any computer. That's why it's good to have reliable anti-virus software installed. And there is a lot of violence and cruelty online. Nevertheless, every day millions of people turn on their computers and start 5\_\_\_\_\_ the worldwide net, because it's the easiest and quickest way to stay informed.

- a shows
- b surfing
- c convenient
- d dangerous
- e global
- f nowadays
- g be found

*Пример оформления ответа: 0 f*

*2 Выберите букву, под которой находится верный вариант пропущенного глагола:*

*Пример оформления ответа: 0 b*

1. There ... a cabin for the Master on the fourth deck between the radio room and the Chief Engineer's cabin.
  - a) is
  - b) have
  - c) are
2. Watch Officer always ... a pilot.
  - a) speaking
  - b) speaks
  - c) speak
3. Look! The ratings ... the deck.
  - a) sweeps
  - b) is sweeping
  - c) are sweeping
4. Yesterday I ... my documents.
  - a) find
  - b) had found
  - c) found
5. I ... the crew in three days.
  - a) will join
  - b) joined
  - c) joins
6. Yesterday in the evening the third mate ... charts.
  - a) was correcting
  - b) were correcting
  - c) have corrected
7. I ... a message to the ship's owner.
  - a) have just sent
  - b) has just sent
  - c) had just sent
8. I will go to the Institute if I ... well.
  - a) am
  - b) will be
  - c) was
9. He ... in sport competition.
  - a) took part
  - b) taking part
  - c) take part
10. We often ... abroad together.
  - a) goes
  - b) go
  - c) have gone
11. My brother told me that he ... well.
  - a) will not study
  - b) does not study
  - c) did not study
12. I ... to my crewmate now.

- a) am speaking
- b) is speaking
- c) are speaking

13. The captain ... many questions about the damage of cargo.

- a) were asking
- b) were asked
- c) was asked

14. We ... all the cargo yesterday.

- a) loads
- b) loaded
- c) are loading

15. The teacher has already written examples on the blackboard.

- a) have already written
- b) has already written
- c) already written

#### Вариант 6

*1 Прочтите текст, поставьте рядом с номерами пропущенных в тексте слов буквы соответствующих по смыслу слов из списка (одно слово – лишнее):*

Moscow is the capital of Russia, its political, **0** \_\_\_\_\_, commercial and cultural centre. It was founded 8 centuries ago by Prince Yuri Dolgoruky (1147).

In the 13th century Moscow was the centre of the straggle of Russian lands for the liberation from the tartar yoke. In the 16th century under Ivan the Terrible Moscow 1 \_\_\_\_\_ the capital of the new united state. Though Peter the Great moved the capital to St Petersburg in 1712, Moscow remained the heart of Russia. That is why it became the main target of Napoleon's attack. After the October revolution Moscow became the 2 \_\_\_\_\_ again.

Now Moscow is one of the largest cities in Europe. Its total area is about nine hundred square kilometres. The population of the city is over 9 million.

Moscow is one of the most 3 \_\_\_\_\_ cities in the world. The heart of Moscow is Red Square. The Kremlin and St Basil's Cathedral (Vasily Blazheny) are masterpieces of ancient Russian architecture.

There are a lot of beautiful palaces, old mansions, cathedrals, churches and 4 \_\_\_\_\_ in Moscow.

There are more than 100 museums in Moscow. The largest museums are the Pushkin Museum of Fine Arts and the State Tretyakov Gallery.

Moscow is famous for its theatres. The best-known of them is the Bolshoi Opera House. Drama theatres and studios are also very popular.

There are over 100 higher 5 \_\_\_\_\_ institutions in it. Moscow is the seat of the Russian Parliament (the Duma) and the centre of political life of the country.

- a became
- b beautiful
- c educational
- d monuments

- e repair
- f ~~economy~~
- g capital

*Пример оформления ответа: 0 f*

*2 К словам из первой колонки подберите правильный перевод терминов по устройству судна из второй колонки*

1 Флагшток	A Steering compartment
2 Палуба юта	B Poop deck
3 Котельное отделение	C Boiler room
4 Туннель гребного вала	D Shaft tunnel
5 Переборка ахтерпика	E Afterpeak bulkhead
6 Трюм	F Engine room
	G Flagstaff
	H Hold

*Пример оформления ответа: 0 M*

Вариант 7

*1 Прочтите текст, поставьте рядом с номерами пропущенных в тексте слов буквы соответствующих по смыслу слов из списка (одно слово – лишнее):*

There are over two million **0** \_\_\_\_\_ in Russia. Europe's 1 \_\_\_\_\_ river, the Volga, flows into the Caspian Sea. The main Siberian rivers, the Ob, the Yenisei and the Lena, flow from south to north. The Amur in the Far East 2 \_\_\_\_\_ into the Pacific Ocean.

Russia is rich in beautiful lakes. The world's deepest lake is Russia's Lake Baikal. It is much 3 \_\_\_\_\_ than the Baltic Sea, but there is much more water in it than in the Baltic Sea. The water in the lake is so clear that if you look down you can count the stones on the bottom.

Russia has one-sixth of the world's forests. They are concentrated in the European north of the country, in Siberia and in the 4 \_\_\_\_\_ East.

On the vast territory of the country there are various types of climate, from arctic in the north to 5 \_\_\_\_\_ in the south. In the middle of the country the climate is temperate and continental.

- a country
- b smaller
- c Far
- d subtropical
- e biggest
- f ~~rivers~~
- g flows

*Пример оформления ответа: 0 f*

2 К словам из первой колонки подберите правильный перевод терминов по устройству судна из второй колонки

1 Средняя надстройка	A Midship superstructure
2 Фок-мачта	B Shaft tunnel
3 Грузоподъемное устройство	C Tweendeck
4 Якорное устройство	D Double bottom plating
5 Вторая палуба	E Anchor gear
6 Твиндек	F Fore mast
	G Second deck
	H Cargo handling gear

Пример оформления ответа: **0 M**

Тема 1.4 Типы судов. Устройство судна (Аудиторная работа).

Вариант 1

1 Прочтите текст, поставьте рядом с номерами пропущенных в тексте слов буквы соответствующих по смыслу слов из списка (одно слово – лишнее):

A vessel can be **0**\_\_\_\_\_ according to the purpose she serves.

Vessels that have been designed to transport cargo and passengers are called merchant ships.

Refrigerated-cargo vessels are ships that carry 1\_\_\_\_\_ cargoes, such as meat or fruit. Heavy-load vessels have been designed to lift and carry extremely heavy cargo on the main deck. Tankers carry 2\_\_\_\_\_, gas-carriers transport gas.

Vessels that carry timber can easily be recognized by their tall derricks.

Passenger ships, such as cross-Channel ferries, have been designed to carry passengers and their vehicles on a prearranged route.

Cruise ships have been especially 3\_\_\_\_\_ to carry holidaymakers.

Tugs assist other vessels with entering or 4\_\_\_\_\_ the port.

A salvage vessel is a vessel that rescues other ships and their cargoes from loss at sea.

A buoyage vessel places and maintains buoys.

A survey vessel performs marine research.

Icebreakers are designed to conduct ships through ice.

A dredger 5\_\_\_\_\_ out harbours and ports, fairways, approaches and entrances.

- a leaving
- b perishable
- c oil
- d designed
- e vessel
- f ~~classified~~
- g deepens

*Пример оформления ответа: 0 f*

*2 Выберите букву, под которой находится верный вариант пропущенного глагола:*

*Пример оформления ответа: 0 b*

1. To the right of the ratings' messroom there ... an office.

- a) is
- b) have
- c) are

2. I always ... a pilot.

- a) meeting
- b) meets
- c) meet

3. Look! The engineer ... the compressor.

- a) repairs
- b) is repairing
- c) are repairing

4. Yesterday I ... my passport.

- a) lose
- b) had lost
- c) lost

5. I ... my crew in a month.

- a) will leave
- b) left
- c) leaves

6. Yesterday at 5 I ... a letter to the company.

- a) was writing
- b) were writing
- c) have written

7. the Chief mate ... a telegram to the office.

- a) have just sent
- b) has just sent
- c) had just sent

8. I will meet you if I ... free time.

- a) had
- b) will have
- c) have

9. He ... in the sittings of the committee.

- a) took part
- b) taking part
- c) take part

10. We often ... to the cinema together.

- a) goes
- b) go
- c) have gone

11. My friend told me that he ... not well.

- a) will be

- b) is  
c) was
12. I ... to my mother now.  
a) am speaking  
b) is speaking  
c) are speaking
13. They ... many questions about their shipboard training.  
a) was asking  
b) was asked  
c) were asked
14. The dockers ... cargo properly last time.  
a) does not load  
b) did not load  
c) are loading
15. The engineers ... the engine.  
a) has already stopped  
b) had already stopped  
c) have already stopped
15. The doctor ... to you tomorrow.  
a) have already come  
b) will come  
c) came

#### Вариант 2

*1 Прочтите текст, поставьте рядом с номерами пропущенных в тексте слов буквы соответствующих по смыслу слов из списка (одно слово – лишнее):*

A vessel can be classified according to the purpose she serves.

Vessels that have been designed to 0 \_\_\_\_\_ cargo or/and passengers are called merchant ships. They may be classified as tramps or liners.

Freighters that carry cargoes according to schedules that are not fixed are called 1 \_\_\_\_\_. Homeports, ports of destination, ports of call, ETA's and ETD's differ with every voyage. A liner carries cargoes between two fixed destinations. Her sailing schedule has been prearranged - she has a fixed homeport port of destination and port(s) of call, and fixed ETA's and ETD's (Estimated Times of 2 \_\_\_\_\_ and Estimated Times of 3 \_\_\_\_\_).

Merchant ships may carry general cargoes, bulk cargoes, refrigerated cargoes, heavy cargoes, timber and many more.

General cargo is cargo that has been packed in crates, boxes or 4 \_\_\_\_\_, or cargo coming in pieces (unpacked cargo items). Cargo is loaded and discharged by the vessels own derricks or by shore based cranes.

Bulk cargo is 5 \_\_\_\_\_ cargo of one commodity.

- a bags
- b tramps
- c Departure

- d holds
- e unpacked
- f ~~transport~~
- g Arrival

*Пример оформления ответа: 0 f*

*2 К словам из первой колонки подберите правильный перевод терминов по устройству судна из второй колонки*

1 Флаг	A Funnel
2 Люк	B Main mast
3 Грот-мачта	C Hatch
4 Шлюпочное устройство	D Boat gear
5 Труба	E Anchor gear
6 Цепной ящик	F Flag
	G Wheel house
	H Chain locker

*Пример оформления ответа: 0 M*

Вариант 3

*1 Прочтите текст, поставьте рядом с номерами пропущенных в тексте слов буквы соответствующих по смыслу слов из списка (одно слово – лишнее):*

Cargo ships that carry both general cargo, bulk cargo and containerised cargo are called **0** \_\_\_\_\_ (or multi-loads) vessels. These ships are equipped with a variety of cargo handling gears to load and 1 \_\_\_\_\_ the different types of cargoes.

There are sea-going and harbor tugs. They assist other vessels with entering or 2 \_\_\_\_\_ the port, tow an oil rig to its position or assist with a salvage operation. Their engines must be capable to develop enormous powers. The largest and most powerful tugs are often fitted with Controllable Pitch Propellers (C.P.P).

A salvage vessel is a vessel that 3 \_\_\_\_\_ other ships and their cargoes from loss at sea. She must be equipped with heavy derricks to lift wrecks from the seabed.

A buoyage vessel places and maintains buoys. Her aft deck is flat and provides room to carry or haul in the buoys with her hoisting installation.

A survey vessel performs marine research. She is equipped with oceanographic instruments to carry out all kinds of measurements and assessments.

A supply boat supplies oil rigs with stores, spare parts and supplies for domestic use. Her 4 \_\_\_\_\_ deck must be adjustable. Additional duties may include the towing of rigs and extinguishing fires, for which they must be 5 \_\_\_\_\_ with high-capacity fire-extinguishing pumps.

- a rescues
- b designed
- c leaving



- d hoist
- e discharge
- f ~~multi-purpose~~
- g aft

*Пример оформления ответа: 0 f*

2 К словам из первой колонки подберите правильный перевод терминов по устройству судна из второй колонки

1 Бак	A Deck house
2 Трюм	B Transverse bulkhead
3 Танк двойного дна	C Forecastle
4 Форпик	D Double bottom tank
5 Поперечная переборка	E Hold
6 Рубка	F Tiller room
	G Forepeak
	H Steering compartment

*Пример оформления ответа: 0 f*

Тема 1.5 Экипаж. Работа на борту судна (Аудиторная работа).

1 Прочтите текст, поставьте рядом с номерами пропущенных в тексте слов буквы соответствующих по смыслу слов из списка (одно слово – лишнее):

There are two **0**\_\_\_\_\_ on board modern ships. They are the Deck Department and the Engine Department.

The Deck Department includes navigators, 1\_\_\_\_\_, a boatswain, a doctor and a cook. The Master is responsible for the ship, her cargo and the crew, the safety of the ship. The Chief Officer, the head of the Deck Department, is responsible for cargo. The 2\_\_\_\_\_ is responsible for the crew. The Third Officer is responsible for the navigational instruments. The navigators keep watch on the navigating bridge. They define the ship's position, plot the course on the chart, take bearings, transmit and 3\_\_\_\_\_ radio telegrams, handle navigational instruments, navigate the ship. A Boatswain and sailors are responsible for the ship's hull, 4\_\_\_\_\_ and tackle. A Doctor is responsible for the health of the crew and passengers.

The Engine Department consists of the Chief Engineer, the Second, the Third and the Fourth Engineers, some motormen and electricians. They keep watch in the engine room, maintain, overhaul and 5\_\_\_\_\_ the machinery, lubricate equipment in the engine room.

- a sailors
- b receive
- c Second Mate
- d holds
- e repair
- f ~~departments~~
- g navigates

*Пример оформления ответа: 0 f*

*2 Выберите букву, под которой находится верный вариант пропущенного глагола:*

*Пример оформления ответа: 0 b*

1. On the MV Transitor there ... five decks.

- a) is
- b) have
- c) are

2. Watch Officer usually ... a pilot.

- a) meeting
- b) meets
- c) meet

3. Look! The sailor ... the deck.

- a) sweeps
- b) is sweeping
- c) are sweeping

4. Yesterday I ... my documents.

- a) lose
- b) had lost
- c) lost

5. I ... the crew in two days.

- a) joins
- b) joined
- c) will join

6. Yesterday in the morning I ... charts.

- a) was correcting
- b) were correcting
- c) have corrected

7. I ... a telegram to the port.

- a) have just sent
- b) has just sent
- c) had just sent

8. I will go to the park if the weather ... good.

- a) is
- b) will be
- c) was

9. He ... in the sittings of the committee.

- a) took part
- b) taking part
- c) take part

10. We often ... to the theatre together.

- a) goes
- b) go
- c) have gone

11. My sister told me that she ... not well.  
 a) will be  
 b) is  
 c) was
12. I ... to my friends.  
 a) am speaking  
 b) is speaking  
 c) are speaking
13. The captain ... many questions about the voyage.  
 a) were asking  
 b) was asked  
 c) were asked
14. The dockers ... some extraweights on deck last time.  
 a) loads  
 b) loaded  
 c) are loading
15. The ship ... the port.  
 a) has already entered  
 b) had already entered  
 c) was already entered

Тема 1.7 Предупреждение загрязнения водной среды (Аудиторная работа).

*1 Прочтите текст, поставьте рядом с номерами пропущенных в тексте слов буквы соответствующих по смыслу слов из списка (одно слово – лишнее):*

Co-habiting of millions of different kinds of plant and **0**\_\_\_\_\_ species with humans brings up ecological problems. The most acute are pollution, acid rain, wildlife destruction, shortage of natural resources and global warming.

Nowadays people change habitats of plants and animals to suit their own needs and a **1**\_\_\_\_\_ of species - fish, reptiles, insects, birds, mammals - are disappearing fast.

World temperatures are currently rising every year. This **2**\_\_\_\_\_ is called global warming. As the planet warms up, the water in the oceans will take up more space and water from glaciers and the polar ice caps will start to melt. This could cause sea levels to rise and many habitats will **3**\_\_\_\_\_ under water.

The cause of global warming is attributed to the greenhouse effect - sunlight gives us heat which warms the atmosphere. The air surrounding the earth has become much **4**\_\_\_\_\_ because all the heat can't go back into space. That's why winter and summer temperatures in many places have become higher.

Our planet needs **5**\_\_\_\_\_ - limitations for cutting rainforests and poisonous gas emissions as well as personal ecology of humans.

- a protection
- b warmer
- c lot
- d disappear
- e phenomenon

f ~~animal~~

g closed

*Пример оформления ответа: 0 f**2 К словам из первой колонки подберите правильный перевод терминов по устройству судна из второй колонки*

1 Шлюпочная палуба	A Midship superstructure
2 Палуба ходового мостика	B Upper deck
3 Настил рулевой рубки	C Boat deck
4 Ют	D Forepeak bulkhead
5 Верхняя палуба	E Navigating bridge deck
6 Переборка форпика	F Poop
	G Wheel house top
	H Hold

*Пример оформления ответа: 0 M*

## Тема 1.8 Подготовка к практике (Аудиторная работа).

*1 Прочтите текст, поставьте рядом с номерами пропущенных в тексте слов буквы соответствующих по смыслу слов из списка (одно слово – лишнее):*

It's very important for a good specialist to take efficient training. The cadets of our maritime Institute usually have their practical studies either on board 0 \_\_\_\_\_ vessels or on merchant ships.

The cadets of the Navigation Department will keep 1 \_\_\_\_\_ at the wheel, paint the hull and deck superstructure, masts, wash and scrub decks. They will launch and hoist life-boats, learn how to use life-saving 2 \_\_\_\_\_. They will work in the wheel-house as helmsmen.

Skilled officers will instruct our boys how to handle a sextant and other 3 \_\_\_\_\_ instruments. They will learn how to take bearings of light-vessels, lighthouses, how to define the ship's position on charts.

They must also know how to use echo-sounders, logs, finders.

The cadets of the Engine 4 \_\_\_\_\_ will learn how to maintain the engine, how to lubricate and repair the equipment.

All the cadets must work hard to master their profession and also do their 5 \_\_\_\_\_ to improve English.

a watch

b navigational

c Department

d holds

e best

f ~~training~~

g appliances

*Пример оформления ответа: 0 f*

*2 Выберите букву, под которой находится верный вариант пропущенного глагола:*

*Пример оформления ответа: 0 b*

1. There ... three rooms on the first deck: the galley, the laundry and the storeroom.

- a) are
- b) is
- c) have

2. We often ... the engine.

- a) is repairing
- b) repair
- c) repairing

3. Look! The sailors ... the walls now.

- a) are painting
- b) paint
- c) paints

4. A day ago I ... my new crew.

- a) will join
- b) join
- c) joined

5. He ... back home in a week.

- a) came
- b) will come
- c) are coming

6. Yesterday in the morning we ... English books.

- a) was reading
- b) were reading
- c) read

7. I ... a car.

- a) was just renewed
- b) just renew
- c) have just renewed

8. I ... many questions about my job.

- a) am asked
- b) are asked
- c) has asked

9. The teacher ... the classroom.

- a) has already left
- b) have already left
- c) already left

10. He never ... to the captain.

- a) speaks
- b) speak
- c) speaking

11. He ... in the meeting.
- a) is taking part
  - b) are taking part
  - c) am taking part
12. ... the dockers load extraweights on deck last time?
- a) Do
  - b) Did
  - c) Have
13. The captain ... many questions during the excursion.
- a) were asking
  - b) were asked
  - c) was asked
14. My friend told me that he ... busy.
- a) was
  - b) been
  - c) were
15. She ... grammar to him.
- a) has just explained
  - b) have just explained
  - c) had just explained.

## 4.1.2. ПРАКТИЧЕСКАЯ РАБОТА

Комплект оценочных заданий №4 (Аудиторная практическая работа обучающихся).

Тема 1.1 Английский язык в профессиональной деятельности

1. Учебник английского языка для моряков (Китаевич Б.Е), стр.24. Урок 3. Правила чтения:

*Упр. 1 – произнесите звуки, а затем транскрипции слов.**Упр.2, стр.25 – прочитайте слова согласно правилам чтения.*

2. Прочтите.

- |                       |                           |                          |                       |                                    |
|-----------------------|---------------------------|--------------------------|-----------------------|------------------------------------|
| 1. In                 | 1. Let                    | 1. We sit                | 1. Say                | 1. Yak                             |
| 2. Win                | 2. Lit                    | 2. He bet                | 2. If I may say       | 2. Yam                             |
| 3. Wine               | 3. Lite                   | 3. Eat it                | 3. My family          | 3. Do you understand?              |
| 4. Sine               | 4. Ten men                | 4. It's twenty feet      | 4. Kate's cat         | 4. Not yet                         |
| 5. Is                 | 5. Teen                   | 5. Did he leave?         | 5. Kate's cat is fast | 5. Is she American?                |
| 6. It is his          | 6. Week                   | 6. Please repeat         | 6. Cash               | 6. She likes cheese                |
| 7. Nine times         | 7. See me                 | 7. Fat                   | 7. She                | 7. Chin                            |
| 8. My wife            | 8. We need                | 8. Mat                   | 8. She likes fish     | 8. Shin                            |
| 9. Try it             | 9. Eat                    | 9. At                    | 9. We wish            | 9. Such                            |
| 10. Tin               | 10. East                  | 10. Ate                  | 10. Action            | 10. Cheer up!                      |
| 11. Ten               | 11. Fifty                 | 11. Late                 | 11. Fiction           | 11. Book                           |
| 12. Set               | 12. Sixty                 | 12. Lay                  | 12. Tension           | 12. Shook                          |
| 13. Net               | 13. He is                 | 13. Stay                 | 13. She's my wife     | 13. Look at him!                   |
| 14. Life              | 14. He's                  | 14. We can stay          | 14. She's shy         | 14. Can we eat lunch?              |
| 15. Left              | 15. He's fifteen          | 15. Ten days             | 15. Why?              | 15. She can cook fish<br>and chips |
| 16. Five miles        | 16. He'd                  | 16. I hate my hat        | 16. Why mention it?   | 16. It's not much                  |
| 17. Mister            | 17. He'd like wine.       | 17. We have six cats     |                       | 17. But it's cheap                 |
| 18. Mr.               | 18. Please                | 18. My cat sat in my hat |                       | 18. Good-bye!                      |
| 19. Mrs.              | 19. We'd like tea, please | 19. He's bad             |                       |                                    |
| 20. Mrs. Mike is fine | 20. Hi, miss!             | 20. May be               |                       |                                    |
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- |                |                         |                            |                         |                        |
|----------------|-------------------------|----------------------------|-------------------------|------------------------|
| 1. It          | 1. Dish                 | 1. Boat                    | 1. Us                   | 1. Sheep               |
| 2. Kit         | 2. It's his dish        | 2. Note                    | 2. He understands us    | 2. Cheap               |
| 3. Sit         | 3. We have six fish     | 3. Not                     | 3. Meet me at the hotel | 3. Don't cheat!        |
| 4. Fix         | 4. We read fiction      | 4. It's not on East Street | 4. Welcome              | 4. By hook or by crook |
| 5. Six         | 5. Mop                  | 5. No, we won't go         | 5. Yes                  | 5. In cash, please     |
| 6. Fin         | 6. Hop                  | 6. But                     | 6. Yesterday            | 6. Cop                 |
| 7. I           | 7. Stop and shop        | 7. Cup                     | 7. Yellow               | 7. Cope                |
| 8. Fine        | 8. Tot                  | 8. Grow up!                | 8. The sun is yellow    | 8. Can't               |
| 9. Fin/fine    | 9. Tote                 | 9. Six hundred             | 9. Use                  | 9. Cent                |
| 10. Nine       | 10. Mope                | 10. We must eat            | 10. Us/use              | 10. Lace               |
| 11. Site       | 11. No                  | 11. A lot                  | 11. Muse                | 11. A nice face        |
| 12. My         | 12. Road                | 12. Some wine              | 12. Fuse                | 12. I need some peace  |
| 13. By         | 13. Coat                | 13. Come in                | 13. You                 | 13. Try the wine       |
| 14. Kite       | 14. Goat                | 14. He needs money         | 14. Excuse me, miss     | 14. It's good          |
| 15. Miss       | 15. Blow                | 15. Does she like him?     | 15. Pay attention!      | 15. She took a trip    |
| 16. Did        | 16. Grow                | 16. We like the wine       | 16. Don't confuse me!   | 16. She's in the city  |
| 17. Bit        | 17. Hello               | 17. It's a hundred         | 17. We have a used car  | 17. He's at the Cape   |
| 18. Bite       | 18. Don't               | 18. He's American          | 18. It's cute           |                        |
| 19. Big bite   | 19. Please don't go     |                            |                         |                        |
| 20. I like Ike | 20. We won't mention it |                            |                         |                        |
|                | 21. It's not bad        |                            |                         |                        |
|                | 22. I hope not          |                            |                         |                        |
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- |                                    |                                |         |
|------------------------------------|--------------------------------|---------|
| 1. This is Tom Small               | 1. A diller, a dollar          | 1. Cook |
| 2. But he's not small – he's tall! | 2. His feet wont pitter-patter | 2. Look |

- |   |                                   |                            |
|---|-----------------------------------|----------------------------|
| 3. His wife is Pam Small                    | 3. My dentist has good manners    | 3. "I am not a crook."     |
| 4. And this is the Small family             | 4. Don't be silly                 | 4. Case                    |
| 5. The Smalls family is a big family        | 5. The men liked this dish        | 5. Cease                   |
| 6. The Smalls have five children            | 6. We wined and dined             | 6. Shall we dance?         |
| 7. The Small children are little            | 7. Her husband worked at home     | 7. It's a cinch            |
| 8. But Mr. Small is big                     | 8. The beggar wished to be rich   | 8. The                     |
| 9. The Small family has big Smalls          | 9. He needed money                | 9. Then                    |
| 10. And little Smalls                       | 10. He wanted it                  | 10. This                   |
| 11. The small family needs a big car        | 11. The ice melted                | 11. That's my hotel        |
| 12. Pleased to meet you, Mr. and Mrs. Small | 12. I counted sheep               | 12. It's over there        |
|   | 13. To get to sleep               | 13. Thanks                 |
|   | 14. His wife waited for us        | 14. I think so             |
|   | 15. The teacher repeated the word | 15. He's with me           |
|   |                                   | 16. We have three children |
|   |                                   | 17. That's a lot           |

2. *Ознакомьтесь с требованиями ПДНВ в сфере английского языка к вахтенному механику, Таблица А-III/1. Обсудите в парах средства изучения языка, доступные для личностного развития и освоения профессиональных навыков.*

3. *Образовать предложения в повелительном наклонении.*

1. Ms Smith (explain grammar to her pupils)
2. Jane (read an interesting book)
3. Pete (write a test)
4. Jack (do his homework)
5. I (paint the wall)
6. Grandma (knit)
7. Boy (play the computer game)
8. They (play the ball)
9. She (dance)
10. He (play the guitar)
11. We (watch TV)
12. Nelly (sunbathe)
13. John (play the computer game)
14. Jane (sing a song)
15. You (feed the pigeons)
16. Your son (have a bath)

4. Учебник английского языка для моряков (Китаевич Б.Е):

стр.12 -Грамматические пояснения о неопределенном артикле,

стр.19 -Грамматические пояснения об определенном артикле.

Стр.357-359 – изучить и законспектировать сравнительную таблицу употребления артиклей с существительными в единственном числе, таблицу употребления определенного артикля с именами собственными, а также рассмотреть случаи, когда артикль не употребляется (таблица 7).

5. Учебник английского языка для моряков (Китаевич Б.Е), стр.71-76. Составить «Опорный конспект». На листе формата А4 оформить конспект «The Present Indefinite Tense», в котором нет текста, а информация представлена отдельными словами, условными знаками, схематичными рисунками, стрелками, расположением единиц информации относительно друг друга.



6. *Перефразируйте следующие предложения, употребляя притяжательный падеж.*

1. Our manager's office is very big.
2. They will consider Mr. Black's proposals at their next meeting.
3. This is, in the critics' opinion, their best record for years.
4. Tom and Helen's computer is modern.
5. We have not yet received the buyers' answer.
6. Our Commercial Director's working day begins at 9 o'clock in the morning.
7. Do you know the Petrovs' telephone number?
8. My husband knows a lot about Agatha Christie's detective novels.
9. She put the boys' wet boots near the stove.

7. *Поставьте выделенные курсивом существительные в форму единственного числа. Если необходимо, измените предложения.*

1. This factory produces *furniture*.
2. The *wife* of the sailor came to the shore.
3. I have hurt my *foot* and hand.
4. In the farmyard we could see *an ox, a sheep, a cow, and a goose*.
5. Does your *tooth* still ache?
6. This is my friend's *study*.
7. He keeps his *toy* in the *box*.
8. This *lady* is that *gentleman's wife*.
9. The *child* is sitting on the bench.

8. *Обменяйтесь информацией о целях изучения языка, об использовании языка в профессиональной деятельности, способах его изучения со своими товарищами (в парах).*

## Тема 1.2 Предоставление и получение личной информации

1. Китаевич Б.Е., Сергеева М.Н., Каминская Л.И., Вохмянин С.Н. Учебник английского языка для моряков// М., "Росконсульт", 2017. (ЭБС «Лань»): выполнить упр. 31 на стр.84. Ответить на вопросы и суммировать ответы.
2. Рассказать о своей семье. Расспросить товарища о его семье.
3. Китаевич Б.Е., Сергеева М.Н., Каминская Л.И., Вохмянин С.Н. Учебник английского языка для моряков// М., "Росконсульт", 2017. (ЭБС «Лань»). Воспроизвести диалог из задания 7 на стр. 316
4. Китаевич Б.Е., Сергеева М.Н., Каминская Л.И., Вохмянин С.Н. Учебник английского языка для моряков// М., "Росконсульт", 2017. (ЭБС «Лань»). Написать лексический диктант по названиям стран, национальностей и языков по таблице на стр. 375.
5. Назвать на английском ряд количественных и порядковых числительных.
6. Китаевич Б.Е., Сергеева М.Н., Каминская Л.И., Вохмянин С.Н. Учебник английского языка для моряков// М., "Росконсульт", 2017. (ЭБС «Лань»). Сделать упр.24 на стр.65.
7. Рассказать о российских праздниках.

8. Гогина, Н. А. Практическая грамматика английского языка для моряков. Рабочая тетрадь / Н. А. Гогина. - 3-е изд. - Москва: Транслит, 2016. - 224 с.: выполнить упр.7-9 на стр.15. (The Special Question)
9. Гогина, Н. А. Практическая грамматика английского языка для моряков. Рабочая тетрадь / Н. А. Гогина. - 3-е изд. - Москва: выполнить упр. 3-4 на стр.20 (Глагол to be)
10. Гогина, Н. А. Практическая грамматика английского языка для моряков. Рабочая тетрадь / Н. А. Гогина. - 3-е изд. - Москва: выполнить упр.5-9 на стр.33-35 (Глагол to have).

### Тема 1.3 Общение в экипаже

#### **1. В следующих предложениях измените время глагола на Present Perfect. Переведите предложения на русский язык.**

1. The pupils are writing the dictation. 2. My friend is helping me to solve a difficult problem. 3. I am learning a poem 4. She is telling them an interesting story. 5. Kate is sweeping the floor. 6. The waiter is putting a bottle of lemonade in front of him. 7. I am eating my breakfast. 8. We are drinking water. 9. He is bringing them some meat and vegetables. 10 You are putting the dishes on the table.

2. *Составьте словосочетания, используя since и for. Придумайте предложения с некоторыми из них.*

1. last summer. 2. ... 1995. 3. ... a long time; 4. ... last month; 5. ... two weeks; 6. ... 2 March; 7. ... two hours; 8. ... 1975; 9. ... six days; 10. ... a month; 11. two years; 12. ... three days; 13. ... ten minutes; 14. ... three hundred years; 15. ... Wednesday; 16. ... seven days; 17. ...three o'clock. 18. ... 18 September; 19. ... my last birthday; 20. ... a century; 21. ... 2001.

3. *Раскройте скобки и поставьте глаголы в Present Perfect.*

1. John (write) his name. 2. I (draw) a picture. 3. Tom (blow out) the light. 4. The cat (drink) its milk. 5. The tree (fall) across the road. 6. John (give) his bicycle to his brother. 7. You (make) a mistake. 8. We (eat) our dinner. 9. The train just (go). 10. I just (tell) the answer. 11. George never (be) in Australia. 12. John and Richard just (go away). 13. The baker (sell) all his cakes. 14. I (read) this book.

4. *Раскройте скобки, употребляя глаголы в Past Perfect.*

1. By twelve o'clock our English teacher (to examine) all the pupils. 2. I remembered that I (to drink) all the milk yesterday. 3. By ten o'clock yesterday I (to learn) the poem by Byron. 4. When Elizabeth came home yesterday she saw that her little sister (to break) her favorite doll. 5. Oliver (to finish) his English test by eleven o'clock. 6. I (to guess) that I (to lose) the road in the fog.

5. *Раскройте скобки, выбирая в каком времени употреблен глагол (Past Indefinite или Past Perfect)*

1. When Billy (to come) home, his wife already (to cook) lunch. 2. Julia (to give) me the scarf that she (to buy) yesterday. 3. Kevin (to show) his mother the composition which he (to write) yesterday. 4. Jessica (to return) from the theatre by 9 o'clock. 5. Josh (not to leave) home by 8 o'clock. 6. Yesterday I (to find) the ring that I (to lose) last week. 7. Inna (to tell) me that she (to

attend) an imposing play. 8. When Billy (to wake up) yesterday his parents already (to go) to work. 9. When Mary (to come) home, her granny already (to cook) dinner. 10. Millie (to think) that she (to lose) her purse.

**6. Изучите разговорные фразы. Используйте их для моделирования диалогов по темам: За столом, занятия в свободное время, здоровый образ жизни.**

**ADDRESS ОБРАЩЕНИЯ**

Mr. Brown Господин Браун  
Mrs. Brown Госпожа Браун (замужняя женщина)  
Ms. Brown, Miss Brown Госпожа Браун (незамужняя женщина)  
Sir Сэр  
Ladies and Gentlemen Дамы и господа!  
Excuse me, please! Извините!  
Dear friends! Дорогие друзья!

**GREETINGS ПРИВЕТСТВИЯ**

Good Morning. Morning. Доброе утро!  
Good day! Добрый день!  
Good afternoon. Good evening! Добрый вечер!  
How do you do? Hello. Hi. Здравствуйте!  
Welcome! Добро пожаловать!  
How are you? Как поживаете?  
How are you feeling? Как Вы себя чувствуете?  
I hope you are feeling well. Надеюсь, Вы себя хорошо чувствуете.  
Not too well, I'm afraid. К сожалению, не очень хорошо.  
How are you getting on? Как поживаешь?  
How have you been keeping? Как Вы поживаете?  
How is everything? Как дела?  
Pretty fair, thank you. And what about you? Хорошо, спасибо. А как Вы?  
Fine, and how are you? Хорошо, а Вы?  
So-so. Так себе.  
Not too bad. Неплохо.

**PARTING ПРОЩАНИЕ**

I must be going. Мне надо идти.  
Good-bye. До свидания.  
Bye for now. Пока.  
See you soon. До встречи.  
So long. До скорого свидания.  
See you again. До скорого свидания.  
See you later. До скорого свидания.  
Cheerio! Пока!  
All the best. Всего наилучшего.  
Good luck! Удачи!  
Give my regards to Mrs. Brown. Передайте привет госпоже Браун.  
My love to Olga. Передайте привет Ольге, (менее официально)  
I hope to see you soon. Надеюсь вскоре встретиться.  
I'll call you later. Позвоню.  
Have a comfortable journey! Счастливого пути!  
Keep well! Не болей. Будь здоров.  
Till we meet again. До новых встреч.  
Write to us. Пишите нам.  
Here's my address. Вот мой адрес.  
Take it for a keepsake. Возьмите это на память.

**THE FIRST MEETING ПЕРВАЯ ВСТРЕЧА**

Do you speak English? Вы говорите по-английски?

A little. Немного.  
 I understand English but I cannot speak it. Я понимаю по-английски, но не могу говорить.  
 I can read it, but I can't speak it. Я могу читать, но не могу говорить (по-английски).  
 I can read English fairly well. Я довольно сносно читаю по-английски.  
 I don't get enough practice in actual speaking. У меня нет достаточной практики по разговорному языку.  
 I can just make myself understood. Я могу объясняться настолько, что меня понимают.  
 Let me introduce Mr. Brown. Позвольте представить господина Брауна, (официально)  
 Meet Olga. Познакомьтесь с Ольгой.  
 Glad to meet you. Nice to meet you. Рад(а) познакомиться.  
 We've met before. Мы встречались раньше.  
 I know you. Я знаю Вас.

### **A BUSINESS VISIT ДЕЛОВОЙ ВИЗИТ**

Is Mr. Brown in? Господин Браун на месте?  
 Is Mrs. Brown in? Госпожа Браун на месте?  
 What's his business? Чем он занимается?  
 What's your line? Какая у Вас специальность?  
 What are his business hours? В какое время он работает?  
 I've come on business. Я пришел по делу.  
 He is busy at the moment. В данный момент он занят.  
 Would you mind waiting? Вы можете подождать?  
 Will he be long? Он долго будет занят?  
 I can wait. Я могу подождать.  
 Could I speak to you? Можно поговорить с Вами?  
 I won't keep you long. Я не задержу Вас долго.  
 Have a seat. Садитесь.  
 I am sorry I am pressed for time. Извините, но у меня мало времени.  
 I am in a hurry. Я спешу.  
 I have a proposal to you. У меня есть предложение.  
 We'd like to get a credit. Мы бы хотели получить кредит.  
 We'd like to set up a joint venture. Мы бы хотели создать совместное предприятие.  
 We'd like to discuss the project. Мы бы хотели обсудить проект.  
 We shall discuss the terms of payment. Мы обсудим условия платежей.  
 He wants to contact your boss. Он хочет связаться с Вашим начальником.  
 We have fixed an appointment for 10.30. Мы назначили встречу на 10.30.  
 The manager will consult you on a matter of business. Управляющий посоветуется с Вами по делу.  
 Mr. Daily will handle the business. Мистер Дейли будет заниматься этим делом.  
 Mind your own business. Занимайтесь своим делом.  
 Business before pleasure. Сначала дело, потом развлечения.  
 Everybody's business is nobody's business. Всеобщее дело - ничье дело.

### **PROBABILITY AND IMPROBABILITY ВЕРОЯТНОСТЬ И НЕВЕРОЯТНОСТЬ**

Do you think it'll be warm tomorrow? Ты думаешь, завтра будет тепло?  
 I think so. Я думаю - да.  
 I don't think so. Я так не думаю.  
 Highly probable. Очень вероятно.  
 Most likely. Вероятно.  
 Quite probable. Вполне вероятно.  
 Quite likely. Вполне вероятно.  
 Not unlikely. Весьма возможно.  
 Not improbable. Весьма возможно.  
 Very possible. Очень возможно.  
 Probably. Вероятно.  
 Probably not. Вероятно, нет.  
 Likely. Возможно.  
 Possibly. Возможно.  
 Perhaps. Возможно.  
 It looks as if you are right. Похоже, что Вы правы.  
 Maybe. Может быть.  
 It looks like it. Похоже на то.  
 There's a chance that the train will be late. Не исключена возможность, что поезд опоздает.

Most unlikely. В высшей степени маловероятно.  
 Incredible! Невероятно!  
 That's very unlikely. Вряд ли.  
 I doubt it. Я сомневаюсь.

### ADVICE СОВЕТ

I advise you to keep to the point. Советую Вам - не отклоняйтесь от темы.  
 You should take a bus. Вам следует сесть на автобус.  
 You'd better spend the weekend with us. Вам бы лучше провести выходные с нами.  
 Be sure to come to see us tonight. Обязательно заходите сегодня вечером.  
 Take it easy. Смотрите на вещи проще.  
 Don't hurry. Не спешите.  
 Don't worry. Не волнуйтесь.  
 Take it easy. Не обращайтесь внимания.  
 There is no need to take this medicine. Нет необходимости принимать это лекарство.  
 I think you should go to bed. Я думаю, что Вам следует лечь спать.  
 I don't think you should spend so much money. Я не думаю, что Вам следует тратить столько много денег.  
 If I were you I'd work harder. Если бы я был на Вашем месте, я бы работал больше.  
 If I were you, I would not ask such questions. Если бы я был на Вашем месте, я бы не задавал таких вопросов.  
 If I were in her place, I would be more polite. Если бы я был на ее месте, я бы был более вежлив.  
 I advise you not to waste time. Я советую Вам не тратить время зря.  
 Don't be rude to a policeman. Не будьте грубыми с полицейским.

### TROUBLES НЕПРИЯТНОСТИ

He got into trouble. Он попал в беду.  
 I got into a fix. Я оказался в затруднительном положении.  
 Trouble's brewing. Будут неприятности.  
 Asking for trouble, eh? Напрашиваешься на неприятности, да?  
 You've asked for it... Ты сам лез на рожон ...  
 Don't let me catch you doing that again. Чтоб больше этого не было - не то смотри у меня ...  
 A nice kettle of fish! Хорошенькое дело!  
 He kicked up a shindy. Он поднял шум.  
 Keep away from him, he's got it in for you. Держись от него подальше: у него зуб на тебя.  
 You dare utter a word! Поговори у меня!  
 You'll catch it. Ты еще получишь.  
 You're in for it. Ну и попадет же тебе!  
 I'll teach him a lesson. Я его проучу.  
 He's on the war-path. Он в воинственном настроении.  
 Look sharp! Смотрите в оба!  
 Beware! Остерегайтесь! Осторожно!  
 Take care! Осторожно!  
 Softly. Осторожно!  
 Look out. Осторожно.  
 Be careful. Осторожно.  
 Watch your head. Осторожно, не стукнитесь головой.  
 Watch your step. Не упадите.  
 Hold tight. Держитесь крепче.  
 Mind your heads! Берегите головы!  
 There, now! Didn't I tell you! Вот видите! Я же Вам говорил!  
 Troubles never come alone. Беда одна не приходит.

### PARTING ПРОЩАНИЕ

I must be going. Мне надо идти.  
 Good-bye. До свидания.  
 Bye for now. Пока.  
 See you soon. До встречи.  
 So long. До скорого свидания.  
 See you again. До скорого свидания.  
 See you later. До скорого свидания.  
 Cheerio! Пока!  
 All the best. Всего наилучшего.

Good luck! Удачи!  
 Give my regards to Mrs. Brown. Передайте привет госпоже Браун.  
 My love to Olga. Передайте привет Ольге. (менее официально)  
 I hope to see you soon. Надеюсь вскоре встретиться.  
 I'll call you later. Позвоню.  
 Have a comfortable journey! Счастливого пути!  
 Keep well! Не болей. Будь здоров.  
 Till we meet again. До новых встреч.  
 Write to us. Пишите нам.  
 Here's my address. Вот мой адрес.  
 Take it for a keepsake. Возьмите это на память.

### **SURPRISE УДИВЛЕНИЕ**

To my surprise I like the sound of traffic. К моему удивлению, мне нравится звук транспорта.  
 She gave a cry of surprise. Она вскрикнула от удивления.  
 I was flabbergasted. Я был поражен. Я был изумлен.  
 Talk of the devil. Легко на помине!  
 Weill. Да ну! Подумайте!  
 Why? Неужели?  
 Oh, is that so? Разве?  
 Really? Действительно?  
 Never! Конечно, нет!  
 Well, I never! Look who's here! Вот тебе на! Посмотри-ка, кто пришел!  
 Dear me! Вот так так! Ну и ну!  
 I say! Вот так так! Ну и ну!  
 Good God! Боже! Боже мой!  
 Goodness gracious! Господи, боже мой! Батюшки!  
 Good heavens! Боже! Боже мой!  
 They sprang a surprise on him. Они преподнесли ему сюрприз.  
 The news was sprung upon me. Новость застала меня врасплох.  
 That was an eye-opener for me. Это открыло мне глаза. Это было для меня совершенной неожиданностью.  
 Just think! Подумать только!  
 Just imagine! Подумать только!  
 Fancy your knowing him! Вы знаете его? Подумать только!  
 It's a small world. Мир тесен. Как тесен мир! (при встрече)  
 Just fancy! That made him sit up! Можете себе представить! Это его хорошенько встряхнуло!  
 Did you ever hear the like? Слыхали ли Вы что-либо подобное!  
 You could have knocked me down with a feather. От удивления я совершенно растерялся.

### **TRIAL AND ACHIEVEMENT ПОПЫТКА И СВЕРШЕНИЕ**

Will you make it? Вы справитесь? Вы успеете?  
 He'll manage it all right. Будьте уверены, он справится.  
 I'll do my best. Я сделаю все возможное. Я постараюсь.  
 Let's take a crack at it. Давай попытаемся.  
 They had a shot at it. Они попробовали свои силы.  
 We had a go at it. Мы рискнули сделать это.  
 Stick it out! Не поддавайся!  
 You shouldn't back out of the game. Ты не должен выбывать из игры.  
 He pulled it off. Ему это удалось.  
 He did it on his own. Он сделал это сам. (т.е. без чьей-либо помощи)  
 It's a feather in his cap. Он может этим гордиться, (о каком-либо достижении)  
 He's a self-made man. Он сделал себя сам.  
 The thing is as good as done. Считайте, что дело сделано.  
 He saw it through. Он довел это до конца.  
 Let's have done with it. Давайте закончим.  
 Let's call it a day. На сегодня хватит.

### **AGREEMENT AND DISAGREEMENT СОГЛАСИЕ И НЕСОГЛАСИЕ**

O.K. Пожалуйста.  
 All right. Хорошо.  
 Very well. (Ну, что же,) хорошо.

Good. Ладно.  
 With pleasure. С удовольствием.  
 I don't mind. Не возражаю.  
 I will. Сделаю.  
 I think so. Думаю, что так.  
 You are right. Вы правы.  
 Oh yes! Ода!  
 I agree with you. Я согласен с Вами.  
 No doubt. Без сомнения.  
 He felt in with me on that point. В этом вопросе он со мной согласился.  
 Willingly. Охотно.  
 I am with you on that. Согласен с этим.  
 Count me in. Согласен. Я тоже участвую.  
 Quite so. Вот именно.  
 Of course. Конечно.  
 By all means. Конечно.  
 If that's all right by you come and have dinner with me. Если Вы не возражаете, приходите пообедать со мной.  
 Yes, certainly. Да, конечно.  
 It's a go. Идет.  
 Exactly. Совершенно верно.  
 You are mistaken. Вы ошибаетесь.  
 I don't agree with you. Я не согласен с Вами.  
 I don't think so. Не думаю.  
 I can't agree with you. Не могу согласиться с Вами.  
 I am of a different opinion. Я другого мнения.  
 He holds a different view. Он по-другому смотрит на это.  
 This is out of the question. Об этом не может быть и речи.  
 He refused point-blank. Он отказался наотрез.  
 Count me out. Я не согласен. Я не участвую.  
 I'm not going there, no way. Чтобы я пошел к ним - да никогда в жизни!  
 Certainly not. Конечно, нет.  
 He put his foot down. Он не дал своего согласия.  
 I object (to it). Я возражаю (против этого).  
 Under no circumstances. Ни при каких условиях.  
 No go! Ничего не выйдет.  
 Nothing doing! Этот номер не пройдет!  
 Not if I can help it. Если это будет зависеть от меня, то нет.  
 Not for the world! Ни за что на свете!  
 Nothing of the sort. Ничего подобного.  
 Why on earth! С какой стати!  
 I'm afraid it won't do. Боюсь, что так не пойдет.

#### **DISCUSSION AND ARGUMENT БЕСЕДА И СПОР**

Let's talk it over. Давайте обсудим это.  
 Let's thrash it out. Давайте тщательно обсудим это.  
 I've got to weigh the pros and cons first. Я должен сначала взвесить (все) за и против.  
 This is beside the point. Это не по существу.  
 You are chasing hares now. Ты теперь уклоняешься в сторону (от темы).  
 Now you are not keeping to the point. Ты теперь уклоняешься в сторону.  
 Now that's a moot point. Ну, это спорный вопрос.  
 I'll take you up on that. Об этом мы еще поспорим с Вами.  
 You can put that in your pipe and smoke it. Зарубите себе это на носу.  
 This argument floored him. На этот аргумент ему нечего было ответить.  
 He hasn't a leg to stand on. Его доводы очень слабы.  
 This is an apple of discord. Это яблоко раздора.  
 Don't argue the toss with me, do as I tell you. Не спорьте со мной, делайте, как я Вам говорю.  
 Now don't you argue with him. Да не спорь ты с ним.  
 We've had words with him. Мы поспорили с ним.  
 Feelings ran high. Страсти разгорелись.  
 I'll have it out with him right now. Я с ним объяснюсь сейчас же.  
 Let's talk things over. Давайте поговорим.

Can I have a word with you? Мне нужно поговорить с Вами.  
 None of your lip! Без дерзостей.  
 I won't have any back chat from you. Я не потерплю дерзостей.  
 Don't you answer me back. Не возражай мне. Не дерзи.  
 We had a nice little chat with her. Мы с ней мило поболтали.  
 This small-talk is not for me. Пустая болтовня не для меня.  
 I don't like this gossip. Не люблю я эти сплетни.  
 She's such a chatterbox! Она такая болтунья!  
 He's talked his head off. Он замучил нас разговорами.  
 I couldn't get a word in edgeways. Я не мог ввернуть даже слова.  
 They've told me the news already. Они мне уже сообщили эту новость.  
 I simply can't break the news to her. Я просто не могу сообщить ей эту новость.  
 Tell me straight what you think. Скажите мне прямо, что Вы думаете?  
 I didn't mince matters and told them all about it. Я сказал им обо всем напрямик.  
 I gave it him straight from the shoulder. Я выложил ему все начистоту.  
 Better get down to brass tacks. Давайте внесем полную ясность.  
 Let's call a spade a spade. Давайте называть вещи своими именами.  
 I mean business. Я говорю серьезно.

### **DOUBT AND DISBELIEF СОМНЕНИЕ И НЕДОВЕРИЕ**

Can you believe it? Вы верите этому?  
 I doubt it. Сомневаюсь.  
 Yes, but I rather doubt that. Да, но что-то я в этом сильно сомневаюсь.  
 Really? Неужели?  
 Indeed? В самом деле?  
 Is that so? Это так?  
 Are you sure? Вы уверены?  
 I don't know for sure. Не знаю точно.  
 Maybe. Может быть.  
 I shouldn't say so. Не сказал бы.  
 That is very odd. Это очень странно.  
 He is easily taken in. Его легко проведи.  
 You're having me on. Вы шутите?  
 Aw, quit kidding! (amer.) Перестаньте шутить!  
 He's pulling my leg. Он морочит мне голову.  
 Don't you take it for granted. Не принимайте это на веру.  
 It's too good to be true. Невероятно! Просто не верится: слишком уж это хорошо!  
 A likely tale. Так я этому и поверил.  
 A tall story. Ну и небылица!  
 Tell me another! Расскажи это своей бабушке!  
 Tell that to the marines! Ври больше!  
 Get away with you! Да ну тебя. Не болтай глупостей!  
 Go on (with you)! Рассказывай! (иронич.)  
 You busy, my foot! Ты занят, так я и поверил!  
 An admirable sight, I don't think. Хорошенький вид, нечего сказать.  
 You don't say (so). Не может быть! Что Вы говорите!  
 You must be joking. Вы, должно быть, шутите.

### **APPROVAL AND DISAPPROVAL ОДОБРЕНИЕ И НЕОДОБРЕНИЕ**

That's a good idea. Хорошая мысль!  
 Good for you. Молодец!  
 Fine! Превосходно!  
 Wonderful! Великолепно!  
 Splendid! Замечательно!  
 Excellent! Превосходно!  
 Fantastic! Фантастика!  
 Great! Великолепно!  
 That's it! Вот именно!  
 It's beyond my expectations! Сверх моих ожиданий!  
 I approve of his behaviour. Я одобряю его поведение.  
 Full marks! Отлично! Ставлю Вам пять!



Well done! Отлично!  
 I'm all for it. Я всецело одобряю это.  
 Now you're talking! Вот это дело! Вот теперь ты дело говоришь!  
 I think that's wise. Я думаю, это мудро.  
 I wouldn't say I like it. Не сказал бы, что мне это нравится.  
 I disapprove of his behaviour. Я не одобряю его поведения.  
 Behave yourself. Ведите себя прилично.  
 He's all against it. Он решительно не одобряет это.  
 That's not a good idea. Это нехорошая идея.  
 He took a poor view of the idea. Он отрицательно отнесся к этой идее.  
 They made catcalls at him. Они освистали его.  
 The audience whistled him. Публика освистала его.  
 It's nothing to write home about. Похвалиться нечем.  
 Don't talk rot. Не мели вздор.  
 He is boring. Он скучен.  
 She is boring. Она скучна.  
 It is boring. Это скучно.

### 7. Изучите слова по теме:

Фраза на русском языке	Перевод на английский язык
Я хочу есть (пить).	I'm hungry (thirsty).
Пойдёмте в ресторан (кафе).	Let's go to a restaurant (cafe).
Дайте пожалуйста меню.	Give me the menu, please.
Приятного аппетита!	Bon appetit! / Have a nice meal!
Я хочу попробовать национальное блюдо.	I want to try some national dish.
Дайте мне, пожалуйста ...	Please, give me ...
Принесите мне ...	I'll have ...
Очень вкусно.	That's delicious.
Мне это не нравится.	I don't like this.
Советую взять ...	I recommend ...
Что Вы посоветуете?	What will you recommend?
За ваше здоровье и благополучие!	Health and happiness!
Больше ничего не нужно, спасибо.	Nothing more, thank you.
Счёт, пожалуйста.	Bring the bill, please.
Стакан чая, пожалуйста.	A glass of tea, please.
Чашку кофе, пожалуйста.	A cup of coffee, please.
Я хотел бы ...	I'd like some ...
... сок.	... juice.
... молоко.	... milk.
... минеральную воду.	... mineral water.
Дайте мне...	May I have some ...
It's delicious - вкусно	
It's good – хорошо, вкусно	
It's great – великолепно, вкусно	
It's terrible – ужасно	
It's awful - ужасно	
It's horrible - ужасно	

### 8. Прослушайте прилагаемый текст и запишите услышанное:

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### 9. Напишите свой список слов по теме «Продукты» (20 слов) с переводом:

Рис – rice,

...

10. Прочтите ситуации. Обсудите в парах, как бы Вы поступили в каждом из этих случаев

1. I'm working on board a vessel and one of the crew members is from Asia. Whenever I ask his opinion he doesn't say anything. But when he's with a group of his friends then he seems different and more confident.
2. I give instructions to a member of the crew who is from Asia. He nods his head and I think he has understood. But then later I find he hasn't understood at all. Why doesn't he tell me he doesn't understand me?
3. I'm from the Middle-East and work with a British crew member and I think we get on well, he's like my brother. But the other day I put my arm around him and since then he's avoided me.
4. I'm from Asia and it was my birthday, one of the crew members gave me a birthday present. I put it aside to open later. Since then he's been very cold towards me.
5. I'm British and one of the Engineers is from China, he's very intelligent, I think he's got a PhD. As he's very short I call him "shorty". Although I try to joke with him he doesn't seem to like me.
6. I'm from the Middle -East and the other day I asked one of the British crew members how much salary he received. But he didn't seem to want to talk to me, I don't know why he's so unfriendly.
7. I'm from Asia and I share a cabin with someone from the UK. Whenever I smoke in the cabin he storms out. He doesn't seem very friendly.
8. I'm an African Head of Department in a Maritime Academy. Two British Maritime consultants come to visit for several days. One is an elderly male and the other is a younger single female. I notice she appears a little annoyed when I address the questions to the male consultant and refer to her as Mrs Taylor.
9. I'm a British Maritime Trainer and am in India running a training course. I notice throughout the day that the participants constantly shake their heads as if disagreeing with me. However, at the end of the day their feedback is really positive. This leaves me feeling somewhat confused.
10. I'm British and I'm on shore leave with my Ukrainian colleagues. It's my birthday and we go to a pub to celebrate. I'm surprised that my colleagues don't buy me a drink. And after the night out another British colleague tells me that now I have the reputation of being mean.

11. Подготовить презентации/сообщения по темам:

Погода.

Семья, дом, родственные отношения.

Занятия в свободное время.

Интернет.

Здоровый образ жизни.

Режим дня.

Здоровое питание.

Спорт.

Родной город/страна.

Тема 1.4 Типы судов. Устройство судна

1. Изучите лексику по теме, прочтите текст и выполните упражнения по тексту:

## Vocabulary

**purpose** назначение  
**carry** перевозить  
**dry cargo** сухой груз  
**liquid cargo** жидкий груз  
**OBO (Oil-Bulk-Ore) carrier** танкер-рудовоз  
**bulk carrier** балкер  
**dimensions** размеры  
**stowage** укладка, штивка (груза)  
**perishable goods** скоропортящиеся товары  
**liquefied natural gas (LNG) carrier** танкер-газовоз  
**ferry** паром  
**tug** буксир  
**icebreaker** ледокол  
**dredger** драга, земснаряд  
**lightship** плавучий маяк  
**seiner** сейнер  
**longliner** ярусолов  
**motorvessel** теплоход  
**steamship** пароход  
**turbine-driven ship** турбоход  
**atomic-driven ship** атомоход  
**length** длина  
**breadth** ширина  
**draught** осадка  
**displacement** водоизмещение

### Text

#### TYPES OF SHIPS

A vessel can be classified according to the **purpose** she serves. The most common purposes are: transportation of cargo or passengers (merchant ships), assistance and service (special duty) ships, the catching of fish (fishing vessels), peace keeping (warships).

Cargo ships can be divided into two basic types. One type **carries dry cargo**. The other carries **liquid cargo**; however an **OBO (Oil-Bulk-Ore)** ships are designed to carry both. Dry bulk cargo is carried in **bulk carriers**. The most modern type of dry cargo carriers is the container ship. They carry cargo in containers of standard **dimensions**, consequently, **stowage** is easier. Fruit, meat, dairy and other **perishable goods** are carried in refrigerated ships.

Oil tankers are the most common type of liquid cargo carrier. Two other types of liquid bulk carrier of growing importance are the **liquefied natural gas (LNG)** carrier and the chemical carrier.

The traditional passenger ship is a passenger liner. Other types are cruise ships and **ferries**.

Assistance and service vessels are **tugs, icebreakers, dredgers, lightships** and others.

Fisherman vessels are capable of fish catching and processing. They are **seiners, trawlers, longliners, crab catchers** and others.

Sea-going vessels are also classed according to the type of the engine into: **motorvessels, steamships, turbine-driven ships** and **atomic-driven ships**.

The main characteristics of any ship are **length** and **breadth** in metres, **draught** in feet or metres, **displacement** in tons and speed in knots, power of engine in kilowatts or bhp.

## Exercises

### 1. Read the international words.

Classify, transportation, passenger, assistance, service, type, container, standard, fruit, product, refrigerated, tanker, natural, gas, chemical, traditional, cruise, trawler, seiner, crab, turbine, atomic, characteristics, metre, ton, kilowatt.

### 2. Give the English equivalents.

Наиболее распространенный; вспомогательные суда; транспортировка груза и пассажиров; военные корабли; сухогруз; танкер-рудовоз; контейнеры стандартных размеров; скоропортящиеся товары; судно для перевозки жидкого груза; плавучий маяк; земснаряд; лов и обработка рыбы; траулер; краболов; пароход; осадка; водоизмещение; мощность двигателя.

### 3. Answer the questions:

- 1) How can vessels be classified?
- 2) What are the two basic types of cargo ships?
- 3) What is the most modern type of dry/liquid cargo carriers?
- 4) What types of passenger ships do you know?
- 5) Name some of the special duty vessels.
- 6) What types of fishing ships do you know?
- 7) What are the main characteristics of any ship?

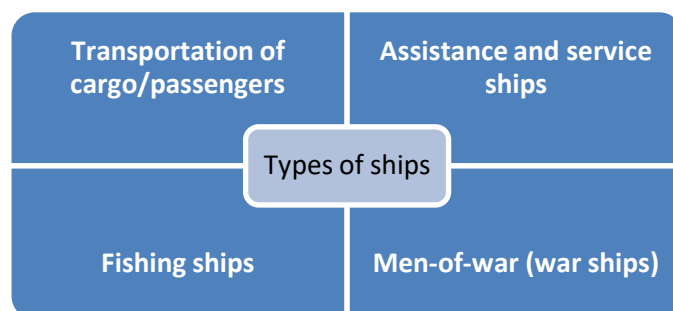
### 4. Match the columns.

- |                              |   |
|------------------------------|---|
| 1. A tanker                  | a) Carries cargo such as iron ore, grain, etc. that is loaded in bulk |
| 2. A reefer                  | b) Gives assistance to the ships in distress                          |
| 3. A salvage ship            | c) Carries perishable cargoes   |
| 4. A tug                     | d) Carries standard-sized containers in cargo holds and as deck cargo |
| 5. An ice-breaker            | e) Conducts ships through the ice                                     |
| 6. A passenger liner         | f) Carries passengers   |
| 7. A bulk carrier            | g) Carries general cargo on deck and in holds                         |
| 8. A ro-ro (vehicle carrier) | h) Assists ships in entering and leaving ports                        |
| 9. A ferry                   | i) Catches and processes different types of fish                      |
| 10. A trawler                | j) Carries oil  |
| 11. A general purpose ship   | k) Carries passengers and cars  |
| 12. A container ship         | l) Carries cars, buses and trucks that drive on/off the ship          |

### 5. Translate the words below and divide them into four groups.

Salvage ship, tug, whale catcher, freighter, bulker, seiner, icebreaker, submarine, barge, RO-RO ship, OBO ship, SAR-vessel, cruiser, timber carrier, trawler, destroyer, pilot boat, cargo-passenger

ferry, cruise liner, escort ship, tanker, reefer, processor, container vessel, fire-fighting vessel, cable layer, mine trawler, yacht, dredger, longliner, aircraft carrier, sailing ship, general cargo ship, coast-guard cutter.



## 6. Test yourself.

1. A vessel carrying oil in bulk.
  - a) bulker b) tanker c) reefer d) seiner
2. A vessel having special holds to freeze perishable goods.
  - a) bulker b) tanker c) reefer d) seiner
3. A vessel assisting ships to enter and leave the port.
  - a) dredger b) tug c) SAR-vessel d) RO-RO
4. A vessel which catches and processes different types of fish.
  - a) seiner b) longliner c) trawler d) reefer
5. A vessel which conducts ships through the ice.
  - a) icebreaker b) dredger c) pilot launch d) tug
6. A vessel carrying people for rest.
  - a) salvage ship b) cruise ship c) container ship d) ferry

## 7. Tell about different types of ships.

2. Изучите лексику по теме, прочтите текст и выполните упражнения по тексту:

### SHIP'S CONSTRUCTION

**hull** корпус судна

**main deck** главная палуба

**side** борт

**bottom** днище

**frame** шпангоут

**plating** обшивка

**bow** нос (судна)

**stern** корма

**midships** мидель

**watertight** водонепроницаемый

**compartment** отсек

**bulkhead** переборка  
**tweendeck** твиндек  
**engine room** машинное отделение  
**hatch** люк  
**hatch-cover** люковое закрытие  
**fore end** носовая оконечность  
**fore peak tanks** форпиковый танк  
**after end** кормовая оконечность  
**after peak tanks** ахтерпиковый танк  
**double bottom tanks** междудонный танк  
**port side** левый борт  
**starboard side** правый борт  
**underwater body** подводная часть корпуса  
**waterline** ватерлиния  
**freeboard** надводный борт  
**superstructure** надстройка  
**navigating bridge** навигационный (ходовой) мостик  
**radio room** радиорубка  
**crew's quarters** помещения экипажа  
**sick bay** лазарет  
**funnel** дымовая труба  
**radar mast** радиолокационная мачта  
**forecastle** бак  
**poop** ют  
**derrick** грузовая стрела  
**crane** кран  
**cargo winch** грузовая лебедка  
**Samson post** грузовая колонна  
**windlass** брашпиль  
**capstan** шпиль  
**bitts** кнехты

### Text

The main part of the ship is the **hull**. This is the area between the **main deck**, the **sides** and the **bottom**. It is made up of **frames** covered with **plating**. The hull is divided into three main parts: the forward part is called the **bow**, the rear part is called the **stern** and the part between the bow and the stern is called the **midships**.

Inside the hull is divided into a number of **watertight compartments** by decks and **bulkheads**. Bulkheads are vertical steel walls passing across the ship and along. Steel decks divide the hull horizontally. The decks which divide cargo spaces are called **tweendecks**.

The hull contains the **engine room**, cargo and other spaces and a number of tanks. The openings cut in the main deck which give access to holds are called **hatches**. The hatches are equipped with automatic **hatch-covers**.

At the **fore end** of the hull are the **fore peak tanks** and at the **after end** are the **after peak tanks**. They are used for fresh water and water ballast. The space between the holds and the bottom of the hull contains **double bottom tanks**. These are used for ballast water and fuel.

When one faces the bow, the left-hand side is called the **port side** and the right-hand side is called the **starboard side**. The part of the hull below water is the ship's **underwater body**. The distance between the **waterline** and the main deck is the vessel's **freeboard**.

All the ship's parts above the main deck are known as **superstructures** which usually include the **navigating bridge**, the **radio room**, the crew's **quarters**, the **sick bay**, the **funnel**, the **radar mast**, etc.

The raised part of the deck in the bows is called the **forecastle** and its after raised part is a **poop**. On the main deck there are cargo handling facilities (**derricks**, **cranes**, **cargo winches**, **Samson posts**, etc.), and also the **windlass** (on the forecastle), the **capstan** (on the poop) and **bitts**.

### 1. Give the English equivalents.

Водонепроницаемые отсеки; грузовые отсеки; автоматические люковые закрытия; форпиковый танк; ахтерпиковый танк; междудонный танк; правый борт; левый борт; надводный борт; подводная часть корпуса; помещения экипажа; радиолокационная мачта; кормовая приподнятая часть судна; оборудование для обработки груза; грузовая стрела; грузовая лебедка; грузовая колонна.

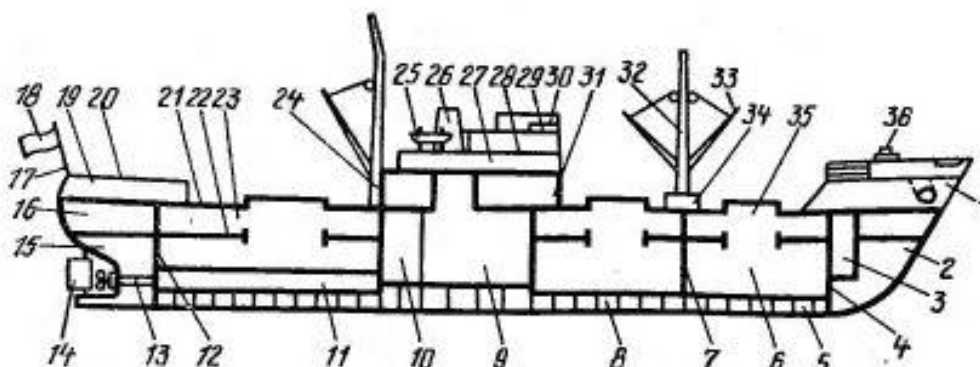
### 2. Match the synonyms in (a) and (b).

- a) Engine room, starboard side, ladder, instruments, derrick, dining saloon, deck officer, stern, master, port side, life-boat, compartment, fore end
- b) Machinery, gangway, room, aft, captain, left side, machinery space, rescue boat, crane, bow, right side, mess room, navigator

### Complete the sentences.

1. The main part of a ship is the ....
2. The hull is divided into three main parts: the bow, the stern and the ....
3. Inside the hull is divided into ....
4. Vertical steel walls passing across the ship and along are called ....
5. The decks which divide cargo spaces are called ....
6. The hull contains the engine room, cargo and other spaces and ....
7. The space between the holds and the bottom of the hull contains ....
8. Double bottom tanks are used for ....
9. The left side of a ship is called the ....
10. The right side of a ship is called the ....
11. The part of the hull below water is the ship's ....
12. The distance between the waterline and the main deck is the vessel's ....
13. All the ship's parts above the main deck are known as ....
14. The raised part of the deck in the bows is called the ....
15. The after raised part of the deck is called the ....

### 3. Look at the figure and memorize the main parts of a ship.



1 - forepeak; 2 - forecastle; 3 - chain locker; 4 - forepeak bulkhead; 5 - double bottom tank; 6 - hold; 7 - transverse bulkhead; 8 - double bottom plating; 9 - engine room; 10 - boiler room; 11 - shaft tunnel; 12 - after peak bulkhead; 13 - propulsion installation; 14 - rudder and steering gear; 15 - after-peak; 16 - steering gear compartment; 17 - flagstaff; 18 - flag; 19 - poop; 20 - poop deck; 21 - upper deck; 22 - second deck; 23 - tweendeck; 24 - main mast; 25 - boat gear; 26 - funnel; 27 - superstructure deck; 28 - boat deck; 29 - navigating bridge deck; 30 - wheelhouse top; 31 - midship superstructure; 32 - fore mast; 33 - cargo handling gear; 34 - deck house; 35 - hatch; 36 - anchor gear.

## Тема 1.5 Экипаж. Работа на борту судна

1. Прочтите текст, переведите, задайте вопросы по тексту.

### THE SHIP'S CREW

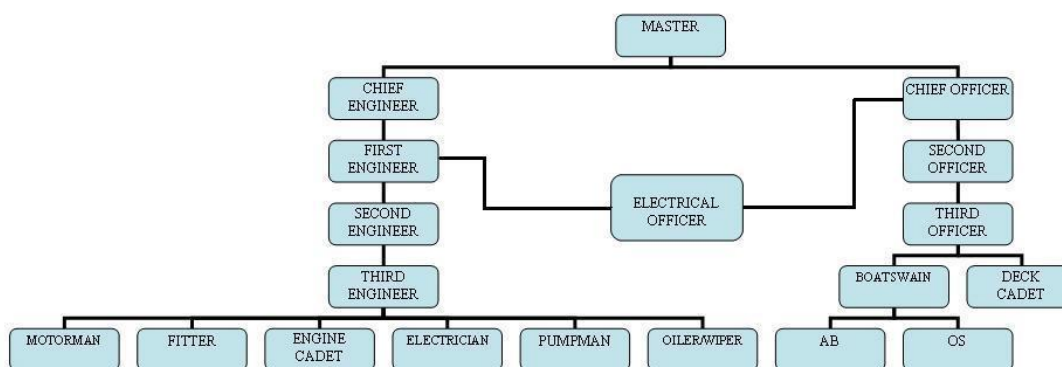
There are two departments on board modern ships. They are the Deck Department and the Engine Department. The Deck D. includes (включать) navigators, sailors, a boatswain, a doctor and a cook. The Master is responsible for the ship, her cargo and the crew, the safety of the ship. The Chief Officer is the head of the Deck D. He is responsible for cargo. The Second Mate is responsible for the crew. The Third Officer is responsible for the navigational instruments. The navigators keep watch on the navigating bridge. They define the ship's position, plot the course on the chart, take bearings, transmit and receive radio telegrams, handle nav. Instruments, navigate the ship. A Boatswain and sailors are responsible for the ship's hull, holds and tackle. A Doctor is responsible for the health of the crew and passengers.

The Engine D. consists of the Chief Engineer, the Second, the Third, the Fourth Engineers; some motormen and electricians.

They keep watch in the engine room, maintain, overhaul and repair the machinery, lubricate equipment in the engine room.

2. Перевести текст.





Ship's Crew.

Существует две службы на борту судна.

Это служба эксплуатации и служба технической эксплуатации.

Сл

Служба эксплуатации включает в себя судоводителей, боцмана, матросов, доктора.

Судоводители - это капитан, старший (первый) помощник, второй, третий, четвёртый помощники.

Капитан отвечает за судно, команду и пассажиров.

Старший помощник - глава службы эксплуатации. Он отвечает за грузовые операции.

Все судоводители несут вахту на навигационном мостике.

Они определяют местоположение судна, берут пеленг, прокладывают курс.

Доктор отвечает за здоровье команды и экипажа.

Боцман отвечает за хорошее состояние корпуса, трюмов, такелажа, за работу матросов.

Служба технической эксплуатации включает в себя механиков, мотористов, электриков.

Они несут вахту в машинном отделении.

Они следят за работой приборов, обслуживают и ремонтируют оборудование, смазывают механизмы, прибираются в машинном отделении.

3. Обсудите в парах работу экипажа на борту судна.

How many departments are there on board ship? - There are 2 D.

What are they? - They are D.D. and E.D.

Who is the head of the Deck D. (E.D., work of sailors, cargo, ...)? - It is the Chief Mate. (Chief Engineer, Boatswain, the Chief Mate, ...).

Who is responsible for the D.D. (...)? - It is ... .

Who keeps watch on the navigating bridge? - Navigators keep watch on the bridge. (They are navigators.)

Who plots the course (Repair, navigate, ...) - It is... or They are ... .

Where do engineers (...) keep watch? - They keep watch in the engine room (...).

How long is the watch? - It is 4 hours.

Who is responsible for ... ? - It is ... .

What is ... responsible for? - He is responsible for ... .

What are the duties of ... ? - He is responsible for ... . He must ... V(глагол).

What do navigators (engineers, sailors ...) do on the bridge(in the engine room, on the deck ...)

- They V,V,V... (глаголы).

Where do cadets have shipboard training?

Where do cadets of the DD (ED) keep watch?

What will they do?

What will they learn to do?

What are the duties of cadets on board the ship?

Will cadets V?

Who Vs?

### Тема 1.6 Чрезвычайные ситуации на борту

*Задание 1. Подберите к словам из первой колонки правильный перевод из второй колонки*

1. Accommodation fire	A. Опасность взрыва
2. Galley fire	B. Пожар в жилых помещениях
3. Cargo spaces fire	C. Пожар в грузовых помещениях
4. Seat of fire	D. Очаг возгорания
5. Danger of explosion	E. Пункт сбора по тревоге
6. Fire alarm (to raise, to sound)	F. Собираться по тревоге
7. Smoke detector (to be activated)	G. Пожарная сигнализация (срабатывать)
8. Muster station	H. Аварийная партия
9. To muster	I. Партия первой медицинской помощи
10. Fire party	J. Пожарная партия (команда)
11. Emergency party	K. Пожар на камбузе
12. Reconnaissance party (to make first estimation of the extant fire)	L. Командир аварийной партии
13. Search party (to missing and injured persons)	M. Поисковая партия (поиск пропавших и раненных)
14. First aid party	N. Группа разведки (сделать первое определение причины и степени пожара)
15. Supporting party (to supply additional equipment; to prevent spread of fire; to evacuate the casualties)	O. Партия поддержки (снабжать дополнительным оборудованием, предотвращать дальнейшее распространение пожара, эвакуировать пострадавших)
16. Leader of emergency party	P. Пожарная тревога (поднимать, объявлять)

*Задание 2. Найдите среди английских фраз перевод следующих русских словосочетаний*

To be in charge of...	Piracy
To sound (raise) the alarm	Practice musters and drills
To close watertight doors	Alarm operation trainings
To isolate electrical currents	General emergency alarm
To batten down the space	Fire-fighting
To fight fire	Entering of water
To put out fire	Crew operations in case of entering of water
To apply water spray	Recovering stability and restoring of ship's listing
To apply sprinkles	Donning of lifejackets and immersion suits
To apply boundary cooling	Muster of the assigned station
To release CO <sub>2</sub>	Boarding, launching and clearing the survival craft and rescue boats
Foam extinguisher	Release from launching appliances
Carbon dioxide extinguisher	Protect methods in launching areas
Dry chemical extinguisher	Illumination in launching areas
Abandon of ship	Use of all survival equipment
Fire-fighting	Use of detection equipment
Fighting for ship unsinking	Use of radio life-saving appliances
Emergency procedures	Used of drogues
Use of ship available safety, fire-fighting and signal media and equipment	Recovery of survival craft and rescue boats including stowage and securing
Rescue man overboard	oil pollution fighting
Rescue with helicopter	Shipboard oil pollution emergency plan (SOPEP)
Fighting for vitality of ship technical media	Oil spill kit
Fighting against steam	Training and drills
Fighting against icing	

Командовать, объявить пожарную тревогу, закрыть водонепроницаемые двери, бороться с огнем, пенный огнетушитель, углекислотный огнетушитель, оставление судна, борьба за живучесть, борьба с обледенением, угроза нападения пиратов, общесудовая тревога, поступление воды, восстановление остойчивости судна, надевание спасательных жилетов и гидрокостюмов, выход к назначенным местам сбора, посадка в коллективные спасательные средства, освещение районов спуска коллективных спасательных средств, использование спасательного радиооборудования, судовой план чрезвычайных мер по борьбе с загрязнением нефтью.

**Задание 3. Ознакомьтесь с лексикой по теме Безопасность на судне (СФ ИМО, стр. 248-330), приготовьтесь к аудированию основных фраз по теме.**

#### IV-B/ 1.7 Ordering abandon vessel

- .1 Swing out no. ... lifeboat(s) and report.
  - .1.1 No. ... lifeboat(s) swung out.
- .2 Lower no. ... lifeboat(s) alongside embarkation deck and report.
  - .2.1 No. ... lifeboat(s) alongside embarkation deck.
- .3 Enter lifeboat(s) (no. ...) and report.
  - .3.1 Enter lifeboat(s) / liferaft(s) over ... deck.
  - .3.2 Enter lifeboat(s) / liferaft(s) over ladders/ nets / manropes.
  - .3.3 Jump into water and enter lifeboat(s) / liferaft(s).
  - .3.4 Jump onto liferaft(s) alongside vessel.
  - .3.5 Do not push each other when entering.
  - .3.6 Assist injured / helpless persons.
  - .3.7 Clear entrance of lifeboat / liferaft.
  - .3.8 Sit down in lifeboat / liferaft immediately.
  - .3.9 Hold on to ropes or to your seat when launching.
- .4 No. ... lifeboat(s) / liferaft(s) entered.
- .5 Let go no. ... lifeboat(s) / liferaft(s) and report.
  - .5.1 No. ... lifeboat(s) / liferaft(s) is let go.
- .6 Throw over board no. ... liferaft and report.
  - .6.1 No. ... liferaft thrown over board.

- .7 Inform coast radio stations / vessels in vicinity about number of lifeboats / liferafts launched and report.
- .7.1 Inform coast radio stations / vessels in vicinity about number of persons in each lifeboat / liferaft and report.
- .7.2 Inform coast radio stations / vessels in vicinity about number of crew members remaining on board.
- .7.3 Coast radio station ... / vessels in vicinity informed.
- .8 Stand clear of vessel and report.
- .8.1 No. ... lifeboat(s) / liferaft(s) standing clear.
- .8.2 No. ... lifeboat(s) / liferaft(s) not standing clear.
- .8.2.1 Rescue boat / no. ... motor lifeboat! Assist no. ... lifeboat(s) / liferaft(s) and report.
- .8.2.2 Rescue boat / no. ... motor lifeboat assisting - no. ... lifeboat(s) / liferaft(s) standing clear of vessel now.

#### **IV-B/ 3.2 Fire fighting and drills**

##### **3.2.1 Reporting fire**

- .1 Fire on board!
  - .1.1 Smoke/fire/explosion in engine room.
  - .1.2 Smoke/fire/explosion in no. ... hold(s)/tank(s).
  - .1.3 Smoke/fire/explosion in superstructure.
  - .1.4 Smoke/fire/explosion in accommodation.
  - .1.5 Smoke/fire/explosion in ... space/area.
  - .1.6 Smoke/fire/explosion on deck.
  - .1.7 Smoke from ventilator(s).
  - .1.8 Burnt smell in .../ from... .
- .2 Report injured persons:
  - .2.1 No person injured.
  - .2.2 Number of injured persons/casualties: ... .
- .3 What is on fire?
  - .3.1 Fuel on fire.
  - .3.2 Cargo on fire.
  - .3.3 Car(s)/truck(s)/waggon(s) on fire.
  - .3.4 Containers/ ... (with dangerous goods) on fire.
  - .3.5 ... on fire.
  - .3.6 No information.
- .4 Is smoke toxic?
  - .4.1 No, smoke not toxic.
  - .4.2 Yes, smoke toxic
- .5 Is fire under control?
  - .5.1 Yes, fire (in ... ) under control.
  - .5.2 No, fire (in ... ) not under control (yet).
    - .5.2.1 No, fire spreading (to ... ).
    - .5.2.2 No, fire (in ... ) not accessible.
- .6 What is damage?
  - .6.1 No damage.
  - .6.2 Minor/major damage in .../ to ... .
  - .6.3 No power supply (in ... ).
  - .6.4 Making water in ... .
- .7 Pressure on fire mains.
  - .7.1 Fire mains under pressure.
- .8 Shut down main engine(s)/auxiliary engine(s)/ ... .
  - .8.1 Main engine(s)/auxiliary engine(s)/ ... shut down.
- .9 Stop fuel.
  - .9.1 Fuel stopped.
- .10 Close hatch covers.
  - .10.1 Hatch covers closed.
- .11 Close damper(s) (in ... ).
  - .11.1 Damper(s) (in ... ) closed.
- .12 Close all openings.
  - .12.1 All openings closed.
- .13 Switch off ventilator(s) (in ... ) .

- .13 .1 Ventilator(s) (in ... ) switched off.
- .14 Turn bow/stern to windward.
- .14 .1 Bow/stern turned to windward.
- .15 Turn port side/starboard side to windward.
- .15 .1 Port side/starboard side turned to windward.
- .16 Alter course to ... .
- .16 .1 Course altered to ... .

## Тема 1.7 Предупреждение загрязнения водной среды

Задание 1. Прочитайте и переведите текст, ответьте на вопросы.

### Environmental problems

The word environment means simply what is around us. Some people live in a town environment; for others, their environment is the countryside.

Nowadays people understand how important it is to solve the environment problems that endanger people's lives. The most serious environmental problems are: pollution in its many forms (water pollution, air pollution, nuclear pollution), noise from cars, buses, planes, etc., destruction of wildlife and countryside beauty, shortage of natural resources (metals, different kinds of fuel), the growth of population.

There is no ocean or sea, which is not used as a dump. Many seas are used for dumping industrial and nuclear waste. This poisons kills fish and sea animals. "Nuclear-poisoned" fish can be eaten by people

Many rivers and lakes are poisoned too. Fish and reptiles can't live in them. There is not enough oxygen in the water. In such places all the birds leave their habitats and many plants die. If people drink this water they can die too. It happens so because factories produce a lot of waste and pour it into rivers. So they poison water.

Most of the pollution in big cities comes from cars and buses. Air pollution is a very serious problem. In Cairo, for example, breathing the air is equivalent to smoking two packs of cigarettes a day.

More and more often people are told not to be in direct sunlight, because ultraviolet radiation from the sun can cause skin cancer. As a rule, the ozone layer in the atmosphere protects us from such radiation, but if there are holes in the ozone layer ultraviolet radiation can get to the earth. Many scientists think that these holes are the result of air pollution.

Plants and factories make the greenhouse effect.

Both clean air and clean water are necessary for our health. If people want to survive they must solve these problems quickly. Man is beginning to understand that his environment is not just his own town or country, but the whole earth. That's why people all over the world think and speak so much about ecology. People are beginning to realize the environmental problems. They join international organizations and green parties. All states must save the Earth from an ecological catastrophe.

1. What does the word «environment» mean?
2. What are the most serious environmental problems?
3. What are the serious problems with seas and oceans?
4. What does poison water in lakes and rivers?
5. What does make the greenhouse effect?
6. Why is an air so polluted in big cities?
7. What does cause skin cancer?
8. What is the function of ozone layer?
9. What can happen if there are holes in the ozone layer?
10. What can we do to protect Nature?
11. Do you think all states must save the Earth?

2. Напишите сообщение о взаимосвязи экологии и будущей профессии.

3. Ознакомьтесь с лексикой ИМО по теме «Сообщения, связанные с защитой окружающей среды». Подготовить презентацию с использованием лексики по теме.

### Тема 1.8 Подготовка к практике

1. Прочтите тексты и задайте к ним по 10 вопросов разного типа.

#### SAILING PRACTICE

In spring we shall take our examinations. As soon as we pass them we shall have our sailing practice. We are going to have a voyage in the Baltic Sea. It will be our practice on the “Sirius”. It is a training ship. She is sailing vessel. She usually sails between St. Petersburg and other ports of the Baltic. The captain of the ship is Comrade Voronov. He is an old experience captain. We shall be glad to work under him. His chief mate is Comrade Petrov. He is a graduate of the Odessa Marine College. The crew of our ship consists of 30 members.

When we have our practice our life will be a very busy one. On the board the ship we shall work as sailors. As a rule we shall get up very early. We shall work as sailors. As a rule we shall get up very early. We shall stand at the wheel, wash and scrub the deck and study seamanship and navigation. As our crew is not large, we shall often be on watch. Before we leave we shall paint our ship. We shall put to sea at the end of June. The ship will be bound for Riga. On our way to Riga we are going to call at some ports. After we unload the cargo, we shall be able to get leave of absence and go ashore. If the ship stays in the port for some days, we shall be able to do the town.

Our sailing practice will last about three months. If the weather is favorable, it will be pleasant to be at sea. At the end of August our sailing practice will be over. When our practice is over we shall be glad to see our relatives and friends again. We shall have to return to St. Petersburg between the 25-th and the 30-th of August. After we come back, we shall begin our studies. Our school-year will begin on the 1-st of September.

#### SHIPBOARD TRAINING

The cadets of maritime colleges usually have their practical studies either on board training vessels or merchant ships.

The cadets of the Navigation D. will keep watch at the wheel, paint the hull deck superstructures, masts, wash and scrub decks. They will launch and hoist life-boats, learn how to use life-saving appliances. They will work in the wheel-house as a helmsmen.

Skilled officers will instruct our boys how to handle a sextant and other navigational instruments. They will learn how to take bearings of light-vessels, lighthouses, how to define the ship’s position on charts.

They must also know how to use echo-sounders, logs, finders.

The cadets of Radio Engineering D. will work in the radio-room transmitting and receiving radio-telegrams, weather reports and navigational warnings. They will learn how to tune and repair the equipment in case of trouble.

The cadets of the Engine D. will learn how to maintain the engine, how to lubricate and repair the equipment.

All the cadets must work hard to master their profession.

2. Ответьте на вопросы **Application Card**.

1. What is your first name?
2. When is your birthday?
3. Where are you from?
4. What is your citizenship?
5. What is your nationality?
6. What is your religion?
7. Who is your next of kin?
8. What is your address?
9. What is the size of your head?
10. What is the color of your eyes?
11. Do you have a family?
12. What is your marital status?
13. What are you?
14. Do you have any diplomas and certificates?
15. What is the number of your group?
16. Can you drive a car? (play the guitar, play football, ...)
17. Are you happy? (clever, funny, strong, gentle, hospitable, honest, musical, creative, kind, ...)
18. Why do you want to be a seaman?
19. Do you have any bad habits? (have you, have you got ...)
20. What are the traits of your character?
21. What is your favorite lesson?
22. Do you live at home or in the hostel?
23. Do you help about the house?
24. Who are you?
25. What are you?
26. How old are you?

3. Прочтите письмо курсанта. Напишите свое письмо с просьбой пройти практику в компании.

*Dear Sirs,*

*I am Sergey Salamatov, a second-year cadet of the Arkhangelsk Maritime Institute, Russia.*

*I am writing to you in order to have a chance of taking my shipboard training on one of your vessels. I learned about your company from the Internet/my friends/ ... and I suppose there are great opportunities in your company to get professional skills and to improve them.*

*I am eighteen. My future specialty is navigation. I have good results in my theoretical course of study and I am fond of English. I am hardworking, responsible and get on well with other people. I don't smoke. I don't use alcohol and drugs.*

*I am always ready to answer your questions by telephone or by Skype or by any other way convenient for you.*

**4. Соедините слова из правого столбца со словами из левого столбца и переведите фразы:**

Connecting	crew
Excess	pass
Cabin	detector
Departure	baggage
Passport	desk
Baggage	flight
Duty free	seat
Metal	board
Departure	lounge
Boarding	control
Check-in	claim
Aisle	shop

**7. Прочтите текст и заполните пропуски фразами из упражнения 1**

I was booked on the 1230 flight from Amsterdam to Halifax. I entered the airport and walked straight to the \_\_\_\_\_ 1. "A window seat or an \_\_\_\_\_ 2, sir?" "A window seat, please. A non-smoking one." I put my luggage on the scales.

"I'm afraid you'll have to pay \_\_\_\_\_ 3 on that. You are 15 kilos over limit."

After checking in I made my way to \_\_\_\_\_ 4, where my documents were checked.

Security was tight and everyone had to walk through a \_\_\_\_\_ 5 before proceeding to the \_\_\_\_\_ 6.

I settled myself into a seat and periodically glanced at the \_\_\_\_\_ 7 to see when I should board the plane or if the flight was delayed.

I bought a few items at the \_\_\_\_\_ 8.

When my flight was called, I went to the gate where my \_\_\_\_\_ 9 was checked. I proceeded along the corridor, boarded my plane and one of the

\_\_\_\_\_ 10 directed me to my seat. The first leg of my journey took me to New

York, where I waited in the transit lounge for my \_\_\_\_\_ 11. Some hours later I touched down in Halifax and picked up my cases from the \_\_\_\_\_ 12.



**8. Прослушайте запись прилагаемого к занятию текста дважды и проставьте рядом с утверждениями знаки «+» (если утверждение правильное) или «-» (если утверждение неправильное)**

1. Takeshi spent his shore leave with his family in Osaka.
2. Takeshi arrived at the airport at 1000.
3. The airport was not busy.
4. Marco had time to sit down and relax at the airport.
5. Takeshi had nothing to do while he was waiting at the airport.
6. Marco fell asleep while he was listening to music.
7. The plane is due to leave at 1230.

**9. Переведите диалоги на русский язык.**

- Excuse me, can you tell me where Bogdanovich Street is, please?
- Take the second turn on the left, and then ask again.
- Is it far?
- No, it's only about 5 minutes walk.
- Thanks a lot.
- Not at all.
  
- Excuse me, I'm afraid I'm lost. Can you help me?
- Where do you want to go?
- I am to be Independence Square at 3 o'clock. I'm short of time.
- Oh, yes. The quickest way to get there is by metro.
- Is there a metro station here?
- Yes, go straight as far as the park and there you'll see the metro station.
- Thanks a lot.
  
- Excuse me, please, can you tell me the way to the Central Post Office?
- I'm sorry, I can't. I'm a stranger here too. You'd better ask that policeman over there.
- Thanks just the same.
  
- Excuse me, how can I get to the University?
- You'd better go by metro there.
- And where is the metro station?
- Go down the street two blocks straight ahead and you'll see the station.
- Thank you very much.
- Not at all.
  
- Is it your first visit to New York?
- Yes, and unfortunately I haven't got much time.
- So what are you going to do while you are here?
- Well, I don't know much about New York, you see. Just the Empire State Building and the Statue of Liberty.
- You've just got two days, haven't you? You are going to be pretty busy if you want to see all the sights.

- I'm planning to start early tomorrow morning. What should do first?
- I think you should start with the Empire State Building. It's not the highest building now, but the view is just beautiful in the morning, when it's clear and fresh. You have to do that.
- It sounds great. I'll definitely do that. Tell me, which is the highest building now?
- The World Trade Center building. But you should go there at night for the view – there's a bar up there and you can relax and look at the lights of the city. It's wonderful.
- Right.
- What else do you recommend?
- Well, it depends what you like – art, shopping, theatre?
- Well, not shopping particularly. But I'd like to see an art gallery or tow.
- Oh, then you must go to the Met – the Metropolitan Museum of Art, which is just enormous. You could spend two days there. That's by Central Park, so you can take a walk through central Park at the same time.
- Right.
- And if you like art galleries, there's the Guggenheim, the Museum of Modern Art.

Тема 2.1 Обсуждение итогов практики. Обязанности членов машинной команды

*Обсудите итоги практики в парах, включая сведения о ...*

Company, dates, ship, main particulars of the ship, crew, procedures on board a ship, development of professional skills.

*Задание 1 Прочтите и переведите текст, ответьте на вопросы*

### ENGINE DEPARTMENT. WATCHKEEPING

Anybody who wants to be a Marine Engineer must be ready and prepared to spend a long period in training. Practical training is of crucial importance because the sea environment is very **demanding**. Sea training is not easy, although it only takes place when a candidate has sufficient knowledge already.

The Chief Engineer is in charge of the Engine Department. He is responsible for all technical operations of the vessel, including engineering, electrical and mechanical units. He has to keep documents on the machinery working as well as the repairs carried out on the vessel. He also **logs** fuel oil **consumption**. A varying number of officers, **petty officers** and **ratings** assist the chief engineer. The engine officers' hierarchy goes as follows:

- 1) The First Engineer. He is responsible for maintenance and operations of the engineering and technical units.
- 2) The Second Engineer. His responsibilities usually include the maintenance of lubricating systems, engine room auxiliaries, and electrical equipment.
- 3) The Third Engineer. He is usually responsible for fuel and water systems. He also supervises tank **soundings** and monitors the boiler room equipment.
- 4) The Fourth Engineer. His responsibilities may include, for instance, the operation and maintenance of engine room auxiliaries.
- 5) The Motorman. His duties are defined by the head of the engine department and can include, for example, the daily maintenance and cleaning of specific engine parts.

The machinery driving a vessel which is **underway** is usually operated 24 hours a day.

All running machinery must be controlled continuously in order to **prevent** any **failure** of the equipment. The majority of control systems on modern ships are automatic. A ship may operate for agreed periods with unmanned machinery, called UMS (Unattended Machinery Spaces).

The standard system of watches adopted on board is usually a four-hour period on duty followed by eight-hour rest. The word “watch” means both the period and the crew working at that time. The three watches in any 12 hour period are usually: 12 to 4, 4 to 8, 8 to 12. Thus, for instance, an engineer on duty for the 8 to 12 watch works from 8 a.m. to 12 noon and from 8 a.m. to 12 midnight.

A watch is usually made up of an engineer in charge with an assistant engineer and a rating.

Time at sea is expressed using the 24-hour system, as opposed to the 12-hour system commonly used on land.

ON LAND	AT SEA
6.00 a.m. – six o'clock	0600 – six hours
1.30 p.m. – one thirty	1330 – thirteen hours thirty
5.25 p.m. – five twenty five	1725 – seventeen hours twenty five
midnight	0000 or 2400 – twenty four hours
Noon or midday	1200 – twelve hours

**demanding** требовательный

**to log** вносить в вахтенный журнал

**consumption** потребление

**petty officer** старшина

**ratings** рядовой состав

**sounding** зондирование

**underway** на ходу

**to prevent** предотвращать

**failure** авария, повреждение

- 1) Who is in charge of the Engine Department?
- 2) What are the responsibilities of the Chief Engineer?
- 3) Who assists the Chief Engineer?
- 4) Who is responsible for lubricating systems?
- 5) Who is in charge of fuel and water systems?
- 6) What are the duties of a motorman?
- 7) What is called the UMS?
- 8) How many hours a day must running machinery be controlled?
- 9) How long is the period of watch at sea?

**Расскажите о работе в машинном отделении, опираясь на следующие слова:**

- to be in command of *something*
- to be in charge of *something*
- to be the head of *something* or *somebody*
- to be responsible to *somebody*
- to be responsible for *something* or *somebody*
- to take responsibility for *something* or *somebody*

- to manage *something* or *somebody*
- to have authority over somebody

## Задание 2 Прочтите текст и выполните задания

### DUTIES OF AN ENGINEER

The Chief Engineer of every ship having consulted with the Master has **to ensure** a **safe** engineering watch. **An officer in charge of an engineering watch** is the Chief-engineer officer's representative and is responsible for safe work and operation of all machinery and equipment under the responsibility of the watch. Under his direction engine-room ratings assist in the safe and efficient operation of the **propulsion machinery** and auxiliary equipment.

#### Taking over a watch

1. **The relieving officer of an engineering watch** should ensure that the members of the relieving watch are fully capable of performing their duties effectively.
2. Prior to taking over an engineering watch relieving officer himself checks the following:
  - a) the level of water in all tanks (**bilges**, ballast, **slop tanks**, fresh water tanks, etc.);
  - b) the condition and level of fuel in the reserve tanks, **settling tanks**, **day tanks** and others;
  - c) condition and **mode of operation** of the various main and auxiliary systems, including **the electrical power distribution system**;
  - d) the **availability** of fire-fighting appliances;
  - e) the state of completion of **engine-room log**.

#### Performing an engineering watch

An officer in charge of an engineering watch ...

1. is responsible for machinery-space operation;
2. should keep the main propulsion plant and auxiliary machinery under constant supervision. He also ensures that the adequate **rounds** of the machinery and **steering gear space** are made for observing and reporting the **breakdowns**.
3. reports to the chief engineer immediately
  - when engine damage or a **malfunсtion** occurs which may be such as **to endanger** the safety of the ship;
  - when any malfunction occurs which may cause damage or breakdown of main engine or auxiliary machinery;
  - in any **emergency** or if in any doubt as to what decision or measures to take.

**relieving officer of an engineering watch** заступающий на вахту

**officer in charge of an engineering watch** вахтенный механик

**to ensure** обеспечить

**safe** безопасный

**propulsion machinery** энергетические установки

**to take over a watch** принимать вахту

**bilges** льялы

**slop tank** сливной танк

**settling tank** отстойный танк

**day tank** расходный танк  
**mode of operation** режим эксплуатации  
**electrical power distribution system** система распределения эл/энергии  
**availability** наличие, доступность  
**engine-room log** журнал машинного отделения  
**round** обход  
**steering gear space** румпельное отделение  
**breakdown** поломка  
**malfunction** неисправность, сбой  
**to endanger** подвергать опасности  
**emergency** аварийная ситуация

### Задания по тексту

#### 1 Найдите в тексте эквиваленты словосочетаний:

Обеспечить безопасную вахту в машинном отделении; представитель старшего механика; под его руководством; заступающий на вахту; эффективно выполнять свои обязанности; уровень воды во всех танках; режим эксплуатации; средства пожаротушения; журнал машинного отделения; под постоянным наблюдением; регулярные обходы машинного отделения; докладывать старшему механику; в случае сомнения.

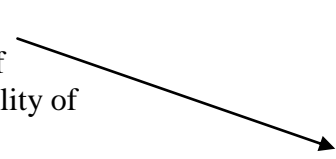
#### 2 Заполните пропуски необходимыми предлогами.

- 1) An officer \_\_\_ charge \_\_\_ an engineering watch is responsible \_\_\_ safe work.
- 2) Prior \_\_\_ taking \_\_\_ an engineering watch the relieving officer checks the condition and mode \_\_\_ operation \_\_\_ the main and auxiliary systems.
- 3) An officer \_\_\_ charge \_\_\_ an engineering watch reports \_\_\_ the Chief engineer when engine damage occurs.

#### 3 Подберите синонимы к данным словам.

to assist, malfunction, machinery space, operation, effectively, various, prior to

#### 4 Соедините части фраз из первого и второго столбцов.

- |  |   |   |
|--|---|---|
| <ol style="list-style-type: none"> <li>1. the level of</li> <li>2. the mode of</li> <li>3. the availability of</li> <li>4. the state of</li> <li>5. an officer in charge of</li> <li>6. the Chief engineer of</li> <li>7. efficient operation of</li> <li>8. to be fully capable of</li> <li>9. under the responsibility of</li> <li>10. the adequate rounds of</li> </ol> |  | <ol style="list-style-type: none"> <li>a) operation</li> <li>b) machinery</li> <li>c) every ship</li> <li>d) <i>water of all tanks</i></li> <li>e) all the machinery</li> <li>f) performing one's duties</li> <li>g) the watch</li> <li>h) completion of the log</li> <li>i) an engineering watch</li> <li>j) fire-fighting appliances</li> </ol> |
|--|---|---|

#### 5 Ответьте на вопросы:

- 1) Who has to ensure a safe engineering watch?
- 2) What should the relieving officer check before taking over an engineering watch?

- 3) Who is responsible for machinery space operation?
- 4) What are the adequate rounds of the machinery space made for?
- 5) What should an officer in charges of engineering watch do in any emergency?

### 6 Переведите на английский язык.

1. Вахтенный механик отвечает за работу всего оборудования в машинном отделении.
2. Заступающий на вахту лично проверяет уровень воды и топлива во всех цистернах, состояние главных и вспомогательных систем, наличие средств пожаротушения, заполнение журнала машинного отделения.
3. Вахтенный механик делает постоянные обходы машинного отделения, докладывает старшему механику о поломках двигателя, о любой аварийной ситуации.

### 7 Расскажите об обязанностях:

relieving officer of an engineering watch,  
officer in charge of an engineering watch.

### Задание 3. Переведите фразы ИМО

#### IV-A/ 3.7 Briefing on special events (also see PART III, Safety communications)

- . 1 Engine alarm at ... UTC/local time due to .....
- . 2 Speed reduced at ... UTC/local time due to .....
- . 3 Engine(s) stopped at ... UTC/local time due to .....
- . 4 Course altered at ... UTC/local time due to ....
- . 5 Master/Chief Engineer called at ... UTC/local time due to ... .

#### IV-A/ 3.8 Briefing on temperatures, pressures and soundings

- . 1 ...(*equipment*) temperature ... degrees (centigrade).
  - . 1.1 ... temperature below normal.
  - . 1.2 ... temperature above normal.
  - . 1.3 ... temperature critical.
- . 2 ...(*equipment*) pressure ... kiloponds/bars.
  - . 2.1 ... pressure below normal.
  - . 2.2 ... pressure above normal.
  - . 2.3 ... pressure critical.
- . 3 Ballast/fresh water/fuel/ oil/slop sounding ... metres/ cubic metres.
  - . 3.1 Sounding of no ... cargo tank ... metres/ cubic metres.
  - . 3.2 Sounding of no ... cargo hold ... centimetres.
  - . 3.3 Sounding of ... .. .

#### IV-A/ 3.9 Briefing on operation of main engine and auxiliary equipment (also see 3.8)

- . 1 (present) revolutions of main engine(s) ... per minute.
- . 2 (present) output of main engine(s) ... kilowatts.
  - . 2.1 (present) output of auxiliary engine(s) ... kilowatts.
- . 3 (present) pitch of propeller(s) ... degrees.
- . 4 Problems with machinery.
  - . 4.1 Problems with main engine(s).
  - . 4.2 Problems with auxiliary engine(s).
  - . 4.3 Problems with ... .
- . 5 No problems with ... .
- . 6 Call watch engineer (if problems continue).
  - . 6.1 Call watch engineer ... minutes before arrival at approach/at ... UTC/local time.

#### IV-A/ 3.10 Briefing on pumping of fuel, ballast water, etc.

- . 1 No pumping at present.
- . 2 Filled (no.) ... double bottom tank(s).
  - . 2.1 Filling (no.) ... double bottom tank(s).

- . 3 Discharged (no.) ... double bottom tank(s).
  - . 3.1 Discharging (no.) ... double bottom tank(s).
  - . 4 Filled (no.) ... tanks(s).
  - . 4.1 Filling (no.) ... tanks(s).
  - . 5 Discharged (no.) ... tanks(s).
  - . 5.1 Discharging (no.) ... tanks(s).
  - . 6 Transferred fuel/ballast/ fresh water/ oil from (no.) ... tank(s) to (no.) ... tank(s).
  - . 6.1 Transferring fuel/ballast/ fresh water/ oil from (no.) ... tank(s) to (no.) ... tank(s).
  - . 7 Require further generator to operate additional pump(s).
- IV-A/ 3.11 Briefing on special machinery events and repairs**
- . 1 Breakdown of main engine(s) (at ... UTC/local time)..
  - . 1.1 Breakdown of main engine(s) from ... to ... UTC/local time.
  - . 2 Breakdown of ... (at ... UTC/local time)
  - . 2.1 Breakdown of ... from ... to ... UTC/local time.
  - . 3 Total blackout (at ... UTC/local time).
  - . 3.1 Total blackout from ... to ... UTC/local time.
  - . 3.2 Blackout in ... (at ... UTC/local time) .
  - . 3.3 Blackout in ... from ... to ... UTC/local time.
  - . 4 Main engine(s) stopped ... at ... UTC/local time due to ... .
  - . 4.1 Main engine(s) stopped from ... to... UTC/local time due to ... .
  - . 5 Speed reduced (at ... UTC/local time) due to ... .
  - . 5.1 Speed reduced from ... to ... UTC/local time due to ... .
  - . 6 Call Master/ Chief engineer if revolutions of main engine(s) below ... per minute.
  - . 6.1 Call Master/ Chief engineer/ watch engineer if ... .

**IV-A/ 3.12 Briefing on record keeping**

- . 1 Log books/record books completed and signed.
- . 1.1 Note book entries will be copied (into the log books/ record books) after watch.
- . 2 Change paper of data logger/ echo sounder/ ... recorder.
- . 2.1 Refill toner/ ink of data logger/ echo sounder/ ... recorder .

**IV-A/ 3.13 Handing and taking over the watch or the conn**

- .1 (The Master or an officer handing over the watch should say:)

You now have the watch.

- .1.1 (The relieving officer should confirm and say:)

I now have the watch.

- .2 (The Master when called to the bridge and taking over the conn from the officer of the watch, should say:)

I now have the conn.

- .2.1 (The officer of the watch should confirm and say:)

You now have the conn.

Тема 2.2 Оборудование машинного отделения. Ремонтные работы.

Чтение технических текстов

## DIFFERENT TYPES OF MARINE ENGINE

### Vocabulary

**diesel engine** дизельный двигатель

**steam turbine** паровая турбина

**gas turbine** газовая турбина

**marine nuclear plant** судовая ядерная установка

**internal combustion engine** двигатель внутреннего сгорания

**power** мощность

**brake horsepower (bhp)** индикаторная мощность

**effective horsepower** эффективная мощность

**piston** поршень

**cylinder** цилиндр

**friction** трение

**power output** выходная мощность

**feet (ft)** футы (мера длины)

**revolutions per minute (rpm)** оборотов в минуту  
**slow-speed diesel engine** малооборотный дизельный двигатель  
**propeller** гребной винт  
**gearing = gear** редуктор, зубчатая передача  
**efficiency** КПД  
**fuel consumption** расход топлива  
**medium-speed diesel engine** среднеоборотный дизельный двигатель

**high pressure** высокое давление  
**blade = vane** лопасть/лопатка (винта)  
**shaft** вал  
**propeller shaft** гребной вал  
**to rotate = to turn** вращаться  
**rotary motion** вращательное движение  
**boiler** паровой котел  
**pump** насос  
**maintenance** техническое обслуживание, эксплуатация  
**to generate** вырабатывать, производить

### Text

## DIFFERENT TYPES OF MARINE ENGINE

There are four main types of marine engine: the **diesel engine**, the **steam turbine**, the **gas turbine** and the **marine nuclear plant**. Each type of engine has its own particular application.

The diesel engine is a form of **internal combustion engine** similar to that used in a bus. Its **power** is expressed as **brake horsepower (bhp)**. This is the power put out by the engine. **Effective horsepower** is the power developed by the **piston** in the **cylinder**, but some of this is lost by **friction** within the engine. The **power output** of a modern marine diesel engine is about 40,000 brake horsepower. This is now expressed in kilowatts. By comparison<sup>1</sup> the engine of a small family car has an output of about 80 bhp. Large diesel engines, which have cylinders nearly 3 ft in diameter, turn at the relatively slow speed of about 108 **revolutions per minute (rpm)**. These are known as **slow-speed diesel engines**. They can be connected directly to the **propeller** without **gearing**. Although higher power could be produced by higher revolutions, this would reduce the **efficiency** of the propeller<sup>2</sup>, because a propeller is more efficient the larger it is and the slower it turns<sup>3</sup>. These large slow running engines are used in the larger merchant ships, particularly in tankers and bulk carriers. The main reason is their low **fuel consumption**. More and more of the larger merchant vessels are being powered by **medium-speed diesel engines**. These operate between 150 and 450 rpm, therefore they are connected to the propeller by gearing. This type of engine was once restricted to<sup>4</sup> smaller cargo ships, but now they are used in fast cargo liners as well as in tankers and bulk carriers. They are cheaper than slow-speed diesel engines, and their smaller size and weight can result in a smaller, cheaper ship.

In steam turbines **high pressure steam** is directed into a **series of blades** or **vanes** attached to a **shaft**, causing it to **rotate**. This **rotary motion** is transferred to the **propeller shaft** by gears. Steam is produced by boiling water in a **boiler**, which is fired by oil. Recent developments in steam turbines which have reduced fuel consumption and raised power output have made them more attractive as an alternative to diesel power in ships. They are 50 per cent lighter and on very large tankers some of the steam can be used to drive the large cargo oil **pumps**. Turbines are often used in container ships, which travel at high speeds.

Gas turbines differ from steam turbines in that gas rather than steam<sup>5</sup> is used to **turn** a shaft. These have also become more suitable for use in ships. Many naval vessels are powered by gas turbines and several container ships are fitted with them. A gas turbine engine is very light and easily removed for **maintenance**. It is also suitable for complete automation.

Nuclear power in ships has mainly been confined to naval vessels<sup>6</sup>, particularly submarines. But this form of power will be used more in merchant ships as oil fuels become more expensive. A nuclear-powered ship differs from a conventional turbine ship in that it uses the energy released by the decay of radioactive fuel<sup>7</sup> to **generate** steam. The steam is used to turn a shaft via a turbine in the conventional way<sup>8</sup>.



## Notes

<sup>1</sup> **By comparison** – для сравнения

<sup>2</sup> **Although higher power could be produced by higher revolutions, this would reduce the efficiency of the propeller** – хотя большая мощность могла бы производиться более высокими оборотами, это сократило бы КПД винта

<sup>3</sup> **a propeller is more efficient the larger it is and the slower it turns** - чем больше винт и чем медленнее он поворачивается, тем выше его производительность.

<sup>4</sup> **was once restricted to** однажды был сокращен до

<sup>5</sup> **gas rather than steam is used to turn a shaft** – газ, а не пар используется для поворота вала

<sup>6</sup> **Nuclear power in ships has mainly been confined to naval vessels** – ядерные установки на судах используются, главным образом, на военных кораблях

<sup>7</sup> **the energy released by the decay of radioactive fuel** – энергия, выделяемая в результате распада радиоактивного топлива

<sup>8</sup> **in the conventional way** – обычным способом

## Exercises

**1. Listen to these word combinations and repeat them after the speaker. Memorize their translation.**

Internal combustion engine; brake horse power; low fuel consumption; high pressure steam; rotary motion; propeller shaft; power output; complete automation; nuclear powered ship; conventional turbine ship.

**2. Find English equivalents in the text.**

Передавать прямо на винт; соединять с винтом с помощью редуктора; уменьшать КПД; направлять пар на лопатки; передавать вращательное движение на вал; производить пар; уменьшать расход топлива; увеличивать мощность; выделять энергию

**3. Complete the sentences, using the words in *Italics*.**

*Propeller shaft; turn; piston; gearing, internal combustion engine; steam; speed; generate.*

1) The diesel engine is a form of ... 2) Effective horsepower is the power developed by the ... in the cylinder. 3) Large diesel engines turn at the relatively slow ... of about 108 rpm. 4) Medium-speed diesel engines are connected to the propeller by ... 5) In steam turbines ... is directed into a series of blades attached to a shaft. 6) The rotary motion is transferred to the ... by gears. 7) In gas turbines gas is used to ... a shaft. 8) A marine nuclear plant uses the energy released by the decay of radioactive fuel to ... steam.

**4. Translate the sentences paying attention to the adjectives.**

1. A propeller is **more** efficient the **larger** it is and the **slower** it turns.
2. **More** and **more** of the **larger** merchant vessels are being powered by medium-speed diesel engines.
3. They are **cheaper** than slow-speed diesel engines, and their **smaller** size and weight can result in a **smaller, cheaper** ship.

4. Recent developments in steam turbines have made them **more attractive** as an alternative to diesel power in ships.
5. Steam turbines are 50 per cent **lighter**.
6. Nuclear power will be used more in merchant ships as oil fuels become **more expensive**.

**5. Open the brackets using the passive voice (is/are + V<sub>3</sub>).**

1. Part of the power (to lose) by friction.
2. The power (to express) in kilowatts.
3. Slow-speed diesel engine (to connect) directly to the propeller without gearing.
4. Turbines often (to use) on container ships.
5. More and more of the merchant vessels (to power) by medium-speed diesel engines.
6. In steam turbines high pressure steam (to direct) into a series of blades attached to a shaft.
7. The rotary motion (to transfer) to the propeller shaft by gears.
8. In modern turbines the fuel consumption (to reduce) and the power output (to rise).
9. A gas turbine engine is very light and easily (to remove) for maintenance.
10. On nuclear-powered ships steam (to generate) by the energy released by the decay of radioactive fuel.

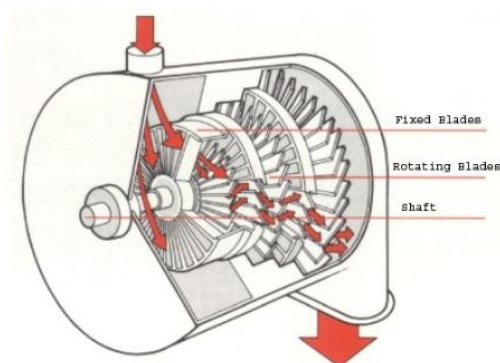
**6. Answer the questions on the text.**

- 1) What are the main types of marine engines?
- 2) What is a diesel engine?
- 3) What engines are known as low-speed diesel engines?
- 4) What is the main advantage of low-speed diesel engine?
- 5) Where are medium-speed diesel engines used?
- 6) What are the advantages of medium-speed diesel engine?
- 7) In what kind of ships are steam turbines used?
- 8) How is steam produced?
- 9) What are the advantages of a gas-turbine engine?
- 10) Where are nuclear plants used?

**7. Fill in the table to summarize the application of these engines.**

Type of an engine	Application	Advantages
slow-speed diesel		
medium-speed diesel		
steam turbine		
gas turbine		
marine nuclear plant		

**8. Tell about different types of marine engine, their advantages and disadvantages, application.**



## INTERNAL COMBUSTION ENGINE Vocabulary

**spark ignition engine** двигатель с искровым зажиганием

**crosshead type** крейцкопфного типа

**trunk type** тронкового типа

**single-acting** простого действия

**double acting** двойного действия

**opposed-piston type** с противоположно движущимися поршнями

**stroke** ход, такт

**cycle** цикл

**four-stroke engine** 4-х тактный двигатель

**two-stroke engine** 2-х тактный двигатель

### Text

## INTERNAL COMBUSTION ENGINE

Internal combustion engine, as all the heat engines e.g. gas turbine, steam turbine and nuclear plant (marine nuclear plant), converts heat energy into mechanical energy. Diesels – a group of internal combustion engines are used on board a ship as main and auxiliary engines. Unlike **spark ignition engines** diesel engines use the heat of compression to fire the fuel. The power (output) expressed as brake horsepower (bhp), now is expressed mostly in kilowatts. All the diesels regardless of the principle of operation are divided into two types, four-stroke cycle and two-stroke cycle engines, and may be **single** or **double acting**, **trunk piston type**, **crosshead type**, **opposed piston type**.

## PARTS OF AN ENGINE

**Air filter** (воздушный фильтр). A device for filtering the air, before it goes into the engine, to prevent particles of dust from entering the engine.

**Bearings** (подшипники). Support, guide, or locating pieces for a rotating or reciprocating mechanical parts.

**Bedplate** = **crankcase subbase** (фундаментная рама). The lower part of the engine resting on the foundation.

**Cam** (кулачковая шайба). A disk-like piece attached to a shaft. Cams are used in the camshaft. They influence the work of the valves (inlet, exhaust, fuel, starting-air).

**Camshaft** (распределительный вал). The shaft which carries the different cams required for the operation of inlet, exhaust, fuel, and starting-air valves.

**Check valve** = **relief valve** = **safety valve** (предохранительный клапан). A valve that is regulated for definite (special, particular) pressure.

**Connecting rod (шатун)**. The engine part which connects the piston to the crankshaft. It changes reciprocating motion of the piston into rotary motion of the crankshaft or vice versa.

**Crank (мотыль, кривошип, колено)**. It is a part of the crankshaft, which is in the form of a crank, and consists of a crankpin, two crankshaft cheeks and two crankshaft journals.

**Crankcase (картер)**. The middle part of the engine structure surrounding the working parts; the part of an engine between the cylinders and the bedplate.

**Crankpin (мотылевая шейка, цапфа кривошипа)**. That part of the crank to which the connecting rod is attached.

**Crankshaft (коленвал)**. That part of the engine which transmits the reciprocating motion of the pistons to the driven unit in the form of rotary motion. That part to which the connecting rods are attached.

**Crankshaft cheek (щека коленвала)**. The part of the crankshaft that connects the crankpin to the main crankshaft journal.

**Crankshaft journal (рамовая шейка)**. The part of the crankshaft which rotates in the main bearings and transmits the torque developed by the engine.

**Crosshead (крейцкоф)**. The part of an engine to which are attached the piston pin with the connecting rod and this part slides on guides.

**Crosshead guides (направляющие ползуна – параллели)**.

**Cylinder (цилиндр)**. The cylindrical part of the engine which consists of a cylinder liner and a cylinder jacket.

**Cylinder block (блок цилиндров)**. A number of cylinders placed in one place.

**Cylinder bore (диаметр цилиндра)**. The inside diameter of an engine cylinder.

**Cylinder head (cover, crown) (крышка цилиндра)**. The part which covers the end of the cylinder and usually contains the valves (inlet, exhaust, fuel, starting-air).

**Cylinder liner (втулка)**. A cylindrical part that is placed into the cylinder jacket or cylinder block and in which the piston slides.

**Exhaust manifold (выпускной коллектор)**. The pipe that collects the burnt gases.

**Flywheel (маховик)**. The wheel on the end of the crankshaft that gives the crankshaft momentum (момент инерции) to carry the pistons through the compression stroke.

**Framing (станина)**. The part of an engine between the cylinders and the bedplate; the crankcase.

**Fuel pump (топливный насос)**. The pump that delivers the fuel to the injector.

**Gas turboblower = turbocharger (газотурбонагнетатель)**. A centrifugal compressor which boosts the intake pressure (повышает давление всасывания) of an internal-combustion engine, driven by an exhaust-gas turbine fitted to the engine's exhaust manifold

**Governor (регулятор частоты)**. A mechanism used to control the speed of an engine.

**Manifold (трубопровод)**. A pipe with a number of inlets to, or outlets from, the several cylinders of an engine.

**Nozzle (сопло)**. The part of the spray valve in which are located the holes through which the fuel is injected into the cylinder.

**Piston (поршень)**. A cylindrical part which reciprocates in the cylinder bore of an engine.

**Piston head** (головка поршня). The top of the piston.

**Piston pin/rod** (поршневой палец).

**Piston ring** (поршневое кольцо). A split ring placed in a groove/recess cut in the piston barrel.

**Piston stroke** (ход поршня). The movement of the piston from top dead center to bottom dead center.

**Push rod** (штанга). The rod that transmits the action of a cam to the valves.

**Rocker arm** = **rocking lever** (коромысло). A lever that transmits the action of the cam, usually by means of a push rod.

**Valve** (клапан) is usually opened by a cam and closed by a spring.

- **exhaust valve** (выпускной клапан). The valve through which the burnt gases are passed out to the exhaust manifold.

- **inlet valve** (впускной клапан). The valve through which air or the air-fuel mixture is admitted to the cylinder of a four-stroke engine.

- **fuel valve = fuel injector = spray valve** (форсунка). It sprays the fuel into the cylinder.

- **starting-air valve** (пусковой клапан)

**Valve spring** (пружина клапана). The spring which is used to close a valve.

**Water jacket** (зарубашечное пространство). The outer space around an engine cylinder where the cooling water is circulated.

## Exercises

### 1. Match the terms with their definitions.

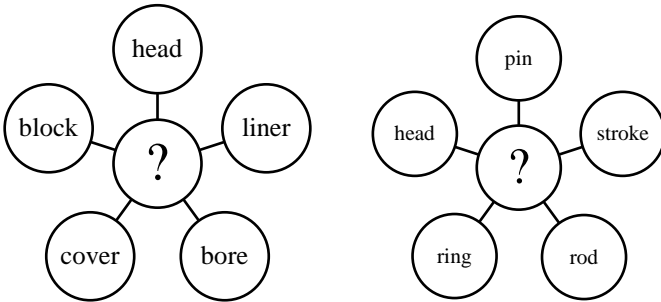
1) A cylindrical part, which reciprocates in the cylinder bore of an engine.	a) air filter
2) It sprays the fuel into the cylinder.	b) fuel pump
3) A number of cylinders placed in one place.	c) <i>piston</i>
4) The pipe that collects the burnt gases.	d) fuel injector
5) The top of the piston.	e) piston head
6) The valve through which the burnt gases pass.	f) cylinder block
7) The pump that delivers the fuel to the injector.	g) cam
8) A disc-like piece attached to a shaft.	h) crankshaft
9) A device for filtering the air.	i) exhaust valve
10) That part of an engine to which the connecting rods are attached.	j) exhaust manifold

### 2. Answer the questions.

- 1) What is an engine?
- 2) Who first developed the internal combustion engine? When?
- 3) What types of diesel engine do you know?
- 4) What is a unit for measuring power?

- 5) What is a unit of engine speed?
- 6) How do we call the travel of a piston between its extreme points?
- 7) What is the name for series of repeating operations?

**3. Guess what word is missing.**



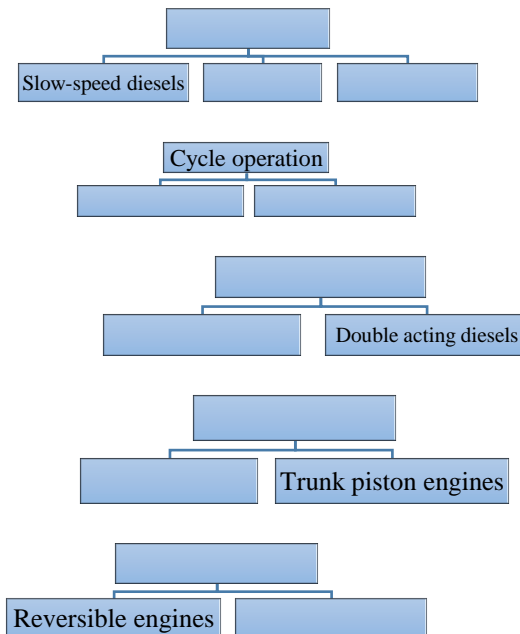
**4. Divide the words into two groups.**

Fixed parts	Running parts

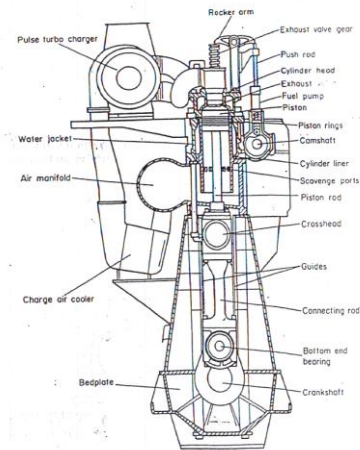
Crankshaft, cylinder, bedplate, main bearings, piston, crosshead, frame, foundation, piston rod, cylinder head, connecting rod, cylinder liner

**5. Fill in the tables with the following words.**

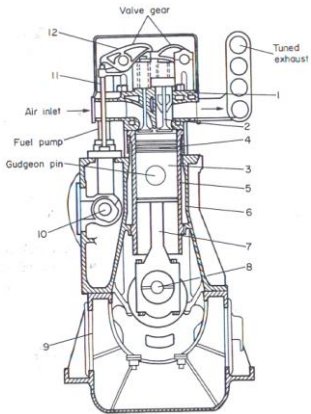
Medium-speed diesels, piston design, high-speed diesels, four-stroke diesels, two-stroke diesels, non-reversible engines, piston action, rotation direction, single acting diesels, crosshead engines, speed range.



**6. Study the diagram of a two-stroke slow-speed diesel engine and learn the names of the principal parts.**



7. Here is the diagram of a four-stroke medium-speed diesel engine. Name the parts 1-12 indicated.



## CYCLES OF DIESEL ENGINES

### Vocabulary

**suction stroke** (*inlet stroke*) такт всасывания  
**compression stroke** такт сжатия  
**to compress** сжимать  
**combustion and expansion stroke** (*power stroke*) такт горения и расширения  
**exhaust stroke** выхлопной такт  
**Top Dead Centre (TDC)** верхняя мертвая точка  
**Bottom Dead Centre (BDC)** нижняя мертвая точка  
**to spray** впрыскивать  
**to ignite** воспламенять

**to burn** гореть  
**to maintain injection** поддерживать впрыск  
**to push out** выталкивать  
**complete** законченный  
**to require** требовать  
**to comprise** включать  
**scavenging ports** продувочные окна  
**exhaust ports** выхлопные окна  
**uniflow scavenging** прямоточная продувка  
**to uncover** открывать  
**to drop** падать  
**to occur** происходить, случаться

### Text

## CYCLES OF DIESEL ENGINES

### The working of a four-stroke engine

Four-stroke engines are usually medium-speed or high-speed engines.

The four-stroke cycle consists of the **suction stroke** (also called *inlet stroke*), **compression stroke**, **combustion and expansion stroke** (or *power stroke*) and **exhaust stroke**.

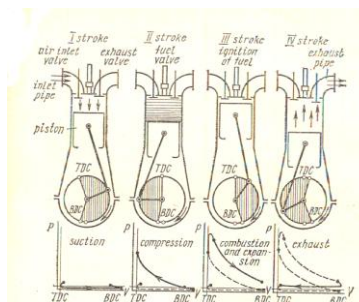
The four-stroke cycle begins when the piston is in its Top Dead Centre (TDC). The piston starts a downward, suction stroke. The air inlet valve is open and air is drawn into the cylinder<sup>1</sup>. The exhaust valve, fuel valve are all closed.

During the compression stroke, the piston has just passed its **Bottom Dead Centre (BDC)**, the air inlet valve closes, the piston goes up and the air in the cylinder is compressed. The fuel injection valve now opens and the fuel oil is **sprayed** into the cylinder under a pressure. The high temperature of the compressed air in the cylinder **ignites** the fuel, and it continues to **burn** as long as **injection** is **maintained**. This burning raises the temperature of the gas.

In the meantime<sup>2</sup>; the piston has started down on the third, or expansion, stroke with the gas expanding behind it. The injection valve closes shortly after the piston has started down on this stroke. At the end of this stroke the exhaust valve opens and the burned gases in the cylinder, now reduced in pressure and temperature, start to flow out through the exhaust pipe.

Returning on the fourth, or exhaust, stroke the piston **pushes** the remaining gas **out** of the cylinder. At the end of this stroke the exhaust valve closes, the air inlet valve opens and the cycle of operations starts again.

One **complete** cycle **requires** four strokes of the piston; the four strokes **comprise** two complete revolutions of the crank.

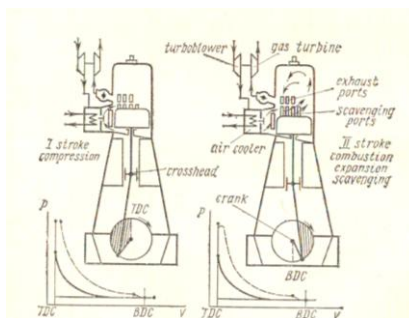


**The working of a two-stroke engine**

In the 2-cycle, single-acting Diesel engine instead of an exhaust valve there is a ring of exhaust ports around the bottom of the cylinder, communicating with the exhaust pipe. The spray valve and starting valve are the same as in the 4-cycle. In place of air inlet valves there are **scavenging ports**, in place of exhaust valves there are **exhaust ports**, in **uniflow scavenging** engines there are exhaust valves. The scavenging ports are in communication with a passage leading to a low pressure scavenging air compressor, operated from the engine.

When the piston on its downward stroke **uncovers** the exhaust ports and the cylinder pressure **drops** to atmospheric, the scavenging ports open and the air, under pressure, flows into the cylinder and pushes the exhaust gases out through these ports. As the piston on its up stroke covers the scavenging ports, the exhaust ports close, leaving the cylinder full of fresh air. The piston moving upwards on its compression stroke, compresses this air and at the end of compression fuel injection **occurs**, just as previously described<sup>3</sup> for the 4-stroke cycle.





It is thus seen<sup>4</sup> that the complete series of operations, including fuel injection and combustion, expansion, exhaust, filling cylinder with fresh air and compression, occurs in two strokes of the piston, or one revolution of the crankshaft.

### Notes

- <sup>1</sup> **air is drawn into the cylinder** – воздух втягивается в цилиндр
- <sup>2</sup> **in the meantime** - тем временем
- <sup>3</sup> **just as previously described** – так, как описывалось ранее
- <sup>4</sup> **it is thus seen** – таким образом видно

### Exercises

#### 1. Listen to these word combinations and repeat them after the speaker. Memorize their translation.

Four-stroke cycle, two-stroke cycle, suction stroke, compression stroke, combustion and expansion stroke, exhaust stroke, Top Dead Centre, Bottom Dead Centre, air inlet valve, exhaust valve, fuel valve, exhaust pipe, exhaust ports, scavenging ports.

#### 2. Find English equivalents in the text.

Высокая температура сжатого воздуха; воспламенить топливо; выталкивать оставшиеся газы; полный оборот коленвала; днище цилиндра; давление падает до атмосферного; заполнить цилиндр воздухом; компрессор продувочного воздуха.

#### 3. Translate the sentences paying attention to the prepositions.

- 1) Air is drawn **into** the cylinder.
- 2) The piston goes **up** and the air **in** the cylinder is compressed.
- 3) The burned gases **in** the cylinder start to flow **out through** the exhaust pipe.
- 4) The air, **under** pressure, flows **into** the cylinder and pushes the exhaust gases **out through** scavenging ports.
- 5) The piston has started **down** on the expansion stroke.
- 6) The piston is **in** its Top Dead Centre.

#### 4. Translate the sentences. Mind the numerals and abbreviations.

- 1) At the end of the suction stroke the air has been compressed to about 480 pounds and its temperature has risen to about 1,000 degrees F.
- 2) The fuel oil is sprayed into the cylinder under a pressure of 3,550 p.s.i (pounds per square inch).
- 3) The burning of fuel raises the temperature of the gas to 3,000 °F.
- 4) The exhaust gas pressure is 40 lbs (pounds).

**5. Read the following abbreviations.**

120 lbs., 260 p.s.i., 470°F, 75°C, 500 lbs., 900°F, 345 p.s.i., 60°C, 380 lbs., 730 p.s.i.

**6. Translate, extending the sentences gradually:**

**A)**

1. Впрыскивается топливо.
2. Топливо впрыскивается в цилиндр.
3. Топливо впрыскивается в цилиндр двигателя.
4. Топливо впрыскивается в цилиндр двигателя под давлением.
5. Топливо впрыскивается в цилиндр двигателя под давлением 3500 фунтов на кв. дюйм.

**B)**

1. Поршень движется вверх.
2. Поршень движется вверх на выхлопной ход, на ход «выпуск».
3. Поршень движется вверх на выхлопной ход, выталкивая газы.
4. Поршень движется вверх на выхлопной ход, выталкивая газы через окна.
5. Поршень движется вверх на выхлопной ход, выталкивая газы через открытые выхлопные окна.

**7. Answer the questions on the text:**

- 1) What are the strokes of a four-stroke cycle?
- 2) What valves are there on the cylinder head?
- 3) When is the air inlet valve open?
- 4) What valves should be closed during the compression stroke?
- 5) When do the gases flow out of the cylinder?
- 6) How many revolutions of the crank do the four piston strokes require?
- 7) Name the strokes of a two-stroke cycle.
- 8) Is there any difference in construction between the four and two-cycle engines?
- 9) Where are the scavenging ports located?
- 10) On what stroke does the piston uncover the exhaust ports?
- 11) When does fuel injection occur?
- 12) How many revolutions of the crankshaft are required in a 2-cycle engine?

**8. Indicate by means of letters A-J the sequence of events in a four-stroke engine.**

1	2	3	4	5	6	7	8	9	10
A									

A – Piston is in its TDC.

B – All the valves are closed; compression of the air in the cylinder.

C – Piston pushes the exhaust gases out of the cylinder.

D – Explosion forces the piston down.

E – The fuel is injected through the nozzle.

F – The cylinder is filled with air.

G – High temperature in the cylinder ignites the fuel.

H – The inlet valve is open.

I – Piston passes its BDC.

J - Piston passes its BDC again.

9. Describe the four-cycle and two-cycle internal combustion engines and all the processes occurring in them.

### SCAVENGING Vocabulary

**scavenging** продувка

**scavenging arrangement**

продувочное устройство

**to admit** впускать

**slightly** слегка

**to allow** позволять

**to rush in** врывать

**to incline** наклонять

**to deflect upward** направлять вверх

**to sweep out** выдувать

**to trap** захватывать

**to simplify** упрощать

**cross scavenging system** поперечная

продувка

**loop scavenging** петлевая продувка

**uniflow scavenging system** прямоточно-

клапанная продувка

**advantage** преимущество

**rotary motion** вращательное движение

**surplus** избыточный

**to ensure** обеспечивать

**even** равномерный

### Text

### SCAVENGING

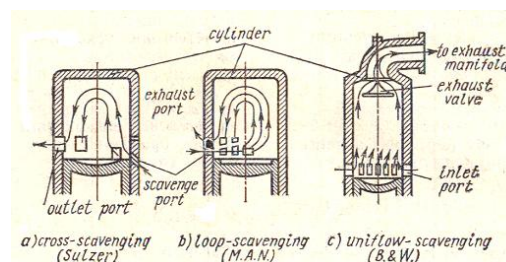
In the two-stroke cycle engine the scavenge air is **admitted** through scavenging ports located at the bottom of the cylinder.

In the **scavenging arrangement** we describe, the exhaust ports are placed on one side of the cylinder and on the opposite side are scavenging ports.

The exhaust ports are **slightly** higher than the scavenging ports so that the piston uncovers the exhaust ports first, thus **allowing** the pressure in the cylinder to fall before the scavenging ports are opened. By the time the scavenging ports are uncovered the pressure in the cylinder has fallen to atmospheric and the scavenging air **rushes in**. By **inclining** the scavenging ports and shaping the piston head<sup>1</sup>, the entering air is **deflected upward** and **sweeps** the burned gases **out** of the upper part of the cylinder and out through the exhaust ports. When the piston covers the ports on its up stroke, the air is **trapped** in the cylinder and then is compressed. This arrangement of scavenging needs valves in the cylinder head. The only cylinder head valves then required are the spray valve and starting air valve. This **simplifies** the head, makes cooling easier and reduces the liability to crack<sup>2</sup>.

There are a number of different systems in use for admitting scavenge air.

In 2-stroke Diesel engines the following three methods are used for the scavenging of the cylinder: **cross scavenging system** (Sulzer), **loop scavenging** (M.A.N.) and **uniflow scavenging system** (B. & W.).



Uniflow scavenging is of greater **advantage** when compared to the two other systems. It ensures better removal of all residues<sup>3</sup> of the combustion products.

By giving the scavenging port an inclined shape<sup>4</sup>, a **rotary motion** of the scavenging air is obtained, which means that the air ascends through the cylinder<sup>5</sup> without mixing with the combustion gases; the latter are forced out of the cylinder, no residue being left<sup>6</sup>.

As a consequence<sup>7</sup> of the advantageous flow conditions, this system requires less **surplus** air and less scavenging work, too.

The rotary motion of the scavenging air **ensures** a very **even** mixture of air and oil, and this will ensure a good combustion of the oil.

### Notes

<sup>1</sup> **by shaping the piston head** – придавая форму головке поршня

<sup>2</sup> **reduces the liability to crack** – сокращает подверженность растрескиванию

<sup>3</sup> **removal of all residues** – удаление всех остатков

<sup>4</sup> **by giving the scavenging port an inclined shape** – придавая продувочным окнам наклонную форму

<sup>5</sup> **the air ascends through the cylinder** – воздух поднимается в цилиндре

<sup>6</sup> **no residue being left** – без остатка

<sup>7</sup> **as a consequence** – как следствие

### Exercises

**1. Listen to these word combinations and repeat them after the speaker. Memorize their translation.**

two-stroke cycle, scavenging air, scavenging ports, exhaust ports, piston head, entering air, burned gases, upper (lower) part of the cylinder, cylinder head, spray valve, starting air valve, cross scavenging, loop scavenging, uniflow scavenging, rotary motion, even mixture of air and oil, combustion products.

**2. Give the synonyms:**

burned gases  
to cover  
to uncover  
to fall  
to push out  
to be located

**3. Translate the following *ing*-phrases:**

by inclining the scavenging ports, by shaping the piston head, by mixing with gases, by obtaining even mixture, by giving the shape, by admitting scavenge air.

**4. Translate the sentences (pay attention to the passive voice):**

1. The loop scavenging system **is used** in M.A.N. engines.
2. The air **is compressed** in the cylinder.
3. The cross scavenging system **is used** in Sulzer engines.

4. The entering air **is deflected** upward.
5. The uniflow scavenging system **is used** in B.&W. engines.
6. The air **is admitted** through the scavenging ports.
7. Scavenging ports **are placed** at the bottom of the cylinder.
8. The burned gases **are swept out** into the atmosphere.
9. The spray valve and starting valve **are placed** in the cylinder head.
10. The combustion gases **are forced out** into the atmosphere.

### 5. Answer the questions.

- 1) Where are the scavenging ports located?
- 2) Where are the exhaust ports located in a two-stroke Diesel engine?
- 3) What can you say about the pressure when the piston uncovers the exhaust ports?
- 4) What valves are located on the cylinder head?
- 5) Name different systems of scavenging in Diesel engines.
- 6) What are the advantages of uniflow scavenging?

### 6. Translate into English:

В двухтактном дизельном двигателе используются три метода продувки цилиндра: поперечная, петлевая и прямоточно-клапанная продувка. Прямоточно-клапанная продувка имеет преимущества по сравнению с двумя другими системами. Она лучше удаляет остатки продуктов горения из цилиндра.

### 7. Tell what you have learnt about the scavenging process and different systems.

## FUEL SYSTEM

### Vocabulary

**fuel piping system** трубопровод топливной системы

**fuel supply line** трубопровод общей подачи топлива

**high-pressure fuel line** трубопровод высокого давления

**fuel heating pipe** трубопровод подогрева топлива

**heavy fuel** тяжелое топливо

**fuel transfer pump** топливopерекачивающий насос

**preheating arrangement** устройство для предварительного подогрева

**installation** система, установка

**intermittent pressure** пульсирующее давление

**welding beads** капельки сварки

**to damage** повреждать

**to employ** использовать

**drain line** сливной трубопровод

**leakage fuel** спуск топлива

**pressure-maintenance valve= pressure-retaining valve**

клапан постоянного давления

**shut-off valve** отсечной клапан

**non-return valve** невозвратный клапан

**pump capacity** производительность насоса

**discharging** зд. прокачка

**counter-pressure=backpressure**

противодавление

**to adjust** регулировать

**to switch over** переключаться

**vapour** зд. пробка (*паров*)

**double cone seat** двуконусное седло

**single-controlled fuel pump** основной насос

**to deliver fuel** подавать топливо

**overflow line** трубопровод перелива

**to possess** иметь, обладать

**orifice** отверстие

**finely atomized** мелко распыленный

Text

## FUEL SYSTEM

The **fuel piping system** comprises the **fuel supply lines**, **high-pressure fuel lines** and **fuel heating pipes**, if **heavy fuel** is used. Fuel supply lines include the supply lines from the **fuel transfer pumps** and **preheating arrangements** to the fuel filters and fuel pumps of the engine, also the fuel supply lines to the **installation**. High-pressure fuel lines connect the fuel pumps with the fuel valves and are under very high **intermittent pressure**. Defective high-pressure fuel lines must not be repaired by welding, because the **welding beads**, which get inside the pipe, may **damage** the fuel nozzle.

The preheating system **employs** steam up to 7 kg/sq.cm.g. and is led adjacently along fuel pressure and supply lines, also filters. The **drain lines** for **leakage fuel** are also partially heated.

Fuel system fittings are fuel transfer pump, fuel filter, fuel **pressure-maintenance valve**, fuel **shut-off valve**, fuel **non-return valve**.

The fuel transfer pump is driven separately by the electric motor, as a rule, and its **capacity** must be chosen so that it is always fully capable of **discharging** against the **counter-pressure adjusted** at the **pressure-retaining valve**<sup>1</sup>.

The fuel filter contains several filter elements, which can be **switched over** during operation and is designed for steam heating.

The fuel pressure-retaining valve is designed for adjustable **backpressure**. The pressure adjusted should be so high that there is no formation of **vapour** on the suction side of the fuel pumps.

The fuel shut-off valve opens during operation and is provided with a **double cone seat** to prevent leakage. It enables the main pipe to be isolated temporarily for dismantling the fuel pump or preheating<sup>2</sup>.

The non-return valve is situated between the fuel pump and the overflow line with **single-controlled fuel pumps**. During operation the surplus fuel **delivered** by the fuel transfer pump runs off into the **overflow line**. When dismantling a fuel pump, the latter is isolated from the overflow line by the non-return valve<sup>3</sup>.

Each cylinder **possesses** its own fuel pump, which discharges a definite quantity of fuel<sup>4</sup> through the discharge line to fuel valve at the correct moment and under high pressure. The fuel is then sprayed into the combustion chamber in certain direction<sup>5</sup> through a number of accurate nozzle **orifices**, and is **finely atomized** in the process.

### Notes

<sup>1</sup> **its capacity must be chosen so that it is always fully capable of discharging against the counter-pressure adjusted at the pressure-retaining valve** – его (*насоса*) производительность должна быть выбрана таким образом, чтобы он был полностью способен прокачивать топливо, преодолевая противодействие, установленное в клапане постоянного давления.

<sup>2</sup> **It enables the main pipe to be isolated temporarily for dismantling the fuel pump or preheating.** – Он позволяет временно изолировать основной трубопровод для демонтажа топливного насоса или для предварительного подогрева топлива.

<sup>3</sup> **When dismantling a fuel pump, the latter is isolated from the overflow line by the non-return valve.** – При демонтаже топливного насоса, последний изолируют от сливного трубопровода с помощью невозвратного клапана.

<sup>4</sup> **a definite quantity of fuel** – определенное количество топлива

<sup>5</sup> **in certain direction** – в определенном направлении

## Exercises

### 1. Listen to these word combinations. Repeat them and remember their translation.

Fuel system, fuel supply lines, high pressure fuel lines, fuel heating pipes, fuel supply, heavy fuel, fuel transfer pump, fuel filter, quantity of fuel, fuel leakage, fuel pressure-maintenance valve, fuel shut-off valve, fuel non-return valve.

### 2. Find English equivalents in the text.

Пульсирующее давление, поврежденный трубопровод, ремонтировать сваркой, трубопровод перелива, двуконусное седло, производительность насоса, противодействие, избыточное топливо, демонтировать насос, мелко распыленный, предотвращать утечку, временно изолировать, в нужный момент, под высоким давлением, мелкие отверстия.

### 3. Give the synonyms.

fuel pressure maintenance valve  
counter pressure  
drain line

### 4. Complete the sentences. Choose the proper word from the list.

*overflow, shut-off valve, non-return valve, high-pressure pump, needle, camshaft*

1. An arrangement that controls the operation of all the valves is the ... . 2. A unit that supplies fuel to the fuel injection valve is the ... .  
3. A part of the valve that opens and closes the nozzle is the ... .  
4. A device that isolates the fuel pump from the overflow line is the ... . 5. An arrangement that stops the supply to the fuel pipe is the ... . 6. The line that functions when there is surplus fuel in the system is the ... .

### 5. Answer the questions.

- 1) What does the fuel piping system include?
- 2) What can you say about the high-pressure fuel line?
- 3) What fuel system fittings do you know?
- 4) When is the preheating system used?
- 5) By means of what is the fuel transfer pump driven as a rule?
- 6) What is the shut-off valve provided with?
- 7) What valve isolates the pump from the overflow line?
- 8) Does each cylinder possess its own fuel pump?

### 6. Translate into English.

1. Топливная система двигателя состоит из трубопровода общей подачи топлива, трубопровода высокого давления и сливного трубопровода. 2. Если для системы используется тяжелое топливо, его нужно подогреть. 3. Топливо впрыскивается в камеру сгорания под давлением. 4. Топливоподкачивающий насос приводится в действие

электромотором. 5. Каждый цилиндр имеет собственный топливный насос, обеспечивающий впрыск. 6. Избыточное топливо, подаваемое насосом, сбрасывается в трубопровод перелива.

**7. Describe the Diesel engine fuel system using the figure below.**

**Memorize the terms.**

**single-controlled fuel pump**

**overflow**

**loaded spring**

**camshaft**

**cam**

**roller**

**push rod**

**rocking lever**

**high-pressure fuel pump**

**delivery valve**

**booster pump**

**fuel injection valve**

**needle**

**nozzle**

**pressure retaining valve**

**non-return valve**

**shut-off valve**

насос первой ступени

слив

нагрузочная пружина

распределительный вал

кулачок, кулачковая шайба

ролик толкателя

толкатель, штанга

коромысло

насос высокого давления

нагнетательный клапан

подкачивающий насос

форсунка

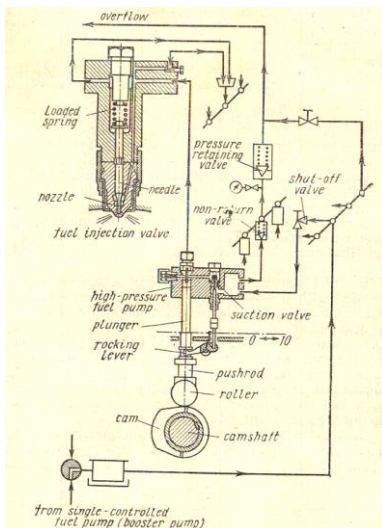
игла

сопло

клапан постоянного давления

невозвратный клапан

запорный/отсечной клапан



## COOLING THE ENGINE

### Vocabulary

**cooling** охлаждение

**coolant** охладитель

**cooling medium** охлаждающая среда

**seawater** морская вода

**fresh water** пресная вода

**to reduce** уменьшать

**wear** износ

**thermal deformation** температурная деформация

**expansion** расширение

**shrinking** сжатие, усадка

**housing** станина, картер

**crosshead guide** направляющая крейцкопфа

**guide shoe** направляющий башмак

**free of charge** бесплатно

**to stick (to)** прилипнуть (к), приклеиваться (к)

**heated surface** поверхность нагрева



**deposit** отложение, осадок

**carbon deposit** углеродистое отложение, нагар

**scale** накипь, окалина

**insulation** изоляция

**to cause** вызывать, быть причиной

**heat exchanger** теплообменник

**sea-chest** кингстонная (приёмная) коробка (на всасывающем трубопроводе)

**closed circuit** замкнутая цепь, замкнутая схема

**muffler** глушитель, звукопоглощающее устройство

**purifying** очищение, очистка

**sealing-layer** герметизирующий слой

### Text

## COOLING THE ENGINE

Due to very high temperatures caused by the combustion of the fuel and the friction between the various moving engine parts, cooling of the engine is necessary to **reduce wear** and **thermal deformation** as a consequence<sup>1</sup> of the constant **expansion** and **shrinking** of these engine parts.

The engine parts that require cooling are:

- The cylinder (liners and covers): the cylinder is cooled by injecting the **coolant** between the cylinder liner and the cylinder jacket. The most common coolant is fresh water.
- The piston: when the piston goes up and down, the coolant (oil) will enter through the piston rod bore and will leave through the inside return pipe.
- Exhaust valves and **housings**;
- Fuel valves, especially around atomizers;
- The housings of the exhaust gas turbines;
- **Crosshead guides** and crosshead **guide shoes**.

**Coolants.** The coolants that are used in the cooling process are: seawater, fresh water, oil and air.

The advantages of **seawater** as a coolant are: it is **free of charge** and can absorb a lot of heat. A seawater cooling system can be made very simple since the used seawater can be discharged into the sea.

The disadvantages of seawater are: it contains a lot of minerals that will **stick to** all **heated surfaces** and form a **deposit**. This “**scale**”, as it is called, must be removed, because it will form an **insulation** that will prevent exchange of heat<sup>2</sup>.

Seawater will also **cause** corrosion to the engine parts and piping. We use seawater as a **cooling medium** in an indirect cooling process (“cooling the coolant”). Before the coolant will be circulated through the engine again, it is cooled with seawater by a **heat exchanger**. The seawater enters the ship through seawater inlets. These inlets are fitted with **sea-chests** that filter the water before it is led to the heat exchangers.

**Fresh water** has the ability to absorb much heat and will hardly cause any forming of scale. Compared to seawater, however, fresh water is very costly. Therefore it is only used in **closed circuits**, so that it can be reused.

**Oil** as a coolant has a lot of advantages. Apart from cooling<sup>3</sup>, it will reduce engine noise, because the thickness the oil will serve as a “**muffler**”. Oil is anti-corrosive and has a **purifying** function (unwanted particles and impurities will be carried away by oil<sup>4</sup>).

Another advantage is, that the oil will form a thin **sealing-layer** that will seal off pits and scratches<sup>5</sup>. And, most importantly, oil has a lubricating function, which, in an engine with numerous moving parts, is a very important aspect. However, the amount of absorbed heat per cubic metre of oil is less than that of water. Oil may also cause **carbon deposit** on the surfaces that need cooling.

**Air** has the advantage of being free of charge. Its disadvantage is the enormous amount of air needed to cool a small area or surface.

### Notes

<sup>1</sup>**as a consequence** - как следствие

<sup>2</sup>**that will prevent exchange of heat** - что будет препятствовать теплообмену

<sup>3</sup>**Apart from cooling** - помимо охлаждения

<sup>4</sup>**unwanted particles and impurities will be carried away by oil** -масло унесет нежелательные частицы и примеси

<sup>5</sup>**that will seal off pits and scratches** - который закроет неровности и царапины

### Exercises

#### 1. Read and translate the following international words.

Temperature, thermal, deformation, cylinder, turbine, gas, to absorb, minerals, corrosion, filter, aspect, cubic metre, function.

#### 2. Listen to these word combinations. Repeat them and remember their translation.

Cooling of the engine, to reduce wear, thermal deformation, the constant expansion and shrinking, the cooling process, to absorb a lot of heat, a seawater cooling system, a fresh water cooling, heated surfaces, to form a deposit, a cooling medium, forming of scale, closed circuits, lubricating function, anti-corrosive function.

#### 3. Find English equivalents in the text.

Трение между движущимися частями двигателя, самый распространенный охладитель, удалять накипь, препятствовать теплообмену, вызывать коррозию, быть использованным повторно, уменьшать шум двигателя, нежелательные частицы, очень важный аспект, количество поглощенного тепла на м<sup>3</sup>, бесплатно.

#### 4. Fill in the prepositions: *between, to, on, of, through, off, into*

1. Cooling ... the engine is necessary to reduce wear and thermal deformation. 2. The cylinder is cooled by injecting the coolant ... the cylinder liner and the cylinder jacket. 3. The oil enters ... the piston rod bore and leaves ... the inside return pipe. 4. The used seawater can be discharged ... the sea. 5. A lot of minerals stick ... all heated surfaces and form a deposit. 6. The oil forms a thin sealing-layer that seals ... pits and scratches. 7. Oil may also cause carbon deposit ... the surfaces that need cooling.

#### 5. Translate the sentences, paying attention to the Infinitive Passive.

- 1) A seawater cooling system *can be made* very simple.
- 2) The used seawater *can be discharged* into the sea.
- 3) The scale *must be removed*, because it will form an insulation.
- 4) Fresh water is only used in closed circuits, so that it *can be reused*.

6. Find in the text the sentences in the Future Simple Tense (*will + V*). Write the verbs out.

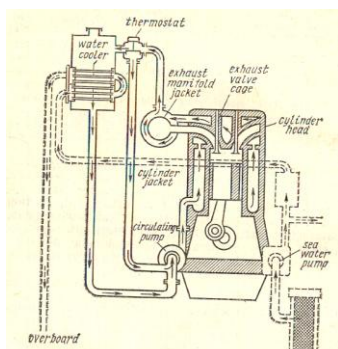
7. Answer the questions on the text.

- 1) Why is cooling the engine necessary?
- 2) What engine parts require cooling?
- 3) What coolants are used in the cooling process?
- 4) What coolants are free of charge?
- 5) What method of cooling is the simplest? Why?
- 6) What are the disadvantages of fresh water cooling?
- 7) What are the advantages of oil as a coolant?

8. Fill in the advantage(s) and disadvantage(s) of the various coolants.

Cooling medium	Advantage(s)	Disadvantage(s)
Seawater		
Fresh water		
Oil		
Air		

9. Say what you have learnt about the engine cooling, different coolants, their advantages and disadvantages.



## LUBRICATING SYSTEM

### Vocabulary

**oil film** масляная плёнка, слой смазки

**insufficient lubrication** недостаточная смазка

**sticking** застревание, слипание

**overheating** перегрев

**excessive engine wear** чрезмерный износ двигателя

**performance** работа, функционирование

**load-bearing surfaces** несущие нагрузку поверхности

**coating** покрытие

**to dampen** гасить (колебания)

**to seal** уплотнять, герметизировать

**to draw** вытягивать

**bedplate** зд. картер

**lubricating oil distributor pipe**

маслораспределительная труба

**dry-sump system** сухой картер

**wet-sump engine** мокрый картер

**control cock** регулирующий вентиль

**dipstick** мерная рейка

**relief valve** предохранительный клапан

**governor** регулятор

**cam follower** ролик толкателя

**to splash** разбрызгивать  
**grease** консистентная смазка

**valve gear** механизм привода клапана

### Text

## LUBRICATING SYSTEM

The lubricating system of an engine supplies lubricating oil to various moving engine parts. Its primary function is to form the **oil film** between moving parts, thick enough to reduce friction. **Insufficient lubrication** may cause **sticking** of piston rings, **overheating** of bearings and **excessive engine wear**.

The **performance** of modern diesel engines depends on the effectiveness of their lube oil systems. To be effective, such a system should successfully perform the following functions:

- It should control friction between **load-bearing surfaces**;
- It should reduce wear by preventing metal-to-metal contact between moving parts;
- It should limit the temperature by taking some of the heat away;
- It should reduce corrosion by **coating** metal surfaces;
- It should **dampen** mechanical vibrations;
- It should help **to seal** cylinder walls.

A lubricating pump **draws** oil from the **bedplate** and delivers it to the external lubricating oil tank. The pressure pump draws oil from the tank and delivers it under pressure, through the oil cooler and filter into the main **lubricating oil distributor pipe**, cast integrally with the bedplate<sup>1</sup>, and to the engine bearings, etc. The engine is designed to work on the **dry-sump system**. However, in the event of a breakdown of one pump, the lubricating system can be adjusted to run on one pump as a **wet-sump engine**, by arranging the **control cocks**.

When running on a wet-sump system, it is important that the oil level in the bedplate is checked by means of the **dipsticks** and the oil level should be kept between the high and low level marks on the dipstick. There is a **relief valve** located on each pump. The valve prevents excessive pressure being built up in the system and oil cooler<sup>2</sup>.

The vital parts of the engine such as main bearings, connecting rod large end & small end bearing, camshaft bearing, **governor** and gear wheels are all force lubricated. Other parts such as piston, cams and **cam followers** are **splash** lubricated and the **valve gear grease** lubricated.

### Notes

<sup>1</sup>cast integrally with the bedplate - соединенной литьем с картером

<sup>2</sup>The valve prevents excessive pressure being built up in the system and oil cooler. - Клапан предотвращает образование избыточного давления в системе и маслоохладителе.

### Exercises

1. Find in the text sentences containing the word *lubricating*. Translate all the combinations it makes.
2. Find the English equivalents in the text.

Уменьшить трение, перегрев подшипников, ограничить температуру, маслораспределительная труба, сухой картер, мокрый картер, уровень масла, ответственные детали двигателя, механизм привода клапана.

### 3. Supply the proper word from the list.

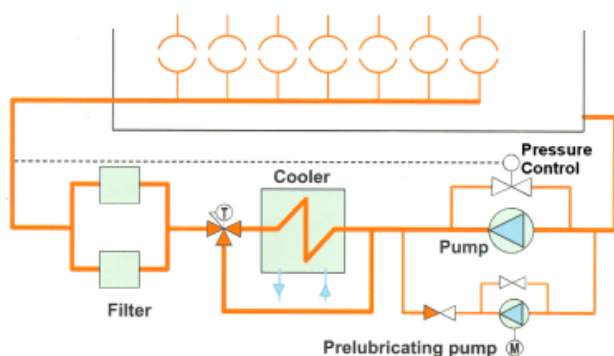
*corrosion, friction, bedplate, wear, force, effectiveness, dipstick*

1) The primary function of lubrication is to reduce ... 2) Insufficient lubrication may cause excessive engine ... 3) The performance of modern diesel engines depends on the ... of their lube oil systems. 4) Lubrication should reduce ... by coating metal surfaces. 5) A lubricating pump draws oil from the ... 6) The oil level in the bedplate is checked by means of the ... dipstick. 7) The vital parts of the engine are all ... lubricated.

### 4. Answer the questions.

- 1) What is the main function of the lubricating system?
- 2) Where does the lubricating pump draw oil from?
- 3) What is the way of the lubricating oil?
- 4) On what two lubricating systems can an engine operate?
- 5) How can you check the oil level in the crankcase?
- 6) What is the function of the relief valve on each pump?
- 7) What is the way of the lubricating oil in a dry-sump engine?
- 8) What parts of the engine are force lubricated?

### 5. Study the scheme of the lube oil system and describe the way of the lubricating oil.



## PREPARATIONS AND STARTING THE ENGINE

### Vocabulary

**to start** запускать

**to check up** проверять

**fuel booster pump** топливopодкачивающий насос

**variable pitch propeller** ВПИШ

**hydraulic system pump** насос гидросистемы

**to fill** заполнять

**to switch on/off** =

**to turn on/off** включать/выключать

**warning-protective signalization**

предупредительно-защитная сигнализация  
**shaft-turning gear** валоповоротное устройство

**to blow off** продувать

**to increase easily** плавно увеличивать  
**rated engine speed** номинальное число оборотов двигателя

**manual** руководство по эксплуатации

**to watch** наблюдать

**Text**  
**PREPARATIONS AND STARTING THE ENGINE**

1. **Check up** temperature and pressure of lubricating oil and cooling water, preheat if necessary.
2. **Start** and check up the mechanisms which provides the operating of main engine:
  - oil pumps
  - fresh and sea water cooling pump
  - oil separators
  - **fuel booster pumps**
  - **variable pitch propeller hydraulic system pumps.**
3. **Fill** starting air bottles.
4. **Switch on warning-protective signalization.**
5. Check up absence of outside objects and unauthorized persons<sup>1</sup> around the main engine and on cylinder heads; **turn off shaft-turning gear.**
6. By order from the bridge:
  - open airs to main engine
  - **blow off**
  - close the indicator cocks and start main engine.
7. After main engine has started, examine itself and serving mechanisms.
8. If there are no troubles (defects) **increase easily** main engine crankshaft revolutions up to **rated engine speed** in accordance with<sup>2</sup> instruction **manual** and orders from the bridge.
9. **Watch** the parameters of main engine and its serving mechanisms.

**Notes**

<sup>1</sup>**absence of outside objects and unauthorized persons** - отсутствие посторонних предметов и людей

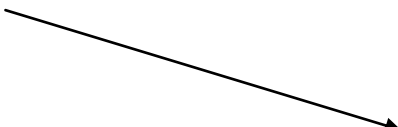
<sup>2</sup>**in accordance with** - в соответствии с

**Exercises**

**1. Find the English equivalents.**

Давление смазочного масла; насос охлаждения пресной и забортной воды; баллоны пускового воздуха; предупредительно-защитная сигнализация; посторонние предметы; валоповоротное устройство; индикаторные краны; обслуживающие механизмы; параметры главного двигателя.

**2. Match the verbs with the object.**

- |  |   |
|--|---|
| <ol style="list-style-type: none"> <li>1. <i>check up</i></li> <li>2. <i>start</i></li> <li>3. <i>fill</i></li> <li>4. <i>switch on</i></li> </ol> | <ol style="list-style-type: none"> <li>a) <i>air bottles</i></li> <li>b) <i>indicator cocks</i></li> <li>c) <i>airs</i></li> <li>d) <i>temperature</i></li> </ol> |
|--|---|
- 

- |             |                           |
|-------------|---------------------------|
| 5. turn off | e) shaft-turning gear     |
| 6. open     | f) serving mechanisms     |
| 7. close    | g) crankshaft revolutions |
| 8. examine  | h) oil pump               |
| 9. increase | i) signalization          |

### 3. Read the text given below for understanding.

The engine can always be stopped manually (with the stop lever) independent of the remote control or automation system.

- Engines with built-on circulating water pump: Idling should not be run more than 3-5 minutes before stopping.
- Close the starting air shut-off valve located before the pressure-regulating valve.
- Push the "STOP"-button or move the stop lever into STOP position. The time of slowing down offers a good opportunity to detect possible disturbing sounds.

If the engine is to be stopped for a lengthy time:

- Check that the indicator valves are closed. It is also advisable to cover the exhaust pipe opening to prevent water entering the cylinders via the exhaust manifold.
- Fill the lubricating oil system on a stopped engine with oil every second day by priming the engine. At the same time turn the crankshaft into a new position. This reduces the risk of corrosion on journals and bearings when the engine is exposed to vibrations.
- Run the engine by the air starter with open indicator valves and start the engine once a week to check that everything is in order.

#### Remote stop

- Engines with built-on circulating water pump: Idling should not be run more than 3-5 minutes before stopping.
- Press the remote control stop button. The shutdown solenoid, built on the governor, will then be energized for a fixed time and the control racks of the injection pumps move into stop position. The time for the solenoid to be energized is set so (20-50s) that the solenoid operates until the engine stops. During this time the shutdown solenoid will return to its initial position.
- When the engine stops and the speed decreases below a certain limit, the system for alarm, stop and speed remote control will be disconnected and the signal lamp indicating that the engine is running goes out. In engines equipped with automatic lubricating oil priming pumps, the pump will be started at the same time.

## OPERATING TROUBLES IN GENERAL

### Vocabulary

**derangement** отклонение

от нормы

**leakage** утечка, течь

**welding** сварка

**alternate use** попеременное использование

**moisture** влага

**to settle out** конденсироваться

**cracked head** треснувшая головка

**burnt out** прогоревший

**improperly refined oil** плохо очищенное

топливо

**sulphuric acid** серная кислота

**sodium sulphate** сульфат натрия

**unequal heating** неравномерный прогрев

**casting** отливка

**air pockets** воздушные пробки

**local** местный

**overloading** перегрузка

**to occur** происходить, случаться

**to eliminate** уничтожать, ликвидировать

**to quit** прекращать

**firing** горение

## Text

### OPERATING TROUBLES IN GENERAL

Every engineer knows that it is impossible to predict all the possible troubles that may arise<sup>1</sup> in an engine room. The following describes some of the **derangements** that can arise and their causes.

**Water in fuel oil.** Water may get into the fuel oil by **leakage** defective **welding** of tanks, through **alternate use** of tanks for fuel oil and water ballast, or the fuel oil as delivered into tanks may contain considerable **moisture** that will **settle out**. The troubles then are **cracked heads** and pistons, **burned out** exhaust valves, injection valve, H.P. fuel pumps.

**Improperly refined oil.** Fuel oil must, during the refining process, be treated with **sulphuric acid**<sup>2</sup> and this acid must later be neutralized with soda. When the engine is opened up after running on the insufficiently washed oil, the entire surface of the combustion spaces in the cylinders has a coating of gritty material<sup>3</sup> which is mostly **sodium sulphate**. It causes considerable wear of piston rings and cylinder liners.

**Cracked cylinders and cylinder heads.** Cracks may result from **unequal heating** due to poor design, bad **castings**, **air pockets** in jackets, lack of cooling water and **overloading**. Cracking from the first two causes seldom **occurs**. Troubles arising from air pockets are **eliminated** by periodical opening of the vent cocks on the cylinder heads. When for any reason the cooling water supply to part or all of the cylinders fails<sup>4</sup>, the engine should not be kept in operation long while the trouble is being corrected. Cracks that are due to overloading usually result from **local** overloading, caused by trouble with the fuel pumps or some other conditions that cause one or more cylinders to **quit firing**.

#### Notes

<sup>1</sup> **it is impossible to predict all the possible troubles that may arise** – невозможно предсказать все вероятные неисправности, которые могут возникнуть

<sup>2</sup> **fuel oil must, during the refining process, be treated with sulphuric acid** – нефтяное топливо в процессе очистки должно обрабатываться серной кислотой

<sup>3</sup> **a coating of gritty material** – покрытие из зернистого материала

<sup>4</sup> **when for any reason the cooling water supply to part or all of the cylinders fails** – когда, по любой причине, вода не поступает во все или часть цилиндров

#### Exercises

##### 1. Read the word combinations and learn their translation.

Defective welding, water ballast, cracked heads and pistons, refined oil, refining process, sulphuric acid, combustion space, gritty material, unequal heating, poor design, air pockets, vent cocks, local overloading.

##### 2. Translate the following related words.

Possible, possibility, impossible;  
arrangement, derangement;  
properly, improperly;  
loading, overloading;  
sufficient, insufficiently.



### 3. Answer the questions on the text.

- 1) Is it possible to predict all troubles that may arise in an engine room?
- 2) Can you name some of the typical troubles?
- 3) How can water get into the fuel?
- 4) What trouble causes wear of piston rings and cylinder liners?
- 5) What are the possible causes of cracks in the cylinder heads?

### 4. Translate the text. Use the dictionary if necessary.

DIFFICULTY	POSSIBLE CAUSE	REMEDY
Engine fails to turn on starting air.	<ol style="list-style-type: none"> <li>1. Starting air pressure is too low.</li> <li>2. Valve on starting air receiver is closed.</li> <li>3. Pistons in starting air distributors are sticking.</li> </ol>	<ol style="list-style-type: none"> <li>1. Start the compressors.</li> <li>2. Open the valve.</li> <li>3. Lubricate them.</li> </ol>
Engine turns on fuel but runs unevenly.	<ol style="list-style-type: none"> <li>1. Auxiliary blowers are not functioning.</li> <li>2. Fuel filter blocked.</li> <li>3. Fuel pressure is too low.</li> </ol>	<ol style="list-style-type: none"> <li>1. Start auxiliary blowers.</li> <li>2. Clean the filter.</li> <li>3. Increase the pressure.</li> </ol>
Exhaust temperature rises.	<ol style="list-style-type: none"> <li>1. Exhaust valve is leaking.</li> <li>2. Wrong camshaft position.</li> </ol>	<ol style="list-style-type: none"> <li>1. Replace the valve.</li> <li>2. Check camshaft with pin gauge.</li> </ol>
Engine rpm decrease.	<ol style="list-style-type: none"> <li>1. Oil pressure is too low.</li> <li>2. Defective fuel valves.</li> </ol>	<ol style="list-style-type: none"> <li>1. Raise the pump pressures to normal.</li> <li>2. Overhaul the valves.</li> </ol>
Smoky exhaust.	<ol style="list-style-type: none"> <li>1. Air supply is insufficient.</li> <li>2. Fire in scavenge air box.</li> </ol>	<ol style="list-style-type: none"> <li>1. Check engine room ventilation</li> <li>2. Activate the fire alarm.</li> </ol>

### 5. Translate the verbs which are commonly used in standard trouble-shooting orders and operating and maintenance procedures. Learn them by heart.

- |              |             |            |                 |
|--------------|-------------|------------|-----------------|
| ➤ activate   | ➤ dismount  | ➤ open     | ➤ shut off      |
| ➤ adjust     | ➤ examine   | ➤ overhaul | ➤ start         |
| ➤ attach     | ➤ install   | ➤ place    | ➤ switch off/on |
| ➤ check      | ➤ lift      | ➤ position | ➤ take out      |
| ➤ change     | ➤ locate    | ➤ raise    | ➤ tighten       |
| ➤ clean      | ➤ loosen    | ➤ reduce   | ➤ uninstall     |
| ➤ close      | ➤ lower     | ➤ relieve  | ➤ unscrew       |
| ➤ connect    | ➤ lubricate | ➤ remove   |                 |
| ➤ correct    | ➤ make sure | ➤ replace  |                 |
| ➤ disconnect | ➤ mount     | ➤ screw    |                 |

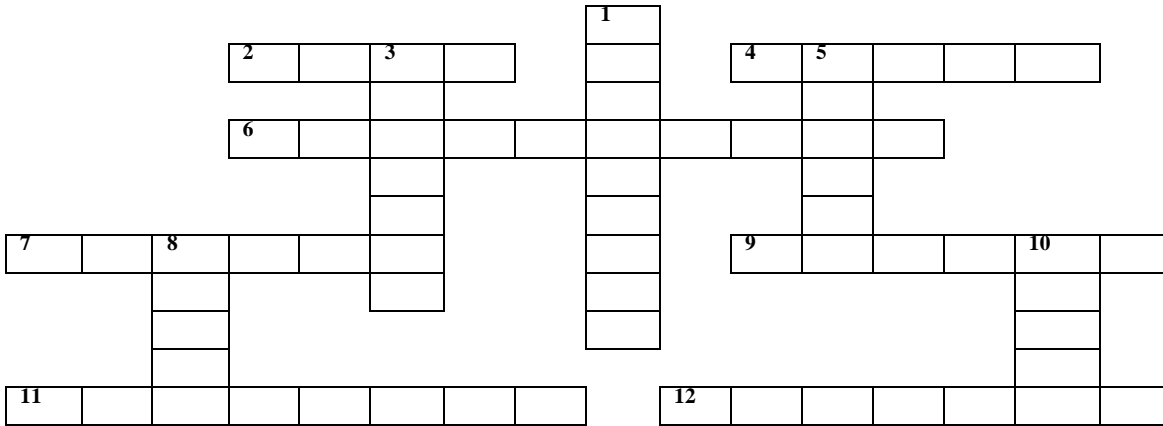
### 6. Crossword “Trouble shooting”.

**Across:**

2. закрывать
4. чистить
6. разъединять
7. удалять
9. уменьшать
11. активировать
12. затягивать

**Down:**

1. демонтировать
3. отвинчивать
5. размещать
8. монтировать
10. закрывать

**BOILERS****Vocabulary**

**windlass** брашпиль, лебедка  
**fire-tube boiler** огнетрубный котел  
**water-tube boiler** водотрубный котел  
**steel shell** стальной корпус  
**furnace** топка  
**tubes** трубки  
**banks of tubes** пучок котельных трубок  
**downcomer tubes** нисходящие трубки  
**rows of tubes** ряд трубок  
**steam drum** паровой коллектор котла (верхний барабан)  
**water drum** водяной коллектор котла (нижний барабан)  
**fire-proof casing** огнеупорный кожух  
**radiant heat** радиактивное тепло  
**superheater** пароперегреватель  
**saturated** насыщенный  
**economizer** экономайзер

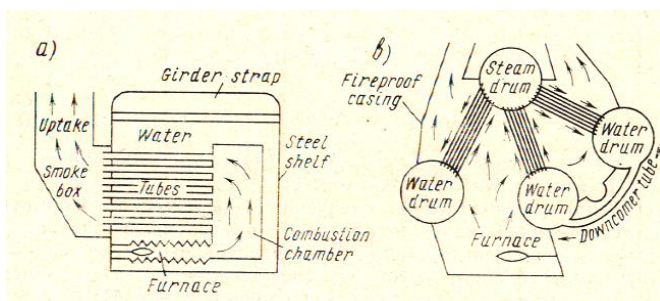
## Text BOILERS

Boilers are used on board ship for producing steam. This steam may be used for driving<sup>1</sup> the main engines, when steam turbines are fitted, or for driving auxiliary machinery such as the **windlass**. There are two basic types of boiler in use in ships: the **fire-tube boiler** and the **water-tube boiler**.

The fire-tube boiler consists of a cylindrical **steel shell**, which contains a **furnace** at the bottom. The furnace is connected to a combustion chamber, situated in the middle part of the boiler. The furnace, the combustion chamber and the **tubes** are all surrounded by water.

Water-tube boilers have replaced fire-tube boilers for generating steam for main engines. They have a **steam (upper) drum** at the top, which is partly filled with water, and **water (lower) drum** at a lower level. These drums are connected by **banks of tubes**, which also contain water. The furnace is located at the bottom and the whole system is contained in a **fire-proof casing**. **Downcomer tubes** are placed outside the gas system to act as feeders<sup>2</sup> to the water drums.

Gases are heated in the furnace and pass upwards through the banks of tubes, transferring their heat to the water in the tubes. Because the steam drum provides a reservoir of relatively cool water, convection currents are set up causing the water to circulate round the system<sup>3</sup>. The banks of tubes offer a large surface area to the **radiant heat** of the furnace gases. This makes them very efficient.



**Superheater** is added to the system to increase its efficiency. Superheater tubes are fed with **saturated** steam from the top of the upper boiler drum and as the gases are cooled the steam is superheated.

After the superheater an **economizer** is provided to cool the gases further. The economizer receives feed water at the one end, and the heated water at the other end is fed directly to the boiler feed pipe located in the upper drum.

### Notes

<sup>1</sup>**for driving** - для приведения в действие

<sup>2</sup>**to act as feeders** - действовать в качестве питателя

<sup>3</sup>**convection currents are set up causing the water to circulate round the system.** – образуются конвективные потоки, заставляющие воду циркулировать в системе.

### Exercises

**1. Listen to these word combinations and repeat them after the speaker. Memorize their translation.**

Fire-tube boiler, water-tube boiler, steel shell, to generate steam, steam drum, water drum, banks of tubes, fire-proof casing, downcomer tubes, to transfer heat, convection currents, radiant heat, saturated steam.

**2. Find English equivalents in the text.**

Для приведения в действие вспомогательных механизмов, соединяться с топочной сгорания, быть окруженным водой, действовать в качестве питателя, размещаться вне газовой системы, проходить через пучок трубок, передавать тепло воде.

**3. Answer the questions on the text.**

- 1) What is the function of a boiler?
- 2) What kind of boilers is mostly used in ships today?
- 3) Where is the furnace located?
- 4) Where are downcomer tubes placed?
- 5) What causes water circulation in the system?
- 6) What is the function of the superheater?
- 7) What is the function of an economizer?

**4. Look through the text. Find the sentences in the Passive form. Write them out and translate.**

**5. Check up your knowledge of boiler construction. Complete the sentences, choosing the word from the list.**

*boiler, furnace, superheater, economizer, condenser, feed pump*

- 1) A part of the steam boiler that burns fuel is the ... .
- 2) A device of the boiler that heats the feed water is the ... .
- 3) A part of the steam power plant that converts water into steam is the ... .
- 4) A device of the steam boiler that heats the steam is the ... .
- 5) A device of the steam power plant that supplies water to the boiler is the ... .
- 6) A device that converts steam into water is the ... .

**6. Describe the construction and operation of a water-tube boiler.**

**7. Translate the text using the dictionary.**

**Boiler mountings**

Certain fittings are necessary on a boiler to ensure its safe operation. They are usually referred to as *boiler mountings*. They are:

Safety valves which are mounted in pairs to protect the boiler against overpressure.

Main steam stop valve which is fitted in the main *steam supply line* and is usually of the non-return type. Auxiliary steam stop valve which is fitted in the auxiliary steam supply line and is usually of the non-return type.

*Feed check* or control valve. A pair of non-return valves are fitted: one is the main valve, the other – the auxiliary or stand by.

*Water level gauges* which are fitted in pairs at opposite ends of the boiler.

*Pressure gauges* which are fitted to provide pressure readings.

*Air release cocks* which are fitted to release air when filling the boiler or initially raising steam.

*Sampling* connection. A water *outlet cock* and cooling arrangement is provided for the sampling and analysis of the feed water.

Blow down valve which enables water to be blown or emptied from the boiler.

*Scum valve* to which a *shallow dish* positioned at the normal water level is connected.

boiler mountings - гарнитура котла

steam supply line - паропровод

feed check - регулировочный клапан

water level gauge - водомерное стекло

pressure gauge - манометр

air release cock - воздуховыпускной кран

sample - проба, образец

outlet cock - выпускной кран

scum valve - клапан верхнего продувания

shallow dish - тарельчатая сетка

**SHIP'S POWER PLANT AND AUXILIARY ELECTRICAL EQUIPMENT**

**Vocabulary**

**power plant** энергетическая установка, электростанция

**primary motor** главный двигатель

**rated voltage** номинальное напряжение

**mode of control** режим управления

**consumer** потребитель

**consumers supply** электроснабжение

**emergency power station** аварийная электростанция

**propulsion** силовая установка, двигатель

**auxiliary** вспомогательный

**steam generator** парогенератор

**shaft generator** валогенератор

**partially automated** полуавтомат

**Text**  
**SHIP'S POWER PLANT**

Ship's power plant is a generating electricity system of different structures and mechanisms such as **primary** mechanical motors, electric generators, and distribution gears with control and protection devices. It can use direct or alternating current.

The **rated voltage** of direct current should not **exceed** 230 V, one-phase alternating current – 270 V, three-phase AC -460 V.

Ship's power plant is classified according to the function, type of primary motor, and **mode of control**.

According to the function:

- Lighting power station with power up to 100 kW.
- Combined power station for power and light **consumers supply** – 6000 kW and more.
- **Emergency power station** with power up to 500 kW.
- Power station for electric **propulsion** – up to 14000 kW.
- **Auxiliary** power station for electric propulsion – up to 150000 kW.

According to the type of primary motor:

- Diesel generator
- **Steam generator**
- Turbine generator
- **Shaft generator**

According to the mode of control:

- Non-automated
- **Partially automated**
- Automatic power stations

**Exercises**

**1. Translate the following word combinations.**

Ship's power plant, a generating electricity system, primary mechanical motors, distribution gear, control and protection device, mode of control, lighting power station, electric propulsion, shaft generator, non-automatic

**2. Give the English equivalents.**

Номинальное напряжение, распределительное устройство, трехфазный переменный ток, режим управления, электроснабжение, аварийная электростанция, дизель-генератор, полуавтоматический

**3. Answer the questions:**

- 1) What is ship's power plant?
- 2) How can ship's power plant be classified?
- 3) What is the rated voltage for alternating current?
- 4) What is the power of emergency power station?
- 5) What types of primary motors do you know?
- 6) How can power stations be controlled?

**4. Translate into Russian.**

## Ship's Power Network

The electricity generated should be delivered to the consumers with the help of the ship's power network that includes electric cables, wires, switchgears.

Cables are isolated electric conductors with one or several mutual protective shells, which guard isolation and current-carrying conductors against mechanical and chemical effects. Marine power cables isolation is mostly rate for 700 V of DC and 1000 V AC. To protect electric energy sources, circuits, and consumers against overloads, short-circuit, voltage drop, inverse current and inverse power, fuses and relays are used.

Distribution of switchgears are used to control, protect, and regulate electric installations and power plants operation, and also to measure electric power supply sources parameters.

Distribution gears are:

- main distribution board (switchboard) controls, protects, and regulates basic parameters of the generator as well as distributes electric power over the consumers;
- emergency distribution board has the same function as the MSB but for the emergency generator;
- control panel (console) has the remote control over the generating units and power consumers operation;
- coastal power supply board supplies energy from the coast or from other ships;
- separate consumers board controls the operation of the consumers that have a complicated mode of operation;
- electric power converters board is identical to the main distribution board but is designed for electric power converters and their consumers.



### 5. Read the dialogue between the Chief Engineer of a new-built ship and the representative of the shipbuilder.

**Answer the question: Do the ship's wiring diagrams differ from service diagrams?**

#### THE ELECTRICAL EQUIPMENT

CHIEF ENGINEER: Well, which file contains the technical documentation for the electrical equipment?

MR. GREEN: That's file No. 7. It contains the and the certificates for all the electric motors.

CHIEF ENGINEER: **As far as I can judge** the ship's service diagrams and those for operating the main and auxiliary engines correspond to the **wiring diagrams**. I hope they don't differ, do they?

MR. GREEN: Not that I know of. But, of course, you can come across some **insufficient discrepancy** between the circuit diagrams and the wiring ones. Though, in general, these diagrams correspond with each other **to the letter**.

CHIEF ENGINEER: Very helpful, I'd say. We are going to study the circuit diagrams **thoroughly**.

**as far as I can judge** насколько я могу судить  
**circuit diagram** электрическая схема

**insufficient** незначительный  
**discrepancy** несоответствие

wiring diagram монтажная схема

to the letter буквально

thoroughly тщательно

## ELECTRICAL TOOLS. REPAIR VERBS

### Vocabulary

**set of tools** набор инструментов

**tracer** индикатор; детектор

**cord** шнур

**cordless** беспроводный

**adjustable** регулируемый

**jaws** захват; зажимное приспособление

**interchangeable bits** съемные насадки

**manual** ручной

**Phillips screwdriver** крестообразная отвертка

**flat head screwdriver** плоская отвертка

**grip** зажимать; захватывать

**gripping edge** захватывающая кромка

**cutting surface** режущая поверхность

**twist** закручивать; скручивать

**pull** тянуть

**blade** лезвие, режущая пластина

**Lineman's pliers** усиленные плоскогубцы типа Линеман

**side-cutting pliers** плоскогубцы-бокорезы

**needle-nose pliers** острогубцы

**trim** подрезать

**stranded wire** многожильный провод

**solid wire** одножильный провод

**PVC** (polyvinylchloride) поливинилхлорид

**conduit** изоляционная трубка

### Text

#### TOP 10 ELECTRICAL TOOLS

Professional electricians need a basic **set of tools** to effectively complete their jobs. This is a partial list of needed tools to take care of most electrical jobs.

##### 1) **Non-contact voltage detector** / tester (индикатор напряжения)

A voltage detector is used for a quick safety check to see if there is voltage or current flow present. Some of these devices are automatic and some must be turned on via a switch. Simply place the end of the **tracer** beside a wire, breaker or **cord** to see if it's energized.

##### 2) **Flashlight** (фонарик)

Working with electricity, the electrician must turn off all or most of the power at the circuit breaker. For situations with no light or limited lighting, the electrician can use a simple flashlight. Never try to reach into a panel without proper lighting.

##### 3) **Wrench** (гаечный ключ)

Wrenches are used to tighten screws in your electrical panel. For many electrical jobs, tools to manipulate wires, nuts and bolts, and other electrical and mechanical objects are necessary. To loosen nuts and bolts, electricians can use wrenches. Some are **adjustable** with **jaws** that open in various positions, while others have **interchangeable bits**.

##### 4) **Screwdriver** (отвертка)

Screwdrivers are used to drive in screws in electric fixtures, electrical boxes, or the outside plates to the wall or ceiling. People can find both **manual** screwdrivers and power screwdrivers. A small **cordless** screwdriver is a valuable addition to the electrician's toolbox. The most common types of screwdrivers are the **Phillips head** and the **flat head**.

##### 5) **Pliers** (плоскогубцы)

Pliers have different types of **grip** heads, shapes, and lengths. **Lineman's pliers** have a **gripping edge** and a **cutting surface**. These pliers are the do-it-all pliers. They cut, **twist** wires together, and grip wires for **pulling**. **Side-cutting pliers** have a **blade** on only one side. **Needle-nose pliers** are long and pointed at the end for more detailed work.

##### 6) **Wire cutters** (кусачки)



Wire cutters, are used to cut wire. They are specially designed with a cutting edge that goes down to the tip of the pliers. The advantage being that you can get into tight areas to **trim** wires.

7) **Wire strippers** (устройство для зачистки проводов)

Wire strippers are used to cut the insulation off of the wire. They are equipped with different sized cutting teeth for various sized wires. They also have a cut off portion in order to cut the wire.

8) **Electrical Tape** (изоляционная лента)

Electrical Tape is used for insulating the spliced wires to avoid accidental short-circuiting.

9) **Fish Tape** (проволока для протаскивания кабелей через трубы)

A fish tape is used to pull **stranded** or **solid wire** through metal or **PVC conduit**.

10) **Personal protection equipment** (средства индивидуальной защиты)

PPE should be part of every electrician's basic set of tools. Use rubber insulating gloves and rubber soled shoes that are resistant to electric shock.

### Exercises

#### 1. Name the pictures below.



1.



2.



3.



4.



5.



6.

#### 2. Translate the verbs which are commonly used in standard trouble-shooting orders and operating and maintenance procedures. Learn them by heart.

- |               |             |            |                 |
|---------------|-------------|------------|-----------------|
| ➤ activate    | ➤ examine   | ➤ open     | ➤ screw         |
| ➤ adjust      | ➤ fix       | ➤ overhaul | ➤ shut (off)    |
| ➤ assemble    | ➤ inspect   | ➤ place    | ➤ start         |
| ➤ bolt        | ➤ install   | ➤ plug     | ➤ switch on/off |
| ➤ check       | ➤ lift      | ➤ press    | ➤ take out      |
| ➤ change      | ➤ locate    | ➤ protect  | ➤ test          |
| ➤ clean       | ➤ loosen    | ➤ push     | ➤ tighten       |
| ➤ close       | ➤ lower     | ➤ raise    | ➤ turn on/off   |
| ➤ connect     | ➤ lubricate | ➤ reduce   | ➤ uninstall     |
| ➤ cut         | ➤ maintain  | ➤ remove   | ➤ unscrew       |
| ➤ disassemble | ➤ measure   | ➤ renew    | ➤ weld          |
| ➤ disconnect  | ➤ mount     | ➤ repair   |                 |
| ➤ dismount    | ➤ move      | ➤ replace  |                 |

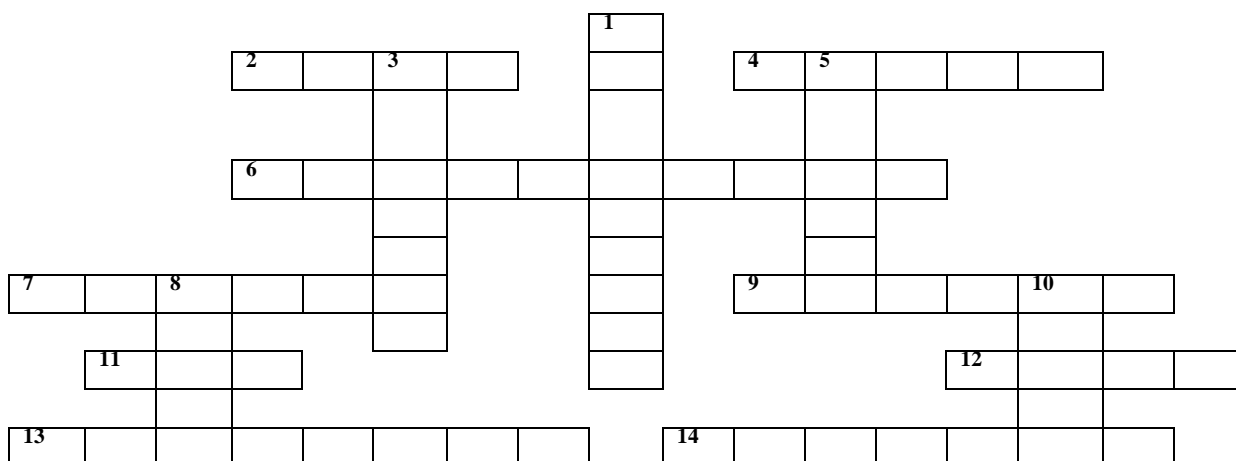
#### 3. Crossword "Repair Verbs".

**Across:**

2. включать (в розетку)
4. чистить
6. разъединять
7. удалять
9. уменьшать
11. резать
12. скреплять (болтами)
13. активировать
14. затягивать

**Down:**

2. демонтировать
3. отвинчивать
5. размещать
8. монтировать
10. замыкать (цепь)

**4. Give the antonyms.**

Assemble, connect, close, install, lift, loosen, mount, screw, switch on.

**5. Translate some items of Repair Specification.****Electrical Department**

1. A.C. three-phase electric generator 10 KWA, 380 V, 300 A "TRIGE" type AG23B, 500 rpm:
  - Maintain the generator insulating with enamel;
  - Replace the roll bearings, sealing rings and brushes;
  - Check the compound system and painting;
  - Maintain the electric motors with starters and measuring instruments.
2. Main switchboard, 380 V, with the panels and gauges:
  - Remove the automatics;
  - Renew the burned contacts;
  - Regulate the generator relays.
3. Electric stove 380 V, 37.9 KW "Vesta":
  - Renew the resistance to 8 heating elements and of 8 switches.
4. Outside lights:
  - Repair the lights;
  - Dismantle, overhaul, renew lamp holders and connections.

**6. Translate into Russian.**

- 1) Я должен отремонтировать этот двигатель через два дня.
- 2) Мы закрепили полки на стене при помощи винтов.
- 3) Вы должны разобрать генератор сегодня.
- 4) Электромеханик планирует перебрать электродвигатель.
- 5) Я не смог открутить ту гайку.
- 6) Подшипники нужно почистить и смазать.
- 7) Не замыкайте цепь!
- 8) Проверьте напряжение на клеммах.
- 9) Соедините провода в треугольник.
- 10) Нажмите на эту кнопку и сигнал заработает.
- 11) Замените изношенные щетки новыми.
- 12) Уменьшите нагрузку двигателя.
- 13) Удалите грязь с воздушных фильтров.
- 14) Не забудьте выключить свет, когда будете уходить.
- 15) Вы можете защитить руки при помощи перчаток.

## MAINTANANCE OF ELECTRICAL EQUIPMENT

### Vocabulary

<b>proper operation</b> надлежащая работа	<b>expand</b> расширять
<b>mode of operation</b> режим эксплуатации	<b>dry out</b> высохнуть
<b>starting</b> пуск	<b>crack</b> трещина, <i>v</i> трескаться
<b>shutdown</b> остановка	<b>wear down</b> изнашиваться
<b>readings</b> показания измерительных приборов	<b>moisture</b> влага
<b>standstill</b> перерыв, остановка, простой	<b>short circuit</b> короткое замыкание
<b>trial start</b> пробный запуск	<b>dirt</b> грязь
<b>spark</b> искра	<b>fumes</b> дым, газы
<b>cause</b> причина, <i>v</i> вызывать, быть причиной	<b>vapours</b> пары, испарения
<b>breakdown</b> поломка	<b>grease</b> смазочный материал, консистентная смазка
<b>poor installation</b> плохая установка	<b>clogging</b> засорение, загрязнение
<b>increase</b> увеличивать	<b>physical abuse</b> неправильная эксплуатация

### Text

## MAINTENANCE OF ELECTRICAL EQUIPMENT

The **proper operation** of the electrical equipment depends on the maintenance and supervision of the electrical personnel. An Electrical Engineer must always check readiness of the electric machines, the change of their **mode of operation** as well as supervise **starting** and **shutdown** operations of the equipment.

The normal operation of electric machines includes the rated parameters of voltage current, current frequency, speed of rotation, and number of starts; the condition of the insulation resistance; the proper operation of the protective and signaling equipment; correct **readings**, etc.

After repair or long **standstill** electric machines should always be tested before start. **Trial start** is usually performed under idling conditions<sup>1</sup>. Then the load is gradually increased to the rated load<sup>2</sup>. When the generator runs under rated load, it's necessary to see that the voltage regulators are operating properly, the frequency is normal, and there are no **sparks** on the commutator and rings.

When the generators are working in parallel, the Electrical Engineer should check the isolation, resistance condition and supervise that the voltage and frequency are of rated values, and that the load between generators working in parallel is distributed properly.

**Causes of soon breakdown of electrical equipment :**

- **poor installation** is caused by work of unqualified personnel;
- heat **increases** the resistance of the circuit and in this way increases the current causing the material **to expand, dry out, crack, and wear down**;
- **moisture** like water and liquids causes expansion of the material, abnormal current flow or **short circuit**;
- **dirt, fumes, vapours, grease, oils, etc**, cause **clogging** and abnormal operation of electrical device until breakdown;
- vibration or **physical abuse**.

**Notes**

<sup>1</sup> under idling conditions – на холостом ходу

<sup>2</sup> the load is gradually increased to the rated load – нагрузка постепенно увеличивается до номинальной

**Exercises**

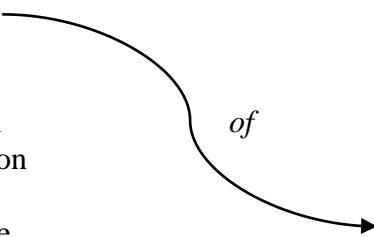
**1. Read the international words.**

Operation, electrical, personnel, engineer, normal, abnormal, parameters, signaling, generator, isolation, parallel, material, vibration, physical.

**2. Give the English equivalents.**

Наблюдение и эксплуатация; электротехнический персонал; проверить готовность; режим эксплуатации; частота тока; скорость вращения; защитная сигнализация; показания измерительных приборов; после ремонта или долгой остановки; пробный запуск; проверить изоляцию; причины поломок; короткое замыкание; консистентная смазка; засорение; неправильная эксплуатация.

**3. Match the phrases:**

- |  |   |  |
|--|---|--|
| <ol style="list-style-type: none"> <li>1. <i>Mode</i></li> <li>2. <i>Speed</i></li> <li>3. <i>Number</i></li> <li>4. <i>Operation</i></li> <li>5. <i>Supervision</i></li> <li>6. <i>Causes</i></li> <li>7. <i>Resistance</i></li> <li>8. <i>Expansion</i></li> </ol> |  | <ol style="list-style-type: none"> <li>a) Breakdown</li> <li>b) Materials</li> <li>c) Rotation</li> <li>d) Electrical personnel</li> <li>e) Circuit</li> <li>f) <i>Operation</i></li> <li>g) Starts</li> <li>h) Signaling equipment</li> </ol> |
|--|---|--|

**4. Answer the questions:**

- 1) What does the proper operation of electrical equipment depend on?
- 2) What parameters should be checked by Electrical Engineer?
- 3) Name some of the causes of breakdown of electrical equipment.

**5. Complete the sentences, using the words in *Italics*.**

*check, maintenance, sparks, readiness, caused, clogging, tested*

1. The proper operation of the electrical equipment depends on the ... of the electrical personnel.
2. An Electrical Engineer must check ... of the electric machines.
3. After repair or long standstill electric machines should always be ... before start.
4. The Electrical Engineer should ... the isolation.
5. It's necessary to see that there are no ... on the commutator and rings.
6. Poor installation is ... by work of unqualified personnel.
7. Dirt causes ... and abnormal operation of electrical device.

**6. Divide the words into two groups.**

heat, abnormal noise, moisture, dirt, low voltage, blown fuses, smoke, short circuit, vibration, physical abuse, poor installation, wear, open circuit, high amperage

CAUSES OF BREAKDOWN	EFFECTS OF BREAKDOWN

**7. Translate into Russian.**

Правильная эксплуатация электрооборудования зависит от технического персонала. Электромеханик проверяет готовность электрических машин, следит за параметрами напряжения и частотой тока. Влажность, нагрев, загрязнение, вибрация могут вызвать короткое замыкание и привести к поломке электрического оборудования.

**TROUBLESHOOTING  
Vocabulary**

**troubleshooting** поиск неисправностей  
**fault** повреждение; неисправность **cause** причина  
**remedy** способ устранения неисправности  
**fail** выходить из строя, отказывать, не выполняться  
**open** разомкнутый  
**mind** следить, обращать внимание  
**spare** запасной  
**gap** зазор, люфт  
**delta** соединение треугольником  
**excessively** чрезмерно

## Text

## TROUBLESHOOTING OF THREE PHASE MOTORS

FAULT	CAUSE	TEST AND REMEDY
Motor <b>fails</b> to start.	<ol style="list-style-type: none"> <li>1. <b>Open</b> fuse.</li> <li>2. Defective circuit-breaker.</li> <li>3. One phase winding is open when stator winding is star-connected.</li> <li>4. Overload.</li> <li>5. Worn bearings.</li> <li>6. Two or three rotor phase windings are open (or make poor contact).</li> <li>7. Rotor one-sidedly attracted to stator, rotor is caught in stator.</li> </ol>	<ol style="list-style-type: none"> <li>1. Replace defective fuse with spare after testing on multimeter.</li> <li>2. Repair.</li> <li>3. Check voltage at the terminals of stator winding. If one phase winding is open, eliminate discontinuity. <b>Mind</b> stator winding. It may be open as well.</li> <li>4. Decrease motor loading.</li> <li>5. Replace with <b>spare</b>.</li> <li>6. Check for discontinuity or bad contact and repair where necessary.</li> <li>7. Check <b>gaps</b> between rotor and stator as well as condition of bearing shells. Also check if end brackets are set correctly.</li> </ol>
Motor nominally loaded runs slowly (its rotational speed is low).	<ol style="list-style-type: none"> <li>1. Low voltage at terminals or stator winding.</li> <li>2. Stator winding is star-connected.</li> <li>3. Large resistance on phase rotor circuit.</li> <li>4. Incorrect interconnection of stator phase windings (reversed phase windings).</li> </ol>	<ol style="list-style-type: none"> <li>1. Increase voltage up to rated one or decrease motor loading.</li> <li>2. Reconnect to <b>delta</b>.</li> <li>3. Check if the contact is good as well as wires connecting rotor to rheostat are not long or small-sectioned. Mind rheostat. It may be faulty.</li> <li>4. Check connection diagram. Reconnect to star or delta in accordance with diagram.</li> </ol>
Motor becomes <b>excessively</b> hot.	<ol style="list-style-type: none"> <li>1. Overload.</li> <li>2. Worn bearings.</li> <li>3. Clogged ventilation channels.</li> <li>4. Clogged air filters.</li> <li>5. Clogged water-cooled air cooler, cooling water temperature increase.</li> <li>6. Incorrect rotation of rotor equipped with fan having inclined wings.</li> </ol>	<ol style="list-style-type: none"> <li>1. Decrease motor loading.</li> <li>2. Replace with spare.</li> <li>3. Blow through ventilation channels with dry compressed air.</li> <li>4. Remove dirt from air filters.</li> <li>5. Clean air cooler, reduce motor loading.</li> <li>6. Re-arrange fan wings or change direction of rotation.</li> </ol>

## Exercises

## 1. Revise the repair verbs. Find them in the text.

Заменить, отремонтировать, проверить, испытать, почистить, удалить, увеличить, сократить, соединить, продуть, переключить, устранить.

2. Read the sentences on the topic *Troubleshooting*. Match them with the letters F (fault), T (test), C (cause), R (remedy).

- 1) *Motor fails to start. F*
- 2) One phase winding is open.
- 3) Check voltage at the terminals of stator winding.
- 4) Eliminate disconnection.
- 5) Reconnect in accordance with diagram.
- 6) Motor nominally loaded runs slowly.
- 7) Reversed phase winding.
- 8) Check connection diagram.
- 9) Shorted armature circuit.
- 10) Replace defective coils.
- 11) Examine armature coils for signs of burning.
- 12) Motor rotation speed is lower than rated one.

### 3. Read and translate some more troubleshooting instructions.

## REPAIR OF ELECTRICAL EQUIPMENT

### Vocabulary

<b>insulation level</b>	уровень изоляции
<b>preventive maintenance</b>	профилактический ремонт (обслуживание)
<b>fasteners (fastening)</b>	крепеж (крепежные детали)
<b>shore power supply</b>	питание с берега
<b>feeder cable</b>	питательный кабель
<b>CPP (controllable pitch propeller)</b>	ВРШ (винт регулируемого шага)
<b>rewind (rewound)</b>	перематывать
<b>armoured cable</b>	бронированный кабель
<b>electric stove</b>	электроплита
<b>potato peeler</b>	картофелечистка
<b>dough mixer</b>	тестомесительная машина
<b>baking oven</b>	хлебопекарная печь
<b>painting</b>	окраска
<b>frosted</b>	матовый
<b>dome lamp</b>	плафон
<b>bulb</b>	электрическая лампа, лампочка
<b>deck lamp</b>	палубный светильник
<b>distribution box</b>	распределительная коробка

### Dialogues

#### 1. THE MAIN SWITCHBOARD

MR. WILSON: How do you do. I'm the manager of the ship repair department. My name's Wilson. And this is Mr. Max. He is responsible for your ship's repairs.

CHIEF ENGINEER: How do you do. Glad to meet you, gentlemen. I'm the chief engineer. My name's Petrov. This is Mr. Andreyev, our electrical engineer. He's ready to answer your questions.

MR. MAX: First of all we'd like to measure the **insulation level** of all your generators under working conditions and the total insulation level of your ship's electrical equipment. Can we do it tomorrow?

ELECTRICAL ENGINEER: Why not? All our engines and the main switchboard are in operation.

MR. WILSON: Mr. Petrov, tell me, please, what repairs are planned about the main switchboard?

ELECTRICAL ENGINEER: We've planned the **preventive maintenance** of the main switchboard. It includes checking the contacts and **fasteners** and cleaning the circuit-breakers, relays and contactors. Only the instrumentation and several automatic devices are to be replaced.

MR. MAX: In this case I don't think it's wise to fix the exact time of putting the main switchboard out of service now. Everything depends on the work progress, doesn't it?

ELECTRICAL ENGINEER: It does.

## 2. THE SHORE POWER SUPPLY

MR. WILSON: Mr. Petrov, it's important for us to know what machinery will operate in the engine-room during the repair works.

CHIEF ENGINEER: The bilge and fire pumps will be in a continuous use. As to the ballast and boiler service pumps they will operate only occasionally.

MR. WILSON: And how are you going to feed them?

ELECTRICAL ENGINEER: Well, the ship will be connected to the **shore electrical supply**.

MR. WILSON: Is your shore-supply board in a good condition?

ELECTRICAL ENGINEER: Yes, it's O.K. But we have some trouble with the **feeder cable**.

MR. MAX: What's the problem?

ELECTRICAL ENGINEER: The cable is rather short, about 10 metres long only, and some difficulties may arise as the ship is lying rather far from the **shore power supply**.

MR. MAX: All right. We'll provide you with the cable of necessary length.

ELECTRICAL ENGINEER: Thank you. You are very helpful.

## 3. THE ELECTRIC MOTORS

MR. WILSON: Now, why do you want us to replace the motors of the **CPP (controllable pitch propeller)** pumps?

ELECTRICAL ENGINEER: You see, those motors operated under extremely damp conditions. Besides, one of them has been **rewound**. That's why we'd like to have them replaced.

MR. MAX: The thing is that those motors are of Swedish make and are not available now. We can offer you some other types but I'm not sure whether they will go with your pumps.

ELECTRICAL ENGINEER: Oh, it's quite a surprise for us. Well, we'll think it over again and let you know our final decision later on.

MR. MAX: O.K. We are always at your service.

MR. WILSON: And how many metres of the **armoured cable** are to be renewed?

ELECTRICAL ENGINEER: Just a moment. Some 350 metres, I guess. Let me see. Yes, 353 metres, to be exact.

## 4. THE GALLEY ELECTRICAL EQUIPMENT. THE LAMPS

MR. WILSON: Tell me, please, what electrical equipment is to be replaced in the galley?

ELECTRICAL ENGINEER: We think that all the **electric stoves** and also the motors of the **potato peeler** and the **dough mixer** should be replaced. Several electric heating elements in the baking oven require renewal, too.

MR. WILSON: All right. We'll do it.



- MR. WILSON: I understand that you are not planning the replacement of the **deck lamps** and the **distribution boxes**. Why so?
- ELECTRICAL ENGINEER: I'm afraid you are not quite right. Some deck lamps are planned to be renewed. I hope we'll repair the rest of them ourselves.
- MR. MAX: All right. Mr. Andreyev, you've asked us to replace 120 cabin lamps. What lamps do you need?
- ELECTRICAL ENGINEER: We'd like to have **frosted dome lamps** with two bulbs each.
- CHIEF ENGINEER: I suppose that after fitting the lamps the cabins will need some **painting**, won't they? I'd like to know if it is included in the lamp replacement cost.
- MR. MAX: No, it isn't. Anything else concerning the electrical equipment, gentlemen?
- CHIEF ENGINEER: No, that's all, I guess.

### Exercises

#### 1. Translate into Russian.

Insulation level, under working conditions, preventive maintenance, to check the contacts, automatic circuit-breaker, to fix the time, to be in continuous use, to feed, to connect to the shore electrical supply, feeder cable, the cable of necessary length, under extremely damp conditions, to be not available, to be exact, heating elements, to require renewal, replacement of the deck lamps, frosted dome lamps.

#### 2. Make up and translate the sentences.

Our electrical equipment		
The main switchboard		cleaned
Circuit breakers		replaced
The insulation level		repaired
Several automatic devices		renewed
The contacts	is to be	painted
The motors of the CCP pump	are to be	checked
The armoured cable	should be	rewound
Two electric stoves		measured
The heating elements		overhauled
Some deck lamps		supplied
The bulbs		

#### 3. Make the following situations complete.

1. Let's discuss the repair of ... . 2. We'd like to replace ... . 3. What repairs are planned about ... ? 4. It's important for us to know ... . 5. Is your ... in good condition? 6. We have some trouble with ... . 7. I hope we'll repair ... ourselves. 8. I suppose that after fitting the lamps the cabins will need some ... .

#### 4. Translate into English.

- Я отвечаю за ремонт электрооборудования.
- Мы хотели бы измерить уровень изоляции судового электрооборудования.
- Мы планируем профилактический ремонт ГРЩ.
- Судно будет подсоединено к щиту питания с берега.
- Мы обеспечим вас кабелем необходимой длины.
- Сколько метров кабеля необходимо заменить?
-

Двигатель работал в условиях экстремальной влажности. 8. Эти моторы шведского производства. 9. Несколько нагревательных элементов электроплиты требуют замены. 10. Я надеюсь, остальной ремонт мы выполним самостоятельно.

### 5. Compose the dialogues based on the following situations.

1. Mr. Wilson and you are discussing the repair of the electrical equipment. All the electric stoves in the galley and the motor of the potato peeler need replacement. Besides, 100 cabin lamps should be replaced. After fitting the lamps the cabins will need some painting Mr. Wilson tells you that painting is not included in the lamp replacement cost, so you should pay extra for it.
2. Tell Mr. Wilson that the main switchboard requires only preventive maintenance. Give him the details. Let him know what machinery will operate in the engine-room during the repair works. Tell him that your shore-supply board is in a good condition but you have a rather short cable. Ask Mr. Wilson to provide you with a proper cable.
3. Explain to Mr. Wilson why you want them to replace the motors of the CPP pumps. Ask if they are available. If not, agree to take the motors of another type. Remind Mr. Wilson that 350 metres of the armoured cable should be renewed.

## SHIP REPAIR IN A FOREIGN PORT

### Vocabulary

**in case of emergency** в случае крайней необходимости

**fail** выходить из строя

**repair** ремонт; ремонтировать

**shipyard** судовой верфь

**supervision** наблюдение

**representative** представитель

**Russian Maritime Register of Shipping**

Регистр России

**shipowner** судовладелец

**installation** установка

**equipment** оборудование

**delivery trials** приемные ходовые испытания

**ship's reception (acceptance)** приемка судна

**list of repairs** ремонтная ведомость

**verify the scope of the work** уточнять объем работы

**check up** контролировать

**protocol of delivery** приемо-сдаточный акт

### Text

## SHIP REPAIR IN A FOREIGN PORT

The Russian fishing vessels operate in various parts of the world ocean far away from the native shores. **In case of emergency** when some machinery **fails** our ships call at foreign ports for **repairs**.

Some of our fishing ships are built at foreign **shipyards** under the **supervision** of the **representatives** of the **Russian Maritime Register of Shipping**. As soon as the hull works are completed the future **ship owners** send their representatives to supervise the **installation** of machinery and **equipment**. They also take part in the **delivery trials** and the **ship's reception**.

The ship built at a foreign shipyard is usually repaired at the same yard. The ship's engineers take part in the repair works. They discuss the **list of repairs** with the shipyard's representatives,

**verify the scope of the work**, supervise and **check up** the repair process. On completion the delivery trials are carried out, the **protocol of delivery** is made out and the ship is ready for service again.

## DIALOGUE

### MEETING THE REPRESENTATIVES OF THE SHIP REPAIR DEPARTMENT

MR. WILSON: How do you do. I'm the manager of the ship repair department. My name's Wilson. And this is Mr. Max. He is **re-sponsible** for your ship's repairs.

CHIEF ENGINEER: How do you do, gentlemen. I'm the chief engineer. My name's Petrov. These are my colleagues: Mr. Kolosov, the second engineer, Mr. Andreyev, the electrical engineer, Mr. Voronov, the refrigerating engineer and Mr. Smirnov, the engineer of our fish factory.

MR. WILSON: Glad to meet you, gentlemen. Do you speak English? We are sorry to say that none of us speaks Russian.

CHIEF ENGINEER: All right. Let's speak English then. My second engineer and myself can do it.

MR. WILSON: Oh, it's fine that we'll understand each other. What shall we begin with?

CHIEF ENGINEER: With a cup of coffee, I think. Hope, you have nothing against it, gentlemen, have you?

MR. WILSON: Oh, no. It would be nice on a cold day like this. Thank you. And now let's go through the list of repairs.

CHIEF ENGINEER: O.K. It consists of general parts which include the repairs of the main engine, the **auxiliary** diesel-generators, the steam boiler and its supply systems, the refrigerating plant, the fish factory equipment, the deck machinery and the hull. Here are two English **copies** for you.

MR. WILSON: Thank you.

**responsible** ответственный  
**auxiliary** вспомогательный

**copy** экземпляр

## Exercises

### 1. Answer the questions.

- 1) Where are our fishing ships built?
- 2) Who supervises their construction?
- 3) Do the ship's engineers take part in the installation of machinery and equipment?
- 4) When do our ships call at foreign ports for repairs?
- 5) Why is it necessary to discuss the list of repairs?
- 6) What are the delivery trials and when are they carried out?
- 7) Why do the ship owners send their representatives to receive a new ship?

### 2. Match the phrases.

1. various parts
2. in case
3. the installation

*of*

- a) delivery
- b) repairs
- c) emergency

- |                                  |                            |
|----------------------------------|----------------------------|
| 4. the list                      | d) the main engine         |
| 5. the scope                     | e) <i>the world ocean</i>  |
| 6. the protocol                  | f) Shipping                |
| 7. the repairs                   | g) work                    |
| 8. the Russian Maritime Register | h) machinery and equipment |

### 3. Make up sentences, using the words, given below.

**Model:** *Let's* ~~Let's~~ *verify the scope of the work.*  
*I'd like to* ~~I'd like to~~ *verify the scope of the work.*  
*I want* ~~I want~~ *to verify the scope of the work.*

to discuss the list of repairs, to get down to business, to speak English, to have a cup of tea, to carry out the delivery trials, to make out protocol of delivery, to go through the list of repairs, to have a look at the documents, to discuss the price-list, to make out the additional list of repairs, to fix up the details.

### 4. Translate the words of the Chief engineer into English. Reproduce the dialogue.

A: How do you do. I'm from the commercial department of the ship repairing company. My name is John Brown.

B: Здравствуйте, г-н Браун. Меня зовут Андрей Петров. Я старший механик.

A: Nice to meet you.

B: Я тоже рад с Вами познакомиться.

A: Let's get down to business.

B: Хорошо. Сюда, пожалуйста. Давайте посмотрим ремонтную ведомость и обсудим цены. Хотите чашечку кофе?

A: Thank you, with pleasure.

## SURVEY OF DEFECTS AND REPAIR DISCUSSION

### DIALOGUE 1. THE MAIN ENGINE: GENERAL INFORMATION

MR. WILSON: Well, let's discuss the list of repairs **concerning** the main engine and its supply systems.

CHIEF ENGINEER: Our main engine was in operation for some ten years and has already run 46,000 hours. Now it **requires general overhaul**.

MR. WILSON: In this case we'll have to do a lot of additional work **to dismantle** and **mount** the main engine again. It is included in the list of repairs, isn't it?

CHIEF ENGINEER: Yes, it is. You may see it here: **items** Nos. 5-32.

MR. WILSON: Is everything **listed** in these items?

SECOND ENGINEER: Practically everything, I guess. As to **taking off** telephones, **sensors** and indicators at the **control panel**, I'm sure our men can do it.

MR. WILSON: Very well, then.

**concerning** относительно

**require** требовать

**general overhaul** капитальный ремонт

**dismantle** демонтировать, разбирать

**mount** устанавливать, собирать

**item** пункт

**list** перечислять

**take off** снимать

**sensor** датчик

**control panel** пульт управления

## DIALOGUE 2. THE CYLINDER HEADS

MR. WILSON: What about the cylinder heads? Do the contact surfaces of the cylinder heads require machining or just **scraping**?

CHIEF ENGINEER: They need both.

MR. WILSON: Are all the cylinder head fittings going to be renewed or can some of them be repaired?

SECOND ENGINEER: Well, the starting valves are to be overhauled with later pressure testing. But all the other fittings (the safety valves, the indicating cocks, etc.) should be renewed.

MR. WILSON: Very well. According to the list of repairs you'd like to have only four exhaust valves replaced. Why not all of them?

CHIEF ENGINEER: The other exhaust valves are O.K. But their **disks** and **stems** should be **turned**.

MR. WILSON: Do you think that the exhaust valve **rockers** and rods should be replaced too?

CHIEF ENGINEER: No, I don't think so. But the rocker bronze **bushes** and **pins** should be renewed.

MR. WILSON: Well, I see.

**surface** поверхность

**scraping** шабровка

**valve disk** тарелка клапана

**valve stem** шток клапана

**turn** обтачивать; протачивать

**rocker** коромысло

**bush** втулка

**pin** палец

## DIALOGUE 3. THE CYLINDER AND PISTON ASSEMBLY

MR. WILSON: Well, let's pass on to the pistons. Mr. Petrov, can you tell me what should be done about them?

CHIEF ENGINEER: According to the list of repairs two piston assemblies are to be replaced. The rest require the following repairs, namely:

- **plasma-jet hard facing** and cutting the **grooves** for the piston rings;
- **renewal** of the piston rings on all the pistons;
- **measuring** the **clearances** in the **top-end bearings**.

If required, they should be **rebabbitted** and then fitted into position with necessary clearances.

MR. WILSON: I see. By the way, do you want the top-end bearings to be rebabbitted and **adjusted** to the new **repair sizes** of the **piston pins** or to the old ones?

CHIEF ENGINEER: To the old ones, of course.

MR. MAX: I suppose, the pistons will require **pressure testing**, won't they?

SECOND ENGINEER: Oh, yes, they certainly will.

MR. WILSON: What are your plans about the piston telescopic system?

CHIEF ENGINEER: Unfortunately, it should be completely replaced.

MR. WILSON: O.K. And what about the **main bearings**?

CHIEF ENGINEER: The main bearings which have big **cracks** in babbitt should be remetalled and then **fitted** into position. The other bearings should be used depending on their condition and clearances.

MR. WILSON: Shall we repair the **bottom-end bearings** according to the list of repairs?

CHIEF ENGINEER: Oh, yes. Rebabbiting, **boring**, scraping, fitting and all that. I'm sure you know what should be done.

MR. WILSON: Well, we'll try to do our best.

**plasma-jet hard facing** плазменная на-  
плавка

**groove** канавка ring

**renewal** замена

**measure** измерять

**clearance** зазор

**top-end bearing** головной подшипник

**rebabbit** перезалить

**adjust** подгонять, регулировать

**repair size** ремонтный размер

**piston pin** поршневой палец

**pressure testing** опрессовка

**main bearing** рамовый подшипник

**crack** трещина

**fit** устанавливать, подгонять

**bottom-end bearing** мотылевый

подшипник

**boring** расточка

#### DIALOGUE 4. THE CYLINDER LINERS

MR. WILSON: Why do you want us to replace only three **cylinder liners**, I wonder?

CHIEF ENGINEER: You see these liners are badly damaged through erosion on the cooling water side and have some ellipsoidal **wear**. That's why they are to be replaced. As to the other liners they require checking. Then we'll see what should be done.

MR. WILSON: Sorry, but the fact is that we do not make cylinder liners in this country. We usually order them in Denmark. The **delivery** takes rather much time. That's why we must know the **exact** number of cylinder liners to be renewed.

MR. MAX: Don't worry, gentlemen. We'll **speed up** the dismantling of the cylinder liners and carry out the necessary survey of defects as quick as possible.

CHIEF ENGINEER: We'd like to have your opinion about the other three liners, in two days. Can you manage it?

MR. MAX: Certainly. We'll make our **final report** the day after tomorrow.

CHIEF ENGINEER: Thank you for cooperation, Mr. Max. So, gentlemen, we **are through** with the cylinder-and-piston assembly.

**cylinder liner** цилиндрическая втулка

**wear** износ

**delivery** поставка

**exact** точный

**speed up** ускорять

**final report** заключение (комиссии)

**be through** заканчивать

#### DIALOGUE 5. THE CAMSHAFT. THE MAIN STARTING VALVE

MR. WILSON: You see, it's necessary **to grind** the **camshaft journals**, otherwise it is impossible to replace the bearings.

CHIEF ENGINEER: You are quite right. Sorry, we've **overlooked** that.

MR. MAX: The camshaft labyrinth **packings** should be renewed too, I guess.

SECOND ENGINEER: Yes, they should. But, look, it is **stipulated** in the list of repairs.

MR. WILSON: So, we shall make a complete repair of the camshaft **drive**, shan't we?

CHIEF ENGINEER: That's right. Let's go on, then.

MR. WILSON: The item concerning the repair to the main starting valve in the list of repairs must be **cancelled**. Sorry, we have no spare parts for it in the **repair kit** at present, but fortunately the valve requires only **minor repair**. I believe it's not a problem for you to carry out this work, is it?

CHIEF ENGINEER: O.K. **No objections**. We'll try to do it ourselves. Now, if you don't mind we shall move on to the fuel equipment.

**camshaft** распределительный вал  
**grind** шлифовать  
**journal** шейка  
**overlook** упустить из виду, не учитывать  
**packing** уплотнение  
**stipulate** предусматривать, обуславливать

**drive** привод  
**cancel** аннулировать  
**repair kit** ремонтный комплект  
**minor repair** мелкий ремонт  
**No objections.** Возражений нет.

### DIALOGUE 6. THE FUEL EQUIPMENT

MR. WILSON: We suggest that the fuel pumps should be replaced completely. What's your **opinion**, Mr. Petrov?

CHIEF ENGINEER: Sorry, we cannot agree to that. You see, we have our own complete **set** of fuel pumps. But **it is desirable** to replace in full the injectors and high pressure fuel pipes. Can you possibly do it?

MR. WILSON: O.K. We can replace the fuel injectors, you may be quite sure. As to the fuel pipes I must consult our experts in the commercial department whether it is possible to buy them. I'm afraid they are in short supply now but we'll do our best.

CHIEF ENGINEER: Thank you. Would you be so kind as to do us another favour? Is it at all possible to substitute one item in the list of repairs for another, that is to have another kind of the repair **instead of** the listed one?

MR. WILSON: Why, it's certainly possible. But you should **settle** the matter with Mr. Max who is responsible for your ship's repair.

CHIEF ENGINEER: So, what would you say to that, Mr. Max?

MR. MAX: I think that we'll **come to an agreement**. But let's discuss it later on.

**opinion** мнение  
**set** комплект  
**it is desirable** желательно  
**instead of** вместо

**settle** решать  
**come to an agreement** прийти к соглашению

### DIALOGUE 7. THE TURBOCHARGERS

MR. WILSON: Now, gentlemen, what comes next? The **turbochargers**, I suppose?

CHIEF ENGINEER: That's it. By the way, we'd like to know if your company can **carry out** the **dynamic balancing** of the turbocharger **rotors**. If so, we'll include this operation in the additional list of repair.

MR. WILSON: You see, our company doesn't do such work, but we can ask the specialized firm to do it. They will carry out the dynamic balancing and **issue** the necessary certificate.

CHIEF ENGINEER: Good. We may include this item in our additional list of repairs, may we not?

MR. WILSON: Well, you may certainly do it.

**turbocharger** турбокомпрессор  
**carry out** выполнять  
**dynamic balancing** динамическая балансировка

**rotor** рабочее колесо  
**issue** выдавать

### DIALOGUE 8. THE HEAT-EXCHANGE EQUIPMENT. THE SEA-WATER LINES. THE GUSSET STAYS

MR. WILSON: Well, let's see what should be done with the **heat-exchange equipment**. Shall we replace the oil and water coolers?

CHIEF ENGINEER: No, I don't think so. Cleaning and hydraulic testing, that's what they need in the first place. After the hydraulic test we'll see if something else is necessary.

MR. WILSON: And what about the **sea-water lines** for the main engine?

CHIEF ENGINEER: You see, we did not include them in the part concerning the main engine repairs. But they are listed in the part concerning the auxiliary diesel generators.

MR. WILSON: To my regret, I don't quite understand the item about the **gusset stays**. Can you clarify it?

CHIEF ENGINEER: Oh, most willingly. The gusset stays should be subjected to the **ultrasonic test** for **microcracks** and then fitted into position and **tightened** in accordance with the instruction.

MR. WILSON: Thank you. Now we're quite clear about this item.

**heat-exchange equipment** теплообменное  
оборудование

**sea-water line** трубопровод забортной  
воды

**gusset stay** анкерная связь

**ultrasonic test** ультразвуковой контроль

**microcrack** микротрещина

**tighten** затянуть

## DIALOGUE 9. THE INSTRUMENTATION

MR. MAX: Do you want us to replace your **testing instruments**?

SECOND ENGINEER: Yes, the instrumentation should be completely renewed.

MR. MAX: All right. We'll do it.

CHIEF ENGINEER: Well, I think we are through with the main engine. Let's discuss the next part of the list of repairs.

**testing instrument** контрольно-измерительный прибор

### Exercises

#### 6. Translate into English.

Ремонтная ведомость, капитальный ремонт, цилиндро-поршневая группа, измерить зазор, перезалить баббитом, опрессовка, рамовые подшипники, мотылевые подшипники, цилиндрическая втулка, заключение комиссии, запасные части, ремонтный комплект, заменить форсунки, прийти к соглашению, выдать необходимый сертификат, теплообменное оборудование, анкерная связь, установить на место, в соответствии с инструкцией.

#### 7. Make up and translate the sentences.

Our main engine

Sensors and indicators

Cylinder heads

The cylinder head fittings

The starting valves

The exhaust valves

The top-end bearings

The main bearings

Two piston assemblies

The cylinder liners

Water coolers

is to be  
are to be  
should be

cleaned  
replaced  
repaired  
renewed  
fitted into position  
pressure tested  
tightened  
remetalled  
overhauled  
taken off  
scraped



The gusset stays  
Testing instrumentation

rebabbited  
bored to correct size

### 8. Make the following situations complete.

1. Let's discuss the list of repairs concerning ... 2. According to the list of repairs ... should be replaced. 3. Do the contact surfaces of the cylinder liners require machining or ... ? 4. You see, we don't make cylinder liners in this country. We ... 5. The top-end bearings should be rebabbited and then ... 6. Sorry, we have no spare parts for it at present, but ... 7. It is desirable to replace in full ... 8. The gusset stays should be tested for microcracks and then ...

### 9. Translate the Russian replies into English. Reproduce the dialogues.

1)

A: Do the contact surfaces of the cylinder heads require machining or just scraping?

B: Требуется и то, и другое.

A: What valves should be replaced?

B: Предохранительные и выпускные клапаны нужно заменить на новые.

A: And what about starting valves?

B: Пусковые клапаны нужно перебрать с последующей опрессовкой.

2)

A: What about the main bearings?

B: Рамовые подшипники имеют большие трещины. Их нужно перезалить баббитом и установить на место.

A: Shall we repair the bottom-end bearings according to the list of repairs?

B: Да, конечно. Перезаливка, расточка, шабровка, и т. д. Я уверен, вы знаете, что нужно сделать.

A: Well, we'll try to do our best.

3)

A: We want you to replace three cylinder liners.

B: К сожалению, мы не производим такие втулки. Мы заказываем их в Дании.

A: How much time will it take you to order them?

B: Доставка займет много времени. Но, не беспокойтесь. Мы ускорим разборку цилиндрических втулок и выполним необходимую дефектацию как можно быстрее.

A: Thank you for cooperation, Mr. Bean. So, we are through with the cylinder-and-piston assembly.

4)

A: Shall we replace the oil and water coolers?

B: Нет. Холодильники нужно очистить и опрессовать.

A: And what about the sea-water lines for the main engine?

B: Этот пункт включен в раздел по вспомогательным дизель-генераторам.

A: I don't quite understand the item about the gusset stays.

B: Анкерные связи необходимо проверить ультразвуком на микротрещины, а затем установить и затянуть в соответствии с инструкцией.

### 10. Compose the dialogues based on the following situations.

1. Tell Mr. Wilson, the manager of the ship repair department, that your main engine requires general overhaul. Say that all the additional work for dismantling the main engine is included in the list of repairs.
2. Ask Mr. Wilson if they can replace in full the injectors and high pressure fuel pipes. Tell him that you are not going to have the pumps replaced as you have your own ones in complete.
3. Discuss the repair of the camshaft with Mr. Wilson. Tell him that the camshaft drive requires a complete repair. The camshaft journals should be ground.
4. Ask Mr. Wilson if their company can carry out the dynamic balancing of the turbocharger rotors. Tell him what should be done about the heat-exchange equipment.

### 11. Listen to these word combinations and repeat them after the speaker. Memorize their translation.

Let's discuss ...	Давайте обсудим ...
Let's pass on to the ...	Давайте перейдем к ...
Let's go on then	Давайте продолжим
I guess/ I suppose/ I believe	Я думаю, полагаю
I'm sure	Я уверен
I don't think so	Я так не думаю
Look	Посмотрите
You see ...	Видите ли ...
I see	Понятно
By the way...	Кстати ...
And what about ... ?	А как насчет ...?
We suggest	Мы предлагаем
We'll try to do our best	Мы сделаем все от нас зависящее
We'll try to do it ourselves	Мы сделаем это сами
We'll see what should be done	Мы посмотрим, что можно сделать
We'd like to know	Мы хотели бы знать
We'd like to have your opinion about	Мы хотим знать ваше мнение о ...
Can you manage it?	Вы можете с этим справиться?
You are quite right	Вы совершенно правы
It's not a problem	Это не проблема
If you don't mind	Если вы не возражаете
It is desirable	Желательно
What's your opinion?	Каково ваше мнение?
Sorry, but the fact is that ...	Извините, но дело в том, что ...
Sorry, we cannot agree to that	Извините, мы не можем согласиться с этим
I don't quite understand	Я не совсем понимаю
To my regret	К моему сожалению

<b>I must consult our experts</b> <b>Would you be so kind as ...</b> <b>Is it possible ...?</b> <b>What would you say to that?</b> <b>I think we'll come to an agreement</b> <b>Thank you for cooperation</b>	Я должен проконсультироваться с нашими экспертами Не будете ли вы так любезны ... Возможно ли ...? Что вы на это скажете? Я думаю, мы придем к соглашению Спасибо за сотрудничество
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## CONTRACT ON THE SHIP'S REPAIR

### Vocabulary

**contract on the ship's repair** контракт на ремонт судна  
**hereinafter** в дальнейшем  
**referred to as** именуемый как  
**the Owner** владелец, заказчик  
**the Contractor** подрядчик  
**party** сторона  
**to conclude a contract** заключить контракт  
**subject of the contract** предмет контракта  
**technical conditions** технические условия  
**Russian Register of Shipping** Регистр судоходства России

**Classification Society** классификационное общество  
**contract duration** срок контракта  
**representative** представитель  
**penalty** штраф, санкции  
**supervision of work** наблюдение за работой  
**modification** изменение  
**scope of work** объем работ  
**testing** испытания  
**acceptance** приемка

### Text

## CONTRACT ON THE SHIP'S REPAIR

Place: ....

Date: ....

The Trade Association ....., **hereinafter referred to as "the Owner"**, on the one part and **"the Contractor"**, on the other part have **concluded** the following Contract.

### I. Subject of the contract

The Owner has placed and the Contractor accepts an order for the repair to m/v ... hereinafter referred to as "the Vessel".

The Contractor undertakes to carry out this order using his own manpower, subcontractors, materials and facilities in full compliance with the repair specification given in Enclosure ... of this Contract.

**to place an order** разместить заказ  
**to accept an order** принять заказ  
**to carry out an order** выполнить заказ  
**to undertake** принимать обязательство (брать на себя)  
**manpower** рабочая сила  
**subcontractor** субподрядчик

**facilities** средства (оборудование, производственные помещения)  
**in (full) compliance with = in accordance with** в (полном) соответствии с  
**repair specification = the list of repairs** ремонтная ведомость  
**enclosure** приложен

## II. Technical Conditions of the Contract

Repair(s)/Conversion to the Vessel are to be carried out in accordance with the technical documents and with the requirements given in Enclosure of this Contract.

Repairs to the Vessel are to be carried out in accordance with Russian Register of Shipping Regulations and under the supervision of Russian Register of Shipping hereinafter referred to as the Classification Society.

Where the Contractor installs or supplies new equipment or materials to the Vessel, he must provide appropriate spare parts, documentation and certificates in accordance with the provisions of Classification Society regulations.

**conversion** переоборудование  
**regulations and requirements** правила и требования  
**provisions** положения, условия

**under the supervision** под надзором  
**to provide** обеспечивать  
**appropriate spare parts** подходящие (соответствующие) запасные части

## III. Contract Duration

The deadline for completion of the repairs to the Vessel is fixed at ... running days, from the date of commencement of repair work. By the above deadline all work shall have been completed in respect of repairs, testing, elimination of all defects and deficiencies.

Acceptance of the Vessel for repairs shall be agreed by protocol and the date of this protocol shall be taken to be the date of Commencement of the Repair work.

The Owner shall undertake to deliver the Vessel, to the Contractor's repair yard. ETA ...

The completion date for the repairs to the Vessel shall be taken to be the date of signature by authorized representatives from each side of an acceptance protocol.

**deadline** предельный срок  
**commencement of repairs** начало ремонта  
**completion of repairs** завершение ремонта  
**running days** текущие дни (все дни подряд, включая выходные и праздники)  
**in respect of** что касается  
**elimination of defects and deficiencies** устранение дефектов и недостатков  
**acceptance** приемка

**to agree by protocol** согласовать протоколом (актом)  
**an acceptance protocol = protocol of delivery** протокол (акт) сдачи-приемки  
**ETA (expected time of arrival)** предполагаемое время прибытия судна  
**date of signature** дата подписания  
**authorized representatives** уполномоченные представители

## IV. Penalty

In the event of failure to meet the deadline for completion of the overhaul, excluding cases for force majeure, the Contractor shall be obliged to pay to the Owner a penalty amounting to ...% of the repair price for the first full week of delay and ...% of the repair price for each subsequent week or part thereof. The total amount of the penalty shall not exceed ...% of the final repair price for each Vessel.

**in the event of failure** в случае невыполнения  
**to meet the deadline** уложиться в установленный срок  
**overhaul** (капитальный) ремонт

**excluding cases of force majeure** за исключением случаев форс-мажора (обстоятельства непреодолимой силы)  
**to oblige** обязывать  
**total amount** общая сумма  
**delay** задержка

**subsequent** последующий  
**to exceed** превышать

**final repair price** окончательная стоимость  
ремонта

## V. Supervision of Work

The Owner has the right to send Representative to the Contractor's repair yard.

The Representative shall have the right to check the quality of work to be carried out or already completed at the Contractor's premises or those of his sub-contractors, in addition to the quality of materials, components and equipment; and in the event of their failure to comply with the technical conditions of the Contract and with Classification Society regulations, shall have the right to request alterations to work carried out or replacement of materials, components and equipment.

The Contractor shall be obliged at his own cost and without extension of delivery deadlines for the repairs to carry out request by the Owner's representatives for elimination of any defects or deficient equipment on board the Vessel.

Should any difference of opinion arise between the Owner's and Contractor's representatives on technical matters, a dispute protocol signed by both parties shall be drawn up for each individual case.

**to check the quality of work** проверить  
качество работы  
**at the Contractor's premises** на  
территории, где проводится ремонт  
**failure to comply with the technical  
conditions** несоблюдение технических  
условий  
**to request alternations to work carried out**  
требовать переделать выполненную работу

**at one's own cost** за свой счет  
**without extension of delivery deadlines** без  
продления срока ремонта  
**difference of opinion** разногласия  
**on technical matters** по техническим  
вопросам  
**to draw up a dispute protocol** составить  
протокол разногласий

## VI. Modifications to Scope of Work

The Owner has the right to cancel some items of the specification, also to decrease or increase the extent of work during the repairs to the Vessel.

Where necessary, at the owner's request, the Contractor may carry out additional work not exceeding ...% of the Contract price.

If during the Repairs period to the Vessel, Owner finds that part of the work is no longer required, he may withdraw such work and shall be obliged to advise the Contractor accordingly in writing and in good time.

**to cancel** отменить, аннулировать  
**items of specification** пункты ведомости  
**to decrease** уменьшить  
**to increase** увеличить  
**at the owner's request** по требованию  
Заказчика

**to carry out additional work** выполнять  
дополнительную работу  
**no longer required** далее не требуется  
**to withdraw** отзываться, отказываться

## VII. Testing

In order to verify the quality of workmanship and of newly installed equipment, materials and systems and also in order to receive the necessary Classification Society documents, the Contractor shall at his own cost, using his own manpower and materials, and in the presence of the Owner's and Classification Society's representatives, carry out tests and checks in accordance with a mutually agreed program.

**to verify the quality of workmanship** удостовериться в качестве выполнения работы  
**newly installed equipment** вновь установленное оборудование  
**to receive the documents** получить документы  
**in the presence of** в присутствии  
**to carry out tests and checks** осуществить испытания и проверки  
**mutually agreed** согласованная между сторонами

### VIII. Acceptance

On completion of the Repairs and prior to the commencement of acceptance testing, the Contractor shall provide the Vessel with the drawings, instructions, diagrams and other documentation in accordance with Contract and with the Classification Society requirements.

On completion of acceptance testing and when all defects in repaired or newly installed equipment have been duly made good, the Owner's and Contractor's representatives shall draw up re-delivery protocol, as per Enclosure ... of the Contract.

**on completion of the repairs** по окончании ремонтных работ  
**prior to** до, перед  
**to provide with smth** обеспечить чем-либо  
**drawings** чертежи  
**acceptance testing** приемо-сдаточные испытания  
**duly** должным образом, вовремя

### Exercises

#### 1. Read after the speaker the following words and word combinations. Remember their meaning.

Subject of the contract, the Owner, the Contractor, manpower, subcontractors, materials and facilities, technical conditions, classification society regulations, contract duration, an acceptance protocol, the total amount of the penalty, the final repair price, supervision of work, modifications to scope of work, testing, the Owner's and Contractor's representatives.

#### 2. Match the following phrases.

1. *to conclude*
2. *to accept*
3. *to carry out*
4. *to check*
5. *to install*
6. *to supply*
7. *to cancel*
8. *to provide*
9. *to complete*
10. *to meet*
11. *to pay*
12. *to exceed*

- a) a penalty
- b) new equipment
- c) necessary spare parts
- d) *a contract*
- e) an order
- f) the repairs
- g) materials
- h) the final repair price
- i) elimination of all defects
- j) the deadline
- k) the quality of work
- l) some items

#### 3. Find the English equivalents in the text of the Contract.

В дальнейшем именуемый как, заключить контракт, выполнить заказ, в соответствии с технической документацией, предельный срок окончания ремонта, текущих дней, устранение дефектов и недостатков, дата начала ремонтных работ, предполагаемое время прибытия судна, дата подписания акта приемки, уполномоченные представители, первая полная неделя задержки, проверить качество выполненной работы, заменить материалы, отменить некоторые пункты ремонтной ведомости, уведомить заблаговременно, предоставить чертежи и инструкции.

#### 4. Answer the questions.

- 1) What date should be taken to be the commencement of the repairs?
- 2) How is the deadline for completion of the repairs fixed?
- 3) How can the owner supervise the ship's repair?
- 4) What should the parties do if any difference in opinion arises on technical matters?
- 5) Has the Owner right to withdraw part of the work during the repairs?
- 6) What is the purpose of the acceptance testing?
- 7) What should the parties do on completion of acceptance testing?

#### 5. Translate into English.

1. Подрядчик должен выполнить заказ, используя свою рабочую силу, материалы и оборудование.
2. Ремонт должен выполняться согласно правилам Регистра России и под его наблюдением.
3. Срок окончания ремонта указывается в контракте.
4. В случае несоблюдения сроков ремонта, подрядчик обязан заплатить владельцу штраф.
5. Штраф за первую неделю задержки составляет ... % от стоимости ремонта.
6. Общая сумма штрафа не должна превышать ... % от окончательной стоимости ремонта.
7. Владелец судна имеет право послать своих представителей на судовой верфь подрядчика для наблюдения за качеством работы.
8. В случае плохого качества ремонтных работ, оборудования или материалов, судовладелец имеет право потребовать переделать работу.
9. Подрядчик обязан устранить любые недостатки, возникающие из-за плохого качества оборудования или материалов за свой счет.
10. Владелец судна имеет право аннулировать некоторые пункты ремонтной ведомости.

**LIST OF REPAIRS****Hull and Deck**

Crack in hull to be welded.  
 Bulwark to be faired 12x0.8 m (12 metres by 0.8 metre).  
 Two bitts and deck plating under them to be renewed and welded joint to be waterproof tested.  
 Deck planking to be replaced, 42 square metres.  
 Derrick (3 tons) to be removed, and straightened, refitted and tested.  
 Fish bunker (hold) covers to be faired and rubber packing to be renewed.  
 Steel watertight doors to be faired and waterproof tested.

Hole 2 metres below waterline to be welded (underwater welding), 30x40 cm (30 centimetres by 40 centimetres).  
 Porthole glass holder with glass to be replaced and watertight tested.

Life-boat to be repaired.

Rubber packings of cargo hold covers to be replaced and watertight-tested.

**Main Engine**

Main (crankpin) bearings to be rebabbitted.

Cylinder and piston set to be dismantled; piston and top-end bearing to be checked.

Cracks to be welded and cylinder heads to be pressure-tested.

Main d.c. (a.c.) motor to be repaired.

Coils to be repaired.

Collecting brushes to be adjusted.

Top-end bearing bush, pins, pinions to be made.

**Shaft Line, Propeller, Rudder**

Nets to be removed from propeller.

Stern gland to be repacked.

**Корпус и палуба**

Заварить трещину в корпусе.  
 Выправить фальшборт по длине 12 м, высотой 0,8 м.  
 Заменить 2 кнехта с заменой участка палубы под ними и испытать место сварки на водонепроницаемость.  
 Заменить деревянный палубный настил площадью 42 м<sup>2</sup>.  
 Снять стрелу (3 т), выправить ее, поставить на место и испытать.  
 Отрихтовать крышки рыбных бункеров (трюмов), заменить резину.  
 Выправить стальные водонепроницаемые двери и испытать на водонепроницаемость.  
 Заварить пробоину ниже ватерлинии на 2 м (подводные сварочные работы) размером 30 на 40 см.  
 Заменить раму иллюминатора со стеклом и испытать на водонепроницаемость.  
 Отремонтировать спасательную шлюпку.  
 Заменить уплотнительную резину крышек грузовых трюмов и испытать на водонепроницаемость.

**Главный двигатель**

Произвести перезаливку рамовых (мотылевых) подшипников баббитом.

Произвести разборку цилиндро-поршневой группы с ревизией поршня и головного подшипника.

Заварить трещины и опрессовать цилиндры крышки.  
 Отремонтировать гребной электродвигатель постоянного (переменного) тока.  
 Отремонтировать обмотки.  
 Отрегулировать коллекторно-щеточную аппаратуру.  
 Изготовить втулку к головному подшипнику, пальцы, шестерни привода.

**Валовая линия, винт, руль**

Снять намотку с винта.

Перебить сальник дейдвуда.



Propeller to be replaced.  
2 propeller blades to be replaced.  
Shaft line to be aligned.

Oil leakage in CPP (controllable pitch propeller) glands to be stopped.  
CPP blade attachments to be checked and adjusted if necessary.

Pitch-changing mechanism to be repaired.

Pitch-changing mechanism to be dismantled  
Bearings to be replaced.  
Shaft to be turned.  
Shaft bush to be replaced.  
Sliding blocks, bars, rods, and oil overflow valves for pitch-changing mechanism to be made.  
Everything to be assembled and put into operation in presence of Lloyd's surveyor.  
Rudder to be tested.  
Rudder plate pin clearance to be measured.  
Clearance measure sheets to be delivered.  
Rudder stock bearings to be checked and packing glands to be repacked.

### **Auxiliaries**

Air and ammonia compressors, water, fuel, and fire pumps to be repaired.

Fuel and oil separators to be repaired.

Refrigerating plant condenser to be repaired.

Pipes to be renewed and pressure-tested.

Refrigerating plant to be filled up with refrigerant (ammonia, freon-22, freon-12).  
Bottom and outboard fittings (sluice valves, strainers, scuppers) to be repaired.

### **Boiler**

Boiler brickwork to be renewed.  
Water tubes to be renewed.  
Furnace to be straightened.  
Boiler to be completely cleaned.

Заменить винт.  
Заменить 2 лопасти винта.  
Произвести центровку валовой линии.  
Устранить течь масла в уплотнителях ВРШ (винт регулируемого шага).  
Проверить крепление и устранить неисправность крепления лопастей ВРШ.  
Отремонтировать механизм изменения шага винта (МИШ).

Разобрать МИШ.

Заменить подшипники.  
Проточить вал.  
Сменить втулку вала.  
Изготовить для МИШ: сухари, штанги, тяги, клапаны масляной системы.  
Все собрать и предъявить в работе в присутствии инспектора Ллойда.

Проверить состояние руля.  
Замерить зазоры штыря пера руля.

Предъявить все размеры зазоров.

Проверить подшипники баллера руля с перебивкой сальников.

### **Вспомогательные механизмы**

Произвести ремонт воздушного и аммиачного компрессоров, водяного, топливного, пожарного насосов.  
Произвести ремонт сепараторов топлива и масла.  
Отремонтировать конденсатор холодильной установки.

Заменить трубы с последующей опрессовкой.  
Холодильную установку заполнить хладагентом (аммиак, фреон-22, фреон-12).  
Отремонтировать донную и забортную арматуру (клинкетты, сетки, шпигаты).

### **Котел**

Заменить кирпичную кладку котла.  
Заменить водогрейные трубки.  
Устранить просадку топки.  
Произвести полную очистку котла.

Air distribution system to be repaired.

Отремонтировать воздухораспределительное устройство.

Safety valve to be replaced.

Заменить предохранительный клапан.

### Trawl Winch

### Траловая лебедка

Armature winding to be rewound.

Перемотать обмотку якоря электродвигателя.

Field coils to be rewound.

Перемотать катушки статора.

Main shaft to be removed and checked and refitted.

Перебрать и уложить грузовой вал.

Hydraulic motors and hydraulic pumps to be replaced.

Заменить гидромоторы и гидронасосы.

Fairleader gear parts to be made.

Изготовить детали привода ваероукладчика.

Fairleader worm and sliding block to be made.

Изготовить червяк и сухарь ваероукладчика.

Gypsy head grooves to be welded on.

Наварить выработку турачек.

Fairleader roller grooves to be welded on.

Наварить выработку роликов ваероукладчика.

Winch brake bands to be replaced.

Сменить тормозные ленты лебедки.

Winch to be load tested

Испытать лебедку под нагрузкой

### Exercises

#### 1. Write out of the text the following verbs. Learn them by heart.

Заварить, выправить, заменить, испытать, снять, установить, отрихтовать, отремонтировать, перезалить (баббитом), разобрать, отрегулировать, изготовить, проточить, проверить, замерить, выпрямить.

#### 2. Find the verbs above in the puzzle. The words do not cross.

S	D	I	S	M	A	N	T	L	E
T	R	O	V	E	R	H	A	U	L
R	E	R	M	E	A	S	U	R	E
A	B	E	R	A	D	J	U	S	T
I	A	P	E	R	E	M	O	V	E
G	B	L	P	C	B	O	R	E	R
H	B	A	A	L	T	F	W	T	E
T	I	C	I	E	E	A	E	U	N
E	T	E	R	A	S	I	L	R	E
N	F	I	T	N	T	R	D	N	W

#### 3. Translate the following items of the repair specification.

##### To repair the engine

1. **Main bearings, crankpin bearings and crosshead bearings** (12 sets altogether) of our main engine (B&W type) to be rebabbited, bored to correct size and fitted.
2. 12 piston rings of **perlite iron** to be taken out and replaced with new ones.

3. 6 **atomizers** for the main engine injection valves to be overhauled cleaned and fitted into position.

4. A **copper pipe O.D.** 70 mm, **I.D.** 60 mm, 4 metres in length with two **flanges** 250 mm outside diameter to be supplied and fitted into position.

5. A sheet iron **patch**, 300x400x5 mm in size to be welded on the boiler furnace.

### To repair the hull

1. A **crack** in way of **sheer strake** between **frames** 85-86, for a length about 1.7 m to be welded.

2. Several **sheets of shell plating** 12 mm thick, for a total area 5-6 sq.m. on the starboard bow above waterline to be cut out and replaced.

3. A sheet of iron 15-20 mm thick to be welded over in the **distorted part** of the deck in way of Hold No.4.

4. **Fireline piping** damaged during the storm to be replaced for a length about 20 m in way of Hold No.1, starboard side.

5. **Longitudinal beams** welded to deck to secure deck cargo to be cut off. The deck to be straightened.

**main bearings** рамовые (коренные) подшипники

**crankpin bearings** мотылевые подшипники

**crosshead bearings** подшипники ползуна

**perlite iron** перлитовое железо

**atomizer** форсунка, распылитель

**copper pipe** медная трубка

**O.D. (outside diameter)** внешний диаметр

**I.D. (inside diameter)** внутренний диаметр

**flange** фланец

**patch** заплатка

**crack** трещина

**sheer strake** пояс обшивки

**frame** шпангоут

**sheets of shell plating** листы наружной обшивки

**distorted part** деформированная часть

**fireline piping** пожарный трубопровод

**longitudinal beams** продольные балки (бимсы)

#### 4. Change the sentences using the grammar pattern:

*Object + to be V<sub>3</sub>*

Model: Clean exhaust valves with chemical solution.

➤ *Exhaust valves to be cleaned with chemical solution.*

1. Overhaul bottom end bearings.
2. Remove, clean and refit piston pins (6 pcs).
3. Overhaul 12 injectors, replace the nozzles and springs.
4. Clean, examine, calibrate and refit the cylinder liners.
5. Take out pistons, clean and perform crack detection.

6. Disassemble, clean from deposits and wash all components of the gas turbo-blower.
7. Take rotor to the workshops, perform dynamic balancing.
8. Disconnect and remove the pipes, scrape the rusty areas.
9. Replace defective part of the piping.
10. Cut out and replace several sheets of shell plating.

### 5. Translate into English some items from the List of Repairs.

1. Заварить трещину по левому борту выше ватерлинии в районе трюма № 2.
2. Заменить поврежденный участок (20 м) пожарного трубопровода.
3. Снять гребной винт, лопасти зачистить и зашлифовать. Выправить поврежденную лопасть. Винт установить на место.
4. Разобрать цилиндро-поршневую группу, произвести ревизию поршня и головного подшипника.
5. Демонтировать мотылевые подшипники, перезалить, расточить и поставить на место.
6. Снять 6 цилиндрических крышек, заварить трещины, опрессовать и установить на место.
7. Демонтировать предохранительный клапан, разобрать, произвести дефектацию, притереть, опрессовать и установить на место.
8. Устранить просадку топки котла, произвести очистку поверхности нагрева со стороны огня.

### Рекомендации по техническому переводу

Каждый специалист в своей профессиональной деятельности может столкнуться с необходимостью технического перевода. Это может быть книга, инструкция, или руководство по эксплуатации на английском языке, которую нужно понять и перевести. Письменный технический перевод выполняется с использованием словарей, общих и специальных, справочников и специальной литературы на русском и иностранном языках.

Технические тексты насыщены фактическим содержанием, в них много терминов, оборотов с неличными формами глагола и пассивных конструкций.

В специальном тексте даже хорошо знакомое слово может оказаться термином. Так, например **man-of-war** значит не *солдат*, а *военный корабль*; **lip** – *край*, **dead** – *обесточенный* в электромеханике и т. п.

В качестве терминов в механике часто используются существительные, которые являются частью человеческого тела или предметами одежды. Например: **arm** *плечо, рычаг*; **head** *головка (поршня)*; **shoulder** *фланец*; **shoe** *башмак (крейцкопфа)* и т.п.

Большинство слов в английском языке многозначны.

Например, словарь указывает несколько значений слова **lock**:

1) *замок; затвор; запор* 2) *фиксатор; стопор; защёлка* 3) *фиксация* 4) *блокировка* 5) *шлюз* 6) *стопорный винт; чека* 9) *затвор, пробка*

Следует внимательно просмотреть все словарное гнездо и отыскать подходящее для данного контекста, т.е. адекватное слово.

Может оказаться, что ни одно из значений слова, приведенных в словаре, не подходит. В таком случае вывести из затруднения может языковая догадка, но в первую очередь – знание и понимание соответствующей отрасли техники.

При работе со словарем следует помнить, что слова даются в их исходной форме. Начальную форму слова можно установить, отбрасывая его грамматическое окончание. Основные морфологические суффиксы английского языка: **-(e)s**, **-(e)r**, **-(e)st**, **-(e)d**, **-ing**.

Не все производные слова включаются в словарь. Если в словаре не указано значение производного слова, его можно установить на основе правил словообразования. Например,

чтобы определить значение слова **unpredictable**, отбрасываем приставку и суффикс, определяем значение слова **predict** *предсказывать, предвидеть*. Приставка **un-** означает отрицание, а суффикс прилагательного **-able** - способность, наличие качества. Устанавливаем значение слова **unpredictable** - *непредвиденный*.

В технической литературе на английском языке часто употребляются цепочки из поставленных рядом слов, которые не связаны между собой синтаксическими средствами, т.е. предложениями. Например: *overload prevention device устройство для предотвращения перегрузки; two stage single-cylinder air-cooled reciprocating compressor двухступенчатый одноцилиндровый компрессор с возвратно-поступательным движением поршня и с воздушным охлаждением* и т.д. В приведенных словосочетаниях коренными являются последние слова, а все предшествующие служат определениями к ним.

Если переводить английское предложение с его твердым порядком слов без перегруппировки, получается дословный перевод. Дословный перевод может быть правильным, если все английские слова в предложении имеют эквиваленты в русском языке и структура предложения имеет полное соответствие в русском языке, например:

We all know that without alternating current radio-communication is impossible.

*Мы все знаем, что без переменного тока радиосвязь невозможна.*

Но дословный перевод возможен не всегда, и от дословного перевода следует отличать недопустимый в практике перевода буквальный перевод, т.е. простой механический перевод слов иностранного текста без учета их грамматических и логических связей.

При переводе с английского языка на русский рекомендуется следующая последовательность работы над текстом:

1. Прочитывается весь текст.
2. Текст размечается, выделяются непонятные слова, термины и сокращения. Их значения желательно раскрыть до перевода с учетом контекста. Англо-американские неметрические меры переводятся в метрические.
3. Делается полный перевод в письменном виде.
4. Просматривается весь текст и освобождается от несвойственных русскому языку оборотов и терминов.

В заключение следует напомнить, что главными помощниками при переводе технических текстов являются словари, отраслевые справочники, знание грамматики и профессиональная компетенция специалиста.

## TEXTS FOR TRANSLATION

### IN-LINE ENGINES AND V-ENGINES

Diesel engines may have cylinders that are placed "in line" or in a bevel position. Compared to the in-line engine the advantages of the V-engine are obvious: a V-engine requires one crankshaft and takes up less space. Therefore the V-engine is very suited to be installed in engine rooms of limited size, contrary to the in-line engine, which cannot be used in small engine rooms due to its height. The in-line engine is not as costly as the V-engine. The construction of the in-line engine is simple, which makes the maintenance and overhauling relatively easy and cheap.

### TRUNK ENGINES AND CROSSHEAD ENGINES

As to the construction of diesel engines we distinguish two main types: the trunk engine and the crosshead engine. In a trunk engine the piston pin and crank pin are directly connected to each other by the connecting rod. Trunk engines are of compacted build and are mostly medium-

speed or high-speed engines. Compared to the crosshead engines they do not require more maintenance. The crosshead engine is taller because of the crosshead and piston rod, which require more space. These engines are mainly used in large vessels.

### OPPOSED-PISTON ENGINES

In the opposed-piston engine the cylinder has a length equivalent to two ordinary cylinders and is open at both ends. Two pistons are provided for each cylinder, the lower piston being connected to the crankshaft in the usual way. The upper piston is attached by means of a piston rod to a yoke above the upper end of the cylinder. The ends of this yoke are connected by side rods to connecting rods extending downward to the cranks, one of each side of the crank that is driven by the lower piston. The two side cranks are set at 180° to the centre crank. The stroke of the upper cylinder is sometimes less than that of the lower cylinder. This crank arrangement causes the pistons to move in opposite directions.

On the compression stroke the two pistons move inward, compressing the air between them, and the space between the pistons forms a combustion chamber into which the fuel is injected. The pressure then forces the pistons apart and as they travel in opposite directions to the ends of the cylinder each acts on its own connection to the crankshaft, the centre crank pushing downward and the two side cranks pulling upward.

At the end of the strokes the upper piston uncovers the exhaust ports and the lower piston the scavenging ports, and the gases are blown out of the cylinder.

Тема 2.3 Бункеровочные операции

### BUYING FUELS AND OILS. BUNKERING

#### Vocabulary

**bunkering=refueling** бункеровка,  
пополнение топливом

**fuels and oils** горючее и смазочные  
материалы

**property** свойство

**advertising** рекламный

**specific gravity** удельный вес

**relative density** относительная плотность

**viscosity** вязкость

**ignition quality** параметр воспламенения

**flash point** температура вспышки

**pour point** температура застывания

**cloud point** температура помутнения

**residual carbon** зольность

**sulphur content** содержание серы

**calorific value** теплотворная способность

#### Text

### BUYING FUELS AND OILS. BUNKERING

Sometimes our fishing vessels call at foreign ports for bunkering. The ships built or repaired at foreign shipyards are always supplied there with **fuels and oils** before the delivery trials. In order to buy fuels and oils of necessary quality it is important for marine engineers to know their physical and chemical **properties**.

The **advertising** prospects and certificates may help you to make your choice.

Fuel oils have various properties such as the **specific gravity** or **relative density**, the **viscosity**, the **ignition quality**, the **flash point**, the **pour point**, the **cloud point**, the **residual carbon**, the **sulphur content**, the **calorific value**.

**DIALOGUE 1**

CHIEF ENGINEER: We need 300 kg of **lubricating oil**.

BUNKER SUPPLIER: What kind of oil do you want?

CHIEF ENGINEER: We want you to supply Shell Meline 30 lubricating oil. We have once bought it and don't want to mix it with oil of another **grade**.

BUNKER SUPPLIER: I see. We can supply you with the oil you ask for.

CHIEF ENGINEER: All right. Let's **arrange for the delivery** then.

BUNKER SUPPLIER: Well. We can **bunker** you just at this berth. When do you want us to start?

CHIEF ENGINEER: We are ready **to start bunkering right away**. We **are pressed for time**.

BUNKER SUPPLIER: As you like. See you soon. Good-bye.

**bunker supplier** поставщик

**lubricating oil** смазочное масло

**grade** сорт

**to arrange for the delivery** договориться о доставке

**to bunker** бункеровать(ся)

**to start right away** начать сразу

**to be pressed for time** иметь мало времени

**DIALOGUE 2**

CHIEF ENGINEER: We want you to supply us with fuel oil for our diesel generator.

BUNKER SUPPLIER: What **requirements** should this diesel oil **meet**?

CHIEF ENGINEER: Nothing special. Just usual Diesel Fuel. Fuel oil with flash point not less than 75°C, viscosity from 40 to 50 seconds Engler at 20°C, **specific weight** – 0.845.

BUNKER SUPPLIER: No problem. It's quite simple with the flash point and specific weight. But couldn't you **convert the figures of viscosity** into Saybolt and Redwood seconds?

CHIEF ENGINEER: Just a moment. I'll look it up in the table. I think the viscosity is 35 Redwood second.

BUNKER SUPPLIER: How many tons do you want to order?

CHIEF ENGINEER: We need 300 tons.

BUNKER SUPPLIER: O.K. But do you know, that we've got fixed prices. We can't **make any discount** for quantities less than 1, 000 tons, I'm sorry.

CHIEF ENGINEER: That's all right. We'll think it over. Thank you anyway. Hope to see you again.

**to meet requirements** отвечать требованиям

**specific weight** удельный вес

**to convert the figures of viscosity** перевести единицы вязкости

**to make discount** делать скидку

### DIALOGUE 3

CHIEF ENGINEER: We'd like to order heavy fuel for our ship.

FIRM REPRESENTATIVE: What grade of fuel do you use?

CHIEF ENGINEER: We want to order 400 tons of Thin Fuel Oil viscosity 1, 000 seconds Redwood and 30 tons of Diesel fuel. Have you got these sorts of fuel?

FIRM REPRESENTATIVE: Yes, we have. We also have heavier kinds of fuel which are cheaper. It will cost you much less.

CHIEF ENGINEER: I'm sorry but our ship is old and her fuel system is not fit for heavier sorts of fuel. With our system we can warm fuel only up to 90°C, while heavier fuels need higher temperature as far as you know. **No use taking up this problem.**

**No use taking up this problem.** Нет смысла поднимать этот вопрос.

### DIALOGUE 4

BUNKER SUPPLIER: Good morning, Chief. The bunkering boat will be brought alongside your ship by 8 a.m. Are you ready to bunker?

CHIEF ENGINEER: Yes, we've got everything ready.

BUNKER SUPPLIER: Into what tanks are you going to take the diesel oil?

CHIEF ENGINEER: Into the aft tanks. One of them is empty and the other is filled partially. We'll start pumping into the port tank.

BUNKER SUPPLIER: Well, what's its **capacity**?

CHIEF ENGINEER: Its capacity is 100 tons. Let's check both tanks right away.

BUNKER SUPPLIER: If you aren't taking any supplies from the starboard tanks have **discharge valves** shut, **sealed** and after that let's **take the ullage**.

CHIEF ENGINEER: All right.

**capacity** производительность насоса

**discharge valve** отливной клапан

**to seal** опечатать

**to take the ullage** производить замеры

### Exercises

#### 1. Give English equivalents.

Смазочное масло, поставщик, сорт, начать бункеровку, нефтяное топливо, удельный вес, температура вспышки, тяжелое топливо, жидкое топливо, качать топливо, кормовой танк, производить замеры, производительность насоса.

#### 2. Match the questions and the answers.

- 1) What grade of fuel do you want?
- 2) How many tons do you want to order?
- 3) Can you convert the figures of viscosity into Saybolt and Redwood seconds?
- 4) Can you make any discount?

- a) Just a moment. I'll look it up in the table.
- b) Sorry, but we've got fixed prices.
- c) Its capacity is 100 tons per hour.



- |  |  |
|--|--|
| 5) Have you got these sorts of fuel?<br>6) Are you ready to bunker?<br>7) What is the pump capacity?<br>8) Into what tanks are you going to take diesel oil? | d) We need 400 tons.<br>e) Yes, we've got everything ready.<br>f) We want heavy oil.<br>g) Into the aft tanks.<br>h) Yes, we have. |
|--|--|

### 3. Translate the sentences, paying attention to the Complex Object.

Model: We want **you to supply** us with Shell Meline 30 lubricating oil.

➤ Мы хотим, чтобы **Вы поставили** нам смазочное масло Shell Meline 30.

- 1) We want to supply us with 400 tons of heavy fuel.
- 2) How many tons of diesel oil do you want us to pump?
- 3) The bunker supplier wants us to shut the discharge valves and to seal them.
- 4) We want you to start pumping into the aft tank.
- 5) We want you to appoint somebody for leaks and overflow.

### 4. Translate the Chief Engineer's replies into English. Reproduce the dialogue.

- Good morning, Chief. The bunkering boat has been brought alongside your ship. Are you ready to take bunker?
- Да, мы сделали все необходимые приготовления.
- You are to take 1,800 tons of Heavy Fuel Oil and 200 tons of Marine Diesel oil, aren't you?
- Да.
- How many tons per hour can you take?
- Около 100 тонн в час.
- What is the diameter of your **receiving pipes**?
- 150 мм.
- I'd like **to appoint someone for leaks or overflow**. And please, send a competent person to the bunkering boat **to read a counter**.
- Хорошо. Я пошлю третьего механика. Он сделает все необходимые приготовления в соответствии с международными правилами.
- O.K. Thank you. Good bye.

**receiving pipes** приемный трубопровод

**to appoint someone for leaks or overflow** назначить кого-либо для наблюдения за утечками и переливом

**to read a counter = to take meter readings** снимать показания счетчика

### 5. Listen to the dialogues and repeat them after the speaker. Learn the dialogues by heart.

#### I

- What pump rate can you **provide**?
- We can provide 60 cubic meters per hour.

#### II

- Who will take meter readings?
- Third Engineer, I think.
- Who will **supervise the hose**?
- I will.

#### III

- Will you show me the **oil certificate**?
- You'll get it from the **shore attendant**.

**IV**

- Where is the **sample**?
- Here you are.

**V**

- Here is the **Bunker Receipt**.
- Will you sign your name, please.
- Here you are.

**provide** обеспечить  
**supervise the hose** наблюдать за шлангом  
**oil certificate** паспорт на топливо  
**shore attendant** бункеровщик  
**sample** образец  
**Bunker Receipt** счет за бункеровку

**BUNKERING GUIDE****Vocabulary**

**bunkering guide** руководство по бункеровке  
**responsible member** ответственное лицо  
**to be in attendance** присутствовать  
**berth** причал  
**available** доступный  
**mooring lines** швартовы  
**to commence** начинать  
**verification** контроль, проверка  
**quantity** количество  
**to utilize** использовать  
**to receive** принимать, получать  
**to connect** соединять  
**intake fueling manifold** приемный топливный патрубок  
**observation** наблюдение  
**to avoid** избегать  
**to witness** свидетельствовать  
**measurements** замеры  
**to retain** сохранять  
**discrepancy** различие, расхождение  
**statement** акт  
**to desire** желать  
**request** запрос

**Text****BUNKERING GUIDE****Delivery Procedure of Mobil Company**

1. A **responsible member** of the vessel's Engine Department should **be in attendance** during the entire fueling operation.
2. If the delivery is by barge, a clear, **safe berth** (decided by barge captain) should be **available** for placing the barge securely alongside and immediately adjacent to the vessel's fueling connection<sup>1</sup>.

3. Immediately upon the arrival of the barge<sup>2</sup>, the vessel's crew should be available to handle the barge **mooring lines** for safe berthing.
4. Before pumping **commences**, the vessel's and suppliers' representatives should establish and agree on the following<sup>3</sup>:
  - a. **Verification** of **quantity** and grade of product to be delivered.
  - b. Maximum/minimum pumping rate per hour required by vessel.
  - c. How subsequent changes in (b) will be communicated and by whom<sup>4</sup>.
  - d. Method to be **utilized** the vessel's crew to have pumping stopped should it become necessary while delivery is in progress<sup>5</sup>.
5. The vessel's crew should **receive** and **connect** the delivery hose to the **vessel's intake fueling manifold** and, upon completion of the delivery, effect the disconnection.
6. Careful **observation** of the vessel's tank ullage should be maintained during the entire delivery **to avoid** any possibility of overflow.
7. A responsible member of the vessel's Engine Department should **witness** the supplier's quantity **measurements/calculations** before and after the delivery.

The vessel's chief engineer should check that quantity delivered (corrected for temperature in accordance with approved petroleum tables), is in agreement with the amount shown of the supplier's receipt. A copy of all receipts for fuels should be **retained** by the chief engineer.

If there is a **discrepancy** between the amount received (according to the vessel's measurements) and the quantity shown on the supplier's receipt, the chief engineer should write a **statement** showing the vessel's figure for the amount received on the receipt above his signature. In such circumstances, the chief engineer should make a report to the owner's/operations office.

#### Marine Fuels Sampling During Delivery

Should the vessel's chief engineer **desire** a representative sample of the product delivered, the **request** should be made known to the supplier before the delivery commences.

#### Notes

<sup>1</sup>**immediately adjacent to the vessel's fueling connection** - непосредственно примыкающий к приемному патрубку судна

<sup>2</sup>**Immediately upon the arrival of the barge** - сразу по прибытии баржи

<sup>3</sup>**should establish and agree on the following** – должны выяснить и договориться о следующем

<sup>4</sup>**How subsequent changes in (b) will be communicated and by whom.** – Как и кем будут сообщаться последующие изменения по пункту (б).

<sup>5</sup>**should it become necessary while delivery is in progress** – если возникнет необходимость в процессе бункеровки

#### Exercises

##### 1. Find English equivalents in the text.

Ответственное лицо машинного отделения; чистый, безопасный причал; до начала бункеровки; количество и сорт доставляемого продукта; максимальная производительность насоса в час; принять и присоединить шланг; произвести отсоединение; наблюдение за утечкой; избегать возможности перелива; количество, указанное на счете поставщика; копии счетов за топливо; подать рапорт; показательный образец.

##### 2. Supply the proper preposition from the list.

*On, by, between, to, before, of*

1) If the delivery is ... barge, a clear, safe berth should be available. 2) The vessel's crew should connect the delivery hose ... the vessel's intake fueling manifold. 3) Careful observation ... the vessel's tank ullage should be maintained. 4) A responsible member ... the

vessel's Engine Department should witness the supplier's quantity calculations. 5) If there is a discrepancy ... the amount received and the quantity shown ... the supplier's receipt, the chief engineer should write a statement. 6) If the vessel's chief engineer wants a sample ... the product delivered, he should make a request ... the delivery commences.

### 3. Choose the correct form of the verb.

*to write, to receive, to witness, to make, to handle, to connect, to check, to retain*

1) The vessel's crew should ... the barge mooring lines for safe berthing. 2) The vessel's crew should ... and ... the delivery hose. 3) A responsible member of the vessel's Engine Department should ... the supplier's quantity measurements. 4) The vessel's chief engineer should ... the quantity delivered. 4) A copy of all receipts for fuels should be ... by the chief engineer. 5) The chief engineer should ... a statement. 6) The chief engineer should ... a report to the owner's office.

### 4. Look through the text. Pick out sentences with the verb *SHOULD*. Revise the meaning of the verb.

### 5. Answer the questions.

- 1) Who is in charge of bunkering operations on a ship?
- 2) What should the vessel's and suppliers' representatives establish and agree on before pumping commences?
- 3) What should the Chief Engineer do in case of discrepancy between the amount received and the quantity shown on the supplier's receipt?

### 6. Translate into English.

До начала бункеровки представители судна и поставщика должны договориться о количестве и сорте поставляемого продукта. Команда судна должна обеспечить безопасную швартовку нефтеналивной баржи, принять и отсоединить шланг подачи топлива. Ответственное лицо от машинного отделения должно наблюдать за наполнением танков, чтобы избежать перелива. Если есть различия между полученным количеством и указанным на счете поставщика, старший механик должен составить акт и направить рапорт в офис владельца.

**Read the following Business Letter. Write your own Letter of protest.**

Date: \_\_\_\_\_  
Ref: \_\_\_\_\_  
To: \_\_\_\_\_

Dear Sirs,

NOTE OF PROTEST FOR BUNKERING OPERATION ON \_\_\_\_\_  
(date)

Chief Engineer of M/V \_\_\_\_\_  
(name of vessel)

short received \_\_\_\_\_ tonnes of \_\_\_\_\_  
(grade of bunkers)

out of the \_\_\_\_\_ tonnes requested for on \_\_\_\_\_ .  
(date of bunker received)

The bunkers were supplied by bunker barge/ tanker  
\_\_\_\_\_  
(name of bunker barge/ tanker)

-SB No: \_\_\_\_\_ on \_\_\_\_\_ at \_\_\_\_\_ .  
(date) (location)

I hereby lodge a protest against the short delivery.

Yours faithfully,

\_\_\_\_\_  
(name of Chief Engineer of the vessel)

-----  
**ACKNOWLEDGED RECEIPT**

\_\_\_\_\_  
Signature of Master/Cargo Officer of Bunker Barge/Tanker

\_\_\_\_\_  
Name of Master/Cargo Officer of Bunker Barge/Tanker

\_\_\_\_\_  
Date/Time

## Тема 2.4 Морская безопасность

**INTERNATIONAL CONVENTIONS****Vocabulary****objective** – цель, стремление**to specify** - устанавливать, предписывать**to provide** – предоставлять, обеспечивать**to prevent** – предотвращать**accident** - несчастный случай; катастрофа; авария**injury**- повреждение; травма**pollution** - загрязнение**to cause** - быть причиной; вызывать;**to ensure** - гарантировать, обеспечивать**environment** - окружающая среда**to establish** – устанавливать**requirements** - требования**measures** - меры**to improve** - улучшать; совершенствовать**Text****INTERNATIONAL CONVENTIONS**

**SOLAS**<sup>1</sup> - INTERNATIONAL CONVENTION FOR THE SAFETY OF LIFE AT SEA , 1974

The main **objective** of the SOLAS Convention is to **specify** minimum standards for the construction, equipment, and operation of ships related to their safety.

**ISM CODE**<sup>2</sup> - INTERNATIONAL SAFETY MANAGEMENT CODE (chapter IX of SOLAS)

The International Safety Management Code **provides** tools (checklists, procedures, etc.) to **prevent accidents, injuries, and pollution caused** by poor management and human mistakes. Objectives of the ISM Code are to **ensure** safety at sea, prevention of human loss of life, and avoidance of damage to the marine **environment**.

**STCW**<sup>3</sup> - INTERNATIONAL CONVENTION ON STANDARDS OF TRAINING, CERTIFICATION AND WATCHKEEPING FOR SEAFARERS

The 1978 STCW Convention was the first to **establish** basic **requirements** on training, certification, and watchkeeping for seafarers on an international level. Revised in 1995.

**MARPOL 73/78**<sup>4</sup> – INTERNATIONAL CONVENTION FOR PREVENTION OF POLLUTION FROM SHIPS.

This convention is one of the most important international conventions of marine pollution by oil, chemicals, harmful substances in packaged form, sewage and garbage.

**IMO**<sup>5</sup> - INTERNATIONAL MARITIME ORGANIZATION

The International Maritime Organization is a specialized agency of the United Nations which is responsible for **measures** to **improve** the safety and security of international shipping and to prevent marine pollution from ships. IMO objective is: safe, secure and efficient shipping on clean oceans.

**Notes**

<sup>1</sup>СОЛАС - Международная конвенция по охране человеческой жизни на море

<sup>2</sup>МКУБ - Международный кодекс по управлению безопасностью

<sup>3</sup>ПДНВ - Международная конвенция о подготовке, дипломировании моряков и несении вахты

<sup>4</sup>МАРПОЛ 73/78 - Международная конвенция по предотвращению загрязнения с судов

<sup>5</sup>ИМО - Международная морская организация

## Exercises

### 1. Listen to these word combinations and repeat them after the speaker. Memorize their translation.

International, convention, construction, operation, pollution, prevention, certification, organization, nation

### 2. Find international words in the text.

### 3. Find English equivalents in the text.

Главная цель; установить стандарты; предотвратить несчастный случай; человеческая ошибка; потеря жизни; ущерб окружающей среде; основные требования; несение вахты; опасные вещества; мусор; сточные воды; безопасное эффективное судоходство

### 4. Match the following phrases.

- 13. to specify
- 14. to provide
- 15. to prevent
- 16. to ensure
- 17. to establish
- 18. to improve
- 19. to avoid



- a) damage to environment
- b) basic requirements
- c) accidents
- d) *minimum standards*
- e) tools
- f) safety at sea
- g) security of shipping

### 5. Answer the questions on the text.

- 10) What is the main objective of SOLAS convention?
- 11) What convention establishes basic requirements on training of seamen?
- 12) What are the objectives of ISM Code?
- 13) What convention protects marine environment from pollution?
- 14) What are the responsibilities of IMO?

### 6. Read the text and answer the question: What is the Polar Code?

IMO has adopted the International Code for Ships Operating in Polar Waters (Polar Code) and related amendments to make it mandatory under both the International Convention for the Safety of Life at Sea (SOLAS) and the International Convention for the Prevention of Pollution from Ships (MARPOL).

The Polar Code entered into force on 1 January 2017. This marks a historic milestone in the Organization's work to protect ships and people aboard them, both seafarers and passengers, in the harsh environment of the waters surrounding the two poles.

### 7. Speak about the international conventions and their main objectives.

### 8. Test yourself.

1. The main objective of this Convention is to specify minimum standards for construction, equipment, and operation of ships related to their safety.
  - a) IMO          b) STCW      c) SOLAS      d) MARPOL
  
2. This Convention was the first to establish basic requirements on training, certification, and watchkeeping for seafarers on an international level.
  - a) IMO          b) STCW      c) SOLAS      d) MARPOL
  
3. The aim of this convention is to provide for safe ship operation and the protection of the polar environment by addressing risks present in polar waters.
  - a) IMO          b) Polar Code      c) ISM Code      d) MARPOL
  
4. This Convention is regarded as the most important international treaty ever adopted in the struggle against pollution of the sea.
  - a) ISM Code      b) Polar Code      c) SOLAS      d) MARPOL



## MARPOL 73/78

### Vocabulary

**to prevent pollution** предотвращать загрязнение  
**treaty** договор  
**to adopt** принимать  
**discharge of oil** сброс нефти  
**bilge water** льяльные воды  
**to contaminate** загрязнять  
**facilities for the reception of oil water** устройства для приема нефтесодержащих вод  
**environment** окружающая среда  
**annex** дополнение  
**noxious liquids** ядовитые жидкости  
**harmful substances** опасные вещества  
**sewage** сточные воды  
**garbage** мусор  
**initial survey** первоначальное освидетельствование  
**intermediate** промежуточный  
**annual** ежегодный  
**to issue** выдавать  
**validity** действительность, законность  
**compulsory** обязательный

**unscheduled** внеплановый



**Text**  
**MARPOL 73/78**

Before the middle of the last century little action has been taken to **prevent pollution**.

The International Convention for the Prevention of Pollution from ships, 1973 as modified by its Protocol at 1978, is the most important anti-pollution **treaty adopted** by IMO. The Convention is usually known as MARPOL 73/78.

Oil pollution of the sea especially in ports and harbours – was first recognized as a problem before the First World War and during the 1920s and 1930s different countries introduced measures to control **discharges of oil** within their territorial waters.

But no agreement had been reached before the Second World War. The formation of the United Nations stimulated activities and in April 1954 a conference adopted the International Convention for the Prevention of Pollution of the Seas by Oil.

This Convention was mainly aimed at pollution resulting from routine tanker operations which was greater cause of oil pollution from ships. When a tanker has discharged its cargo it has to fill some of its cargo tanks with ballast water in order to provide the necessary stability. Mixtures of oil and water also result from tank cleaning, which is generally done by spraying the tank walls and bottom with water.

Pollution can also come from engine room **bilges** of all ships, since bilge water is always **contaminated** by oil. In 1954 the normal practice was to pump these mixtures of oil and water into the sea.

The 1954 convention decided this problem in two ways:

- It established “prohibited zones” (50 miles from the nearest land) in which the discharge of oil was prohibited.
- It also required making **the facilities for the reception of oily water**.

Later when greater amount of chemicals and oil was being carried by sea, the threat for the **environment** has increased. It was clear that the 1954 convention is no longer adequate.

In 1969 the IMO Assembly decided to arrange an international conference to make a completely new convention. Such conference was held in London in 1973. It dealt not only with oil but with all forms of marine pollution.

Most of the measures are included in six **annexes**:

Annex I – Oil

Annex II – **Noxious liquid** carried in bulk (e.g. chemicals)

Annex III – **Harmful substances** carried in packages

Annex IV – **Sewage**

Annex V – **Garbage**

Annex VI – Prevention of air pollution from ships

In 1978 the International conference on Tanker Safety and Pollution made some changes to the MARPOL. The 1978 Protocol to MARPOL introduced stricter regulations for the inspection and certification of ships.

MARPOL 73/78 requires:

1. An **initial survey** before the ship is put in service or before an International Oil Pollution Prevention Certificate is **issued**.
2. **Periodical** surveys at intervals not exceeding 5 years.
3. A minimum of one **intermediate** survey during the period of **validity** of the IOPP.
4. **Unscheduled** inspection or **compulsory annual** surveys must be carried out.

The International Convention for the Prevention of Pollution from ships, 1973 as modified by its Protocol of 1978 (MARPOL 73/78) entered into force on 2<sup>nd</sup> October, 1983.

It is generally regarded as the most important international treaty ever adopted in the struggle against pollution of the sea.

### Notes

MARPOL – Marine pollution (загрязнение моря)

The International Convention for the Prevention of Pollution from ships (Международная конвенция по предотвращению загрязнения с судов)

IMO – the International Marine Organization (ИМО - Международная морская организация)

UNO – the United Nations Organization (ООН - Организация Объединённых Наций)

IOPP – the International Oil Pollution Prevention Certificate (Международное свидетельство о предотвращении загрязнения нефтью)

### Exercises

#### 1. Translate the following word combinations.

Anti-pollution treaty, to control discharges, within territorial waters, to stimulate activities, to pump into the sea, no longer adequate, stricter regulations, inspection and certification of ships, during the period of validity, periodical surveys, unscheduled inspection, the struggle against pollution.

#### 2. Give the English equivalents.

Предотвратить загрязнение, вводить меры, наполнить грузовые танки балластной водой, смесь воды и топлива, льяльные воды, запретные зоны, создать возможности для приёмки нефтесодержащих вод, угроза для окружающей среды, ядовитые жидкости, опасные вещества, сточные воды, отходы, вступать в силу.

#### 3. Answer the questions:

- 1) What is MARPOL?
- 2) When was the problem of oil pollution first recognized?
- 3) When was the first Convention adopted?
- 4) What was the main cause of oil pollution from ships?
- 5) What measures did the 1954 convention introduce?
- 7) Why was the 1954 convention no longer adequate?
- 8) What was the result of the convention of 1973?
- 9) What do the annexes to the convention deal with?
- 10) What regulations for the inspection and certification of ships did the 1978 Protocol to MARPOL 73/78 introduce?
- 11) When did the International Convention for the prevention of pollution from ships entered into force?

#### 4. Translate into English.

Международная конвенция по предупреждению загрязнения с судов, 1973 г., измененная Протоколом 1978 г. к ней – самый важный международный договор, когда-либо принятый в борьбе по предотвращению загрязнения моря.

Загрязнение моря нефтепродуктами было впервые признано проблемой ещё до первой мировой войны. Основные причины загрязнения – это обычные танкерные операции, которые могут привести к сбросу нефти в море. Загрязнение также может происходить от сброса льял машинного отделения всех судов, поскольку льяльные воды всегда загрязнены нефтью.

В соответствии с положениями МАРПОЛ 73/78 каждое судно должно пройти освидетельствование с последующей выдачей Международного сертификата о предотвращении загрязнения нефтью.

### 5. Read the dialogue and answer the question.

*Is the ship equipped in accordance with the requirements of the International Convention for the Prevention of Pollution from ships?*

INSPECTOR: Does your ship under normal conditions carry ballast water in her fuel tanks?

CHIEF ENGINEER: No, never.

INSPECTOR: What separating or filtering equipment do you have on board?

CHIEF ENGINEER: She is fitted with separating equipment capable of producing effluent (сток) with oil content not exceeding 15 ppm.

INSPECTOR: Is your ship provided with oil residue tanks?

CHIEF ENGINEER: Yes, we've got 2 tanks for oil residues with the total capacity of 10 m<sup>2</sup>.

INSPECTOR: Will you show your International Oil Prevention Certificate?

CHIEF ENGINEER: Here you are.

INSPECTOR: O.K. Now, show me your equipment working. Who is responsible for the equipment?

CHIEF ENGINEER: The fourth engineer.

INSPECTOR: (*later*) I see your ship is equipped in accordance with the requirements of the International Convention for the Prevention of Pollution from ships.

- In 1969, the IMO Assembly inspired by the “Torrey Canyon” disaster in 1967 decided to arrange an international conference to adopt a completely new convention.

### ISM CODE Vocabulary

**checklist** технологическая карта; контрольная таблица

**procedure** операция; технологический процесс

**explosion** взрыв

**work permit** допуск/разрешение на проведение работ

**hot work** огнеопасные работы

**cold work** холодная обработка

**enclosed space** закрытое помещение

**loft** наверху, на высоте в воздухе

**entry** вход

**lack** недостаток, отсутствие

**oxygen** кислород

**to fall down** падать

**rust chipping** снятие ржавчины

### Text

## INTERNATIONAL SAFETY MANAGEMENT CODE

Statistics say that about 80 % of all shipping accidents are caused by people. The International Safety Management Code<sup>1</sup> provides tools (**checklists, procedures**, etc.) to prevent accidents, injuries, and pollution caused by poor management and human mistakes.

The ISM Code establishes an international standard for the safe management and operation of ships – Safety Management System<sup>2</sup> (SMS).

The functional requirements for SMS are:

- safety and environmental protection policy;
- instructions, procedures and checklists to ensure safe operations of ships and protection of the environment in accordance with international, national and port state regulations;
- procedures for property situations.

The ISM Code requires your company to develop plans and procedures for all special and critical operations onboard. Before carrying out any task onboard, you have to check in the SMS if there is any written procedure or plan describing how to do it. If so, you have to follow that plan.

In order to avoid accidents and eliminate the risk of fire and **explosion** onboard it is necessary to plan the work and follow all **work permits** before any work starts.

Required work permits include:

**HOT WORK PERMIT** should be issued<sup>3</sup> when involving risks such as<sup>4</sup> fire, explosions. Example of such work: welding, cutting. All hot work must be reported to the office before start.

**ENCLOSED SPACE ENTRY PERMIT** should be issued when involving risks like: **lack of oxygen**, dangerous gases. Example of such work: tank inspections, tank cleaning.

**ELECTRICAL WORK PERMIT** should be issued when involving risks like: electrical shock. Example of such work: replacing electrical fittings.

**WORKING ALOFT PERMIT** should be issued when involving risks like: **falling down**. Example of such work: replacing navigational lights; any work done so high up that you risk to hurt yourself if fall.

**UNDERWATER WORK PERMIT** should be issued when involving risks like: a diver may be injured by a propeller. Example of such work: diving.

**WORKING OUTBOARD PERMIT** should be issued when involving risks like: falling into the sea. Example of such work: fixing a pilot ladder; any work outside the ship's hull.

**COLD WORK PERMIT** should be issued when involving risks like: explosions. Example of such work: **rust chipping**, all work with power tools outside the engine-room.

### WORK HOURS

Personnel should have a proper rest<sup>5</sup> before taking over the watch. All watchkeepers must receive no less than 10 hours of rest in each 24 hour period.

### Notes

<sup>1</sup>The International Safety Management Code (ISM Code) – Международный кодекс по управлению безопасностью (МКУБ)

<sup>2</sup>Safety Management System (SMS) – Система управления безопасностью (СУБ)

<sup>3</sup>should be issued – должно быть выдано

<sup>4</sup>involving risks such as – влечет за собой такие опасности как

<sup>5</sup>have a proper rest – хорошо отдохнуть

### Exercises

#### 1. Find English equivalents in the text.

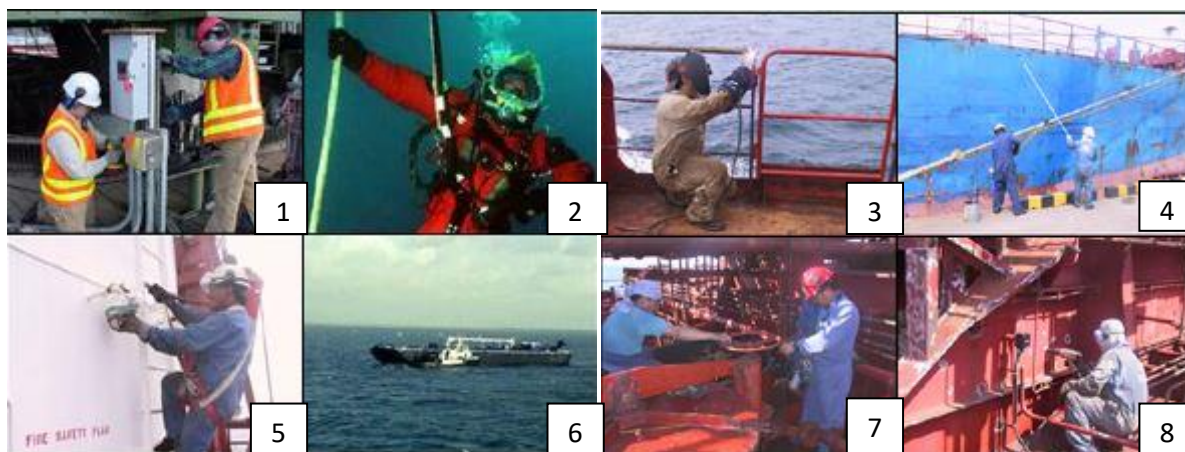
Предотвращать несчастные случаи; травмы; человеческая ошибка; контрольная таблица; в соответствии с международными правилами; действия в критических ситуациях; система управления безопасностью; устранять риск; пожар и взрыв на борту; разрешение на проведение работ; закрытое помещение; работа на высоте; работа за бортом; подводные работы; чистка танка; поражение электрическим током; падение за борт; снятие ржавчины; хороший отдых.

## 2. Answer the questions.

- 10) What is the cause of the most accidents at sea?
- 11) What is called the SMS?
- 12) What are the functional requirements for SMS?
- 13) What do required work permits include?
- 14) When should electrical work permit be issued?
- 15) How many hours of rest should a seafarer have?

## 3. Match the work permit with an example of work. Name the number of picture.

- |                                 |  |
|---------------------------------|--|
| 1. Enclose space entry permit   | a) Diving                                    |
| 2. <i>Hot work permit</i>       | b) Working at height                         |
| 3. Working aloft permit         | c) Electrical repairing                      |
| 4. Working outboard permit      | d) <i>Welding</i>                            |
| 5. Cold work permit             | e) Tank cleaning                             |
| 6. Small craft alongside permit | f) Work with power tools outside engine room |
| 7. Underwater work permit       | g) Bunker barge alongside                    |
| 8. Electrical work permit       | h) Works outside ship's hull                 |



## 4. Test yourself.

1. Why is the ISM- Code mandatory?
  - a) to improve safety
  - b) to save money for the company
  - c) to get the insurance premium
2. The ISM Code is part of?
  - a) STCW
  - b) MARPOL
  - c) SOLAS
3. What does SMS mean?

- a) Shipboard Management System    b) Safety Management System    c) Short Message Service
4. A written memo to accomplish a series of tasks is called  
 a) Muster List                    b) Check list                    c) Work permit
5. How many hours of rest is the minimum required in a normal day?  
 a) 10 hours                    b) 12 hours                    c) 8 hours
6. Which people onboard should have a job description?  
 a) Captain and Chief Engineer                    b) Officers                    c) all onboard
7. Where can you find information about your duties in the event of an emergency?  
 a) in your employment contract    b) in the Muster List    c) ask your superior
8. Why should you report accidents to the designated person (DP)?  
 a) to find someone to blame    b) to prevent it from happening again    c) the company can calculate your safety bonuses.
9. In which case should you send a report to the DP?  
 a) There is an overflow in the bunker tank    b) your salary is not correct    c) the food is not good

## CODE OF SAFE WORKING PRACTICE

### Vocabulary

**personal protective equipment (PPE)**

средства личной защиты

**clothes = garment** одежда

**hazard** риск, опасность

**to wear (wore, worn)** носить

**loose flaps** свободно свешивающиеся, болтающиеся части одежды

**string** верёвка, завязка, шнурок

**external pocket** наружный карман

**sleeves** рукава

**torn= ragged** рваный

**neck tie** шейный платок, галстук

**sweat rag** ветошь для вытирания пота

**goggles** защитные очки

**grinding** шлифовка

**drilling** сверление

**lathe** токарный станок

**scaling** снятие окалины

**hammering** работа молотком

**cold chisel** слесарное зубило

**floor plates** пайолы

**slippery** скользкий

**foothold** опора для ног

**footwear** обувь

**injury** травма

**studs** набойка

**sole** подошва

**helmet** каска, шлем

**noise** шум

**ear plugs** беруши

**ear muffs** наушники

**Text**  
**CODE OF SAFE WORKING PRACTICE**

*(Extracts taken from the Code of Safe Working Practices for the Safety of Merchant Seamen, Officers, engineers)*

**Working clothes and personal protective equipment in machinery spaces**

1. When working **clothes** are selected for use in machinery spaces, consideration should be given to the **hazards** to which the **wearer** may be exposed. Personnel should ensure that clothes fit well and have no **loose flaps** or **strings**. **External pockets**, if any, should be as small as possible. A shirt with short **sleeves** should be worn in preference to one with rolled up sleeves.
2. Loose, **orn** or **ragged garments** are a hazard when working near moving machinery. Special attention is drawn to the hazards of **neck ties**, **sweat rags** slung round the neck, and the wearing of finger rings in the machinery spaces.
3. Special caution is necessary when working near machinery in motion, particularly in close proximity to a revolving shaft.
4. Suitable **goggles** should always be worn when handling chemicals, **grinding**, **drilling**, working a **lathe**, **scaling**, **hammering**, using a **cold chisel** or doing any work of a similar nature.
5. Every effort should be made to ensure that any oil falling on **floor plates** be removed as quickly as possible. Nevertheless, floor plates tend to become **slippery** and this, combined with the movement of the ship at sea, makes **footholds** insecure. When floor plates are slippery with oil, there is a risk that heavy machinery which is being lifted may be inadvertently dropped, causing severe foot **injuries**. The risk of injury is reduced by the use of industrial **footwear** (not having **steel studs** and preferably with **soles** having oil-resistant anti-slip characteristics).
6. Where overhaul of engine room machinery creates special hazards, safety **helmets** should be worn.
7. Personnel required to work in machinery spaces which have high **noise** levels should be provided with suitable ear defenders, which may be **ear plugs** or **ear muffs**. Where noise is intense a combination of both may be desirable.
8. Clothing should not be put to dry in any machinery space.

**Exercises**

**1. Give the English equivalents.**

Средства личной защиты; сидеть хорошо; наружные карманы; рваная одежда; особая осторожность; работающие механизмы; в непосредственной близости от; защитные очки; иметь дело с химикатами; работая на токарном станке; как можно быстрее; качка; скользкий от масел; вызывать серьезные повреждения ног; риск травматизма; маслостойкая противоскользкая подошва; каска; высокий уровень шума; наушники; беруши.

**2. Answer the questions:**

- 1) What should be taken into consideration choosing working clothes for use in machinery spaces?
- 2) Should the working clothes be loose?
- 3) What sleeves is it preferable to wear?

- 4) What about pockets?
- 5) Why is it dangerous to have something round your neck?
- 6) When is it necessary to wear goggles?
- 7) What characteristics should industrial footwear have?
- 8) When safety helmets should be worn?
- 9) How can you protect your ears?
- 10) Is it allowed to dry clothes in the machinery space?

**3. Read the following definitions and name the type of protection.**

- 1) Small pieces of soft material, such as wax, placed in the ear to keep out noise or water.
- 2) Spectacles, often of coloured glass or covered with gauze: used to protect the eyes.
- 3) Any of various large protective hand covers.
- 4) Something worn to cover the feet.
- 5) A piece of protective or defensive armour for the head worn by soldiers, policemen, firemen, builders, etc.



helmet



goggles



ear plugs & ear muffs

gloves



industrial footwear



**4. Find the odd word:**

- 1) hazard, danger, ensure, injury, risk
- 2) pockets, sweat, sleeves, tie, shirt, garment, clothes
- 3) grinding, drilling, scaling, wearing, hammering
- 4) eyes, neck, plates, fingers, ears, feet
- 5) sole, oil, chemicals, noise
- 6) goggles, helmet, chisel, ear plugs, ear muffs

**5. Divide the words below into two groups:**

- 1) *You should wear in the engine room;*
- 2) *You shouldn't wear in the engine room.*

Shirts with short sleeves, a lot of external pockets, finger rings, ear plugs, ragged clothes, neck ties, goggles, industrial footwear, safety helmets.

**6. Complete the table below to summarize the information given in the extract.**



Part of the body	Type of protection	Hazards
body neck hands eyes feet head ears	<i>well-fitting clothes</i>	<i>working near moving machinery</i>

**7. Translate and retell the text in English.**

Рабочая одежда должна хорошо сидеть и иметь меньше наружных карманов. Шейные платки, кольца на пальцах представляют опасность при работе в машинном отделении. При работе с химическими веществами, шлифовке, сверлении и других работах подобного вида нужно надевать защитные очки. Обувь должна иметь маслостойкую противоскользящую подошву. При некоторых видах ремонта в машинном отделении необходима каска. При высоком уровне шума персонал должен быть обеспечен наушниками или берушами. Нельзя сушить одежду в машинном отделении.

**8. Choose the correct variant.**

- Clothes for working in the engine room should \_\_\_\_\_.
  - fit well
  - be loose
  - have a lot of external pockets
- A shirt should have \_\_\_\_\_.
  - rolled up sleeves
  - long sleeves
  - short sleeves
- You shouldn't wear a neck tie because \_\_\_\_\_.
  - it may be seized by the moving part of the machinery
  - a tie is not a sweat rag
  - neck ties are out of fashion
- When handling with chemicals you should wear \_\_\_\_\_.
  - sun glasses
  - contact lenses
  - goggles
- When overhauling the engine room equipment you should have \_\_\_\_\_ on your head.

- a) a bandana
- b) a helmet
- c) nothing

6. The risk of foot injuries is reduced by wearing \_\_\_\_\_ .

- a) high heel shoes
- b) steel studs on the soles
- c) anti-slip footwear

7. The suitable ear defenders are \_\_\_\_\_.

- a) ear plugs
- b) ear rings
- c) ear phones

## ENGINE ROOM FIRE

### Vocabulary

**accident** авария, происшествие

**collision** столкновение

**grounding** посадка на мель

**capsizing** опрокидывание судна

**short-circuit** короткое замыкание

**wiring** электропроводка

**spark** искра

**seat of fire** очаг пожара

**to spread** распространяться

**to raise the fire alarm** поднять тревогу

**muster list** расписание по судовым тревогам

**muster station** место сбора по тревоге

**immediately** немедленно

**fire fighter** пожарный

**fire fighting team** противопожарная команда

**squad leader** командир противопожарной партии

**detection of fire** обнаружение пожара

**to extinguish** тушить

**fire extinguisher** огнетушитель

**fire blanket** противопожарное одеяло

**firefighting equipment** противопожарное оборудование

**emergency exit** аварийный выход

### Text

## ENGINE ROOM FIRE

**Accidents** on board may include man overboard, **collisions**, **grounding**, engine trouble, fire on board, **capsizing**, etc.

Fire is one of the most frequent accidents at sea nowadays. It may start practically in any space of the vessel, e.g. in the engine room, living quarters, cargo spaces, galley, storerooms, etc. This accident is one of the most dangerous, which can result in the loss of the cargo, ship's equipment, human lives and the ship itself.

The engine room is a high risk area with most of the combustible materials. Causes of fire can be different: careless smoking, **short-circuit** in the **wiring**, an electric **spark** from the electric motor, etc. This is a special risk in the engine room, where heated parts of the engine may give off sparks igniting the surrounding materials. Even insignificant **seat of fire** may **spread** to oils and fuels and lead to a full-scale fire on board.

As soon as a fire is discovered a crewman must immediately **raise the fire alarm**, no matter how small the fire may seem to be. Then he is to report to the navigating bridge. After that he must act according to the **muster list**.

When you hear the fire alarm, proceed **immediately** to your **muster station**. Those who are designed as **fire fighters** or smoke divers shall dress in their equipment at once. Other members of **fire fighting team** shall assist as directed by **squad leader** rigging fire hoses and fetching other necessary equipment.

### Guidance on detection of fire

1. Activate alarm signal and cry out on detection of fire.
2. Try to **extinguish** a starting fire with **extinguishers**, **fire blankets**, clothes etc. Do not use water or wet fabrics in electrical equipment on fire.
3. If you don't succeed in extinguishing the fire with remedies at hand, try to stop supply of air to the seat of fire until assistance arrives.
4. Check if persons in adjacent cabins are overpowered by smoke and gas. Bring them out of the danger zone.
5. Do not open doors and hatches from which smoke is oozing without **firefighting equipment** ready for use.
6. Do not enter a smoke filled room without wearing complete protection equipment. Remember that a smouldering fire produces invisible odourless toxic gas, that can kill in 30 seconds.
7. On alarm, it is important that everyone musters as quickly as possible. If anyone is missing, inform squad leader immediately.
8. Evacuate through the fastest way out on deck via the **emergency exits**. Use woolen blankets as protection against flames. Do not use nylon as protection.
9. Move in a crouched position, the concentration of heat and smoke is lowest near the floor. Keep a rag in front of your nose and mouth, as protection against smoke.
10. When the fire alarm sounds all fire teams should follow their instructions quickly to bring situation under control.

### Exercises

#### 1. Answer the questions on the text.

- 1) What accidents may happen at sea?
- 2) Why is fire on board considered to be one of the most dangerous accidents?
- 3) What are possible causes of fire in the engine room?
- 4) What are the actions of a crewman in case of a fire?
- 5) What do the crew members do as soon as the fire alarm is raised?

#### 2. Find the English equivalents in the text.

Самое опасное происшествие на борту, потеря груза и человеческих жизней, зона высокого риска, горючие материалы, неосторожное курение, короткое замыкание, незначительный очаг пожара, поднять тревогу, место сбора по судовым тревогам, командир противопожарной партии, огнетушитель, потушить пожар подручными средствами, невидимый токсичный газ без запаха, аварийный выход, самая низкая концентрация дыма, быстро следовать инструкциям.

#### 3. Complete the table below to summarize the information given in the text.

##### ACTIONS ON DETECTION A FIRE

DO	DON'T
<i>Activate alarm signal</i>	

--	--

**4. Complete the sentences. Choose the proper word from the list.**

*Emergency, muster, station, quickly, spread, dangerous, open, raise.*

1. Fire is one of the most ... accidents at sea nowadays. 2. Fire may ... to oils and fuels and lead to a full-scale fire on board. 3. As soon as a fire is discovered a crewman must immediately ... the fire alarm. 4. When you hear the fire alarm, proceed immediately to your... . 5. Do not ... doors and hatches from which smoke is oozing. 6. Evacuate through the fastest way out on deck via the ... exits. 7. All fire teams should follow their instructions ... to bring situation under control.

**5. Read, translate and dramatize the dialogue.**

*The watch motorman (WM) is reporting to the watch engineer (WE) about the fire on the exhaust manifold.*

**WM** – Sir, I've discovered a small fire on the exhaust manifold. It looks like oily rags were left on the cold exhaust pipe. When the engine began to work the exhaust manifold got hot and the rags began to smoulder.

**WE** – Are the rags still burning?

**WM** – No, sir. I've removed them and used a portable fire-extinguisher to put out the fire. So, it's under control.

**WE** – And why didn't you raise the fire alarm?

**WM** – the rags just started to smoke when I used the fire-extinguisher to put out fire. In fact, there wasn't any flame at all.

**WE** – Was it the damage?

**WM** – No damage at all, sir.

**WE** – Well, that's good. Thanks for the quick actions. Still I have to report the accident to the bridge.

**WM** – That's all right, sir.

**6. Translate the information about fire-prevention precautions to be taken by the crew.**

- Follow no-smoking signs. No one should be allowed to smoke in the engine room.
- Keep the engine room clean. Do not allow flammable waste to pile up.
- Keep oil away from hot surfaces which might ignite it – check that all feed pipes and joints are in good condition.
- Be careful when pumping oil. Avoid spillage or overflow which could lead to fire.
- Switch off electrical equipment when not in use.
- Always keep fire doors closed to restrict the spread of flames and smoke.
- During fire drills on board everyone must learn where fire-fighting equipment and lifesaving appliances are kept and how they work.
- Each vessel should have a Fire Duty Station Bill posted in a visible place and every crew member should be clear about his role and duties in a fire emergency.

7. Look at the firefighting appliances. Memorize the words below.



fire extinguisher



fire blanket



fire bucket



fire ax



fire nozzle



air breathing apparatus



fire hose



fireproof clothing

### MAN OVERBOARD Vocabulary

**man overboard (MOB)**

человек за бортом

**throw a lifebuoy** бросить спасательный круг

**raise the alarm** поднять тревогу

**blast** гудок

**whistle** свисток

**emergency squad** аварийная партия

**emergency headquarters** аварийный штаб

**to don** надевать

**casualty** пострадавший

**lookout** наблюдатель, дозорный

### Text

### MAN OVERBOARD

It may happen that a person has fallen overboard. The actions to be taken in the situation will be similar regardless of <sup>1</sup> whether such a person has fallen overboard from your own ship or a person from another vessel is seen already in the water.

Any crewmember or a passenger on board your ship who sees a person in the water should **throw a lifebuoy** at once and **raise the alarm** at the same time trying not to lose the sight of the person. The alarm signal for man overboard is the continuous sounding of the emergency alarms accompanied by three long **blasts** on the ship's **whistle**.

Immediately after the signal for man overboard is sounded one or two **lookouts** with binoculars will be posted to observe the person in the water.

The **emergency squad** will muster at the **emergency headquarters** and then proceed to the lifeboat. The members of the lifeboat crew will have their life-jacket **donned** and a spare life-jacket carried for the **casualty**. A person in charge of the lifeboat is usually a deck officer while an engineer is in charge of the boat engine. Then the lifeboat is lowered and hurries to the person in the water. The man taken on board is given the first aid.

## Notes

<sup>1</sup>The actions to be taken will be similar regardless of ... – предпринимаемые действия будут одинаковы, независимо от того ...

## Exercises

## 1. Answer the questions on the text.

- 1) What should any crewmember do if he sees that a person has fallen overboard?
- 2) What are the actions of the emergency squad in case of MOB alarm?

## 2. Complete the sentences. Choose the verb from the list.

*to muster, to observe, to take, to see, to throw, to lower, to proceed, to give, to hurry, to post, to raise*

- 1) Any crewmember who \_\_\_\_\_ a person in the water should \_\_\_\_\_ a lifebuoy at once and \_\_\_\_\_ the alarm.
- 2) The emergency squad will \_\_\_\_\_ at the emergency headquarters and then \_\_\_\_\_ to the lifeboat.
- 3) Two lookouts with binoculars will be \_\_\_\_\_ to \_\_\_\_\_ the person.
- 4) Then the lifeboat is \_\_\_\_\_ and \_\_\_\_\_ to the person in the water.
- 5) The man \_\_\_\_\_ on board is \_\_\_\_\_ the first aid.

## 3. Translate into English.

Если вы видите, что человек упал за борт, вы должны сразу же бросить ему спасательный круг и поднять тревогу. Очень важно не терять из виду человека, находящегося в воде. По приказу капитана спускается спасательная шлюпка, чтобы подобрать потерпевшего. Пострадавшего доставляют на борт и оказывают первую помощь.

## 4. Speak about actions of the crew members in case of Man Over Board alarm.

## SURVIVAL IN AN EMERGENCY

## Vocabulary

**survival** выживание

**waterproof clothing** водонепроницаемая одежда

**lifejacket** спасательный жилет

**lifeboat** спасательная шлюпка

**life-raft** спасательный плот

**stowage** место хранения

**to abandon ship** покинуть судно

**rescue suit** спасательный костюм

**to release** освобождать

**to cut the painter** перерубить фалинь

**to secure** крепить, обеспечивать

**to avoid** избегать

**to inflate** надувать

**to erect canopy** устанавливать тент

**senior** старший, вышестоящий

**distribution** распределение

**congregation** скопление

**target** цель, мишень

**fair rationing** справедливое распределение

**Text**  
**SURVIVAL IN AN EMERGENCY**

*The following advice can be found on the Survival Card published by the Nautical Institute in Great Britain:*

**WHEN YOU HEAR AN EMERGENCY SIGNAL**

Go to your station.

If possible, collect warm clothes, **waterproof clothing** and a **lifejacket** from their **stowage**.

Have a good drink of water.

**IF YOU HAVE TO ABANDON SHIP**

Put on waterproof clothes, **rescue suits** and lifejacket.

Assist in loading extra water, provisions (not protein food) and blankets.

**Release lifeboat** or **cut life-raft painter**.

**Secure** painters, launch lifeboats/ rafts and board safe if possible.

Assist clearing the ship's side and danger area, stream the sea anchor.

**Avoid** unnecessary swimming if you have to enter the water.

**SURVIVAL AFTER SHIPWRECK**

Help protect yourself from the environment:

- take anti-seasickness pills
- **inflate** floor and use doors to regulate conditions in life-rafts
- in open lifeboats, **erect canopy**. Keep as warm and dry as possible.
- follow the instructions in the survival equipment.

**POST COMMAND**

The **senior** fit survivor must take command and decide on:

- the **distribution** of survivors (full rafts in cold climates, as few as possible in hot climates)
- a **congregation** of rafts and boats to make a better **target** for air search
- navigation
- **fair rationing** of food supplies
- distribution of duties, lookouts and routine.

**Exercises**

**1. Give the English equivalents.**

Покинуть судно, надеть спасательный жилет, спустить спасательную шлюпку, надуть спасательный плот, установить тент, надеть гидрокостюм, водонепроницаемая одежда, перерубить фалинь, бросить плавучий якорь, принять таблетки от морской болезни, принять командование.

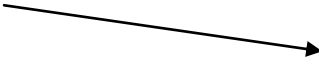
**2. Make the sentences complete.**

*Canopy, the sea anchor, muster station, swimming, command, waterproof clothes.*

- 1) When you hear an emergency signal go to your \_\_\_\_\_.
- 2) If you have to abandon ship put on \_\_\_\_\_.
- 3) Assist clearing the ship's side and danger area, stream \_\_\_\_\_.
- 4) If you have to enter the water avoid unnecessary \_\_\_\_\_.

- 5) In open lifeboats erect \_\_\_\_\_.
- 6) The senior fit survivor must take \_\_\_\_\_.

**3. Match the following phrases.**

- |  |   |   |
|--|---|---|
| <ol style="list-style-type: none"> <li>1. to go to</li> <li>2. to abandon</li> <li>3. to assist in</li> <li>4. to release</li> <li>5. to cut</li> <li>6. to stream</li> <li>7. to take</li> <li>8. to inflate</li> <li>9. to erect</li> <li>10. to follow</li> </ol> |  | <ol style="list-style-type: none"> <li>a) loading</li> <li>b) the muster station</li> <li>c) the ship</li> <li>d) the painter</li> <li>e) the lifeboat</li> <li>f) the instructions</li> <li>g) anti-seasickness pills</li> <li>h) the canopy</li> <li>i) the sea anchor</li> <li>j) the life-raft</li> </ol> |
|--|---|---|

**4. Put the sentences in the correct order.**

**Guidance on lifeboat alarm**

- a) Stick together.
- b) Use radio and signal equipment.
- c) Put on immersion suit/ lifejacket.
- d) Muster immediately at your survival craft station.
- e) Stay in the area.
- f) Stop the engine.
- g) Put on warm clothes.
- h) Check that equipment is secured.
- i) Launch the survival crafts.
- j) Check if anyone missing.

**5. Read the following definitions and name the type of life-saving appliances.**

- 1) A rigid or inflatable sleeveless garment worn to keep a person afloat in the water.
- 2) A kind of device made of solid cork foamed plastic for keeping people afloat in danger of drowning.
- 3) An inflatable buoyant platform for emergency use at sea.
- 4) A small vessel intended for saving the life of crew members of ships in distress.
- 5) A set of clothes made of thermally-insulating material that protects the wearer in distress against hypothermia.







Life-boat		
Life-raft		
Life-buoy		
Life-jacket		
Immersion suit		

### 6. Read, translate and dramatize the dialogue.

*On board a cargo vessel the only passenger, a young college student, is being briefed by the boatswain on the use of a life-jacket.*

**B** – You're Peter Lion, aren't you?

**P** – Yes, sir. That's me.

**B** – I'm the bosun here. My name's Bill Green. I was told **to brief** you on the use of a life-jacket.

**P** – All right, sir. I'd be grateful to you for this.

**B** – Fine, Peter. Here's a life-jacket. Have you ever seen one?

**P** – Yes, sir. I've got one in my cabin.

**B** – Do you know how to don it?

**P** – I've never done it before.

**B** – It's quite simple. Watch closely what I'll be doing. Do you see these **straps**?

**P** – Yes, sir.

**B** – They are used to fix the life-jacket to the human body. But to start with, you have to put your head through the neck piece. Like this. Then put the straps round your **waist** and tie them up in front of you. And that's it.

**P** – It's really simple, sir. Let me try it.

**B** – Go ahead, Peter! Well, that's all right. It took you only one minute to do it. Not bad at all.

**P** – The thing seems to be quite light. What material is it made of?

**B** – It's foamed plastic. That's why the life-jacket helps a person to keep afloat in the water.

**P** – And what are the whistle and light for?

**B** – They help you, while in the water, to attract the rescuers' attention. Especially when the visibility at sea is poor. And remember one more important thing. When you're jumping with the life-jacket donned from a height, keep the neck piece with your hands firm or you may have your neck broken due to the impact with the sea water.

**P** – Thank you very much, sir, for your briefing.

**B** – That's all right, Peter. By the way, you can call me Bill.

**to brief** инструктировать

**strap** ремень

**waist** талия

7. **Speak about**
- **actions of the crewmembers during the boat alarm;**
  - **different life-saving appliances.**

Тема 2.5 Деловое письмо

## BUSINESS LETTER

Plymouth, 27<sup>th</sup> Oct. 2009

Messrs. Warwick & Co., Shipbuilders and Repairers,  
31 Upper Fleet Street,  
Plymouth, England.

Dear Sirs,

Re: Repairs to m/v "L"

**We confirm** our today's conversation with your representative, Mr. W.G. Hollace, regarding the following repairs to be done to our ship:

1. 15 economizer tubes, 40 mm in outside diameter and 3,800 mm in length, to be removed and replaced. Tubes to be supplied by your Company.
2. Two sections of steam superheater (tubes 4,800 mm in length, 30 mm outside diameter, heat-resisting steel) to be examined, hydraulically tested and, if necessary, replaced.
3. 12 safety valves stems, 380 mm in length, 32 mm in outside diameter to be made of chrome-nickel steel and machined to model.
4. One boiler furnace for temperatures of up to 1,800° C to be **lined up** with **fire bricks** and **coated** with plastic **chrome ore refractory**.
5. Two boiler **foundation frames** to be **re-riveted**.
6. Double safety valve for boiler to be made as per drawing. Diameter of bore for each valve – 65 mm. Valves to be ground in and tested in **assembly** for working pressure of 45 atmospheres.

**To conclude the negotiations we would request you to quote your prices** for all the above items and inform us within how many days you will be able to complete the work.

**Yours faithfully,**  
Chief Engineer of the m/v "L"

### Vocabulary

**Messrs** господа (*в адресах*)  
**We confirm** мы подтверждаем  
**to line up** выравнивать  
**fire brick** огнеупорный кирпич  
**to coat** покрыть  
**chrome ore refractory** хромитовый  
 огнеупор  
**foundation frame** фундаментная рама

**to rivete** клепать  
**assembly** сборка  
**to conclude the negotiations** завершить  
 переговоры  
**we would request you** просим Вас  
**to quote your prices** указать Ваши цены  
**Yours faithfully** с уважением

## Explanatory Notes

Деловое письмо должно быть исчерпывающе кратким, ясным и вежливым. Письмо на английском языке обычно состоит из следующих составных частей:

- (1) Название и адрес отправителя письма, штамп, заголовок;
- (2) Дата отправления письма;
- (3) Название и адрес получателя письма;
- (4) Вступительное обращение;
- (5) Основной текст письма;
- (6) Комплементарная концовка;
- (7) Подпись, должность отправителя письма.

Практика деловой переписки выработала четкое расположение на бумаге всех этих составных частей, которого нужно придерживаться в переписке.

Заголовок обычно печатается типографским способом. Это бланк фирмы или учреждения. Наиболее распространенные сокращения: Co – Company (компания); Ltd – Limited Liability Company (ООО); Corp – Corporation (корпорация) или Inc – Incorporated .

Дата пишется в правом верхнем углу письма следующим образом:

*12<sup>th</sup> December, 2011*

*12 December 2011*

*12 Dec. 2011*

*December 12, 2011 (AE)*

Сокращаются названия месяцев: Jan., Feb., Apr., Aug., Sept., Oct., Nov., Dec. (March, May, June, July – пишутся полностью)

Внутренний адрес – название и адрес организации, которой адресуется письмо, размещается вверху слева, немного ниже даты.

Если письмо пишется фирме, в названии которой есть имена собственные, то перед названием ставится слово *Messrs.* (от *фр.* Messieurs – господа). Например: *Messrs. Brown & Co.*

Если обращаются к одному лицу, то ставят *Mr.*, *Mrs.* Или *Miss*, обычно с указанием его должности:

*Mr. J. Watson.*

*President*

*Shipping Limited*

*40, Craig Street*

*Montreal 1*

*Canada*

Если письмо отправляется на фирму, но адресовано кому-то лично, перед вступительным обращением ставится надпись:

*Attn.: Mr. D. Brown*

*Attention of Mr. D. Brown*

} *Внимание г-на Брауна*

*For the attention of Mr. D. Brown*

Вступительное обращение является обязательной и официальной формой. Оно пишется сразу под внутренним адресом на левой стороне письма. После обращения **Dear Sir**, или **Dear Sirs**, всегда ставится запятая.

Указание на содержание письма помещают между вступительным обращением и текстом письма. Оно заимствовано из служебных записок и в письмах встречается редко.

**Re: Ordering Spare Parts.**

Re (*лат. in re* – по делу, касательно)

Основной текст должен быть четким и ясным. Каждый новый вопрос пишется с красной строки. Не допускается грамматических сокращений (I've, we'd, it's и пр.). Все слова пишутся полностью.

Комплементарная концовка, или заключительное обращение, пишется в конце письма на правой стороне. Самыми распространенными являются следующие формы:

**Yours truly, Yours sincerely, Yours faithfully.**

После заключительного обращения ставится запятая, а ниже помещается подпись, расшифровка подписи и должность лица, подписавшего письмо.

*Yours faithfully,*

*Sheldon B. Korner, Head Engineering Department*

**USEFUL FORMULAS TO WRITE A BUSINESS LETTER**

<b>This is to inform you that ...</b>	Настоящим сообщаем Вам, что ...
<b>We are pleased to inform you ...</b>	Мы с удовольствием сообщаем Вам...
<b>Referring to your letter of the 5<sup>th</sup> May</b>	Ссылаясь на Ваше письмо от 5 мая...
<b>According to your request ...</b>	Согласно Вашей просьбе...
<b>In reply to your letter of...</b>	В ответ на Ваше письмо от ...
<b>I thank you for your letter.</b>	Благодарю Вас за Ваше письмо
<b>We are interested in ...</b>	Нас интересует ...
<b>We would like ...</b>	Мы хотели бы ...
<b>We require/ we need/ we are in need of ...</b>	Нам нужно/ требуется ...
<b>In addition/ besides</b>	Кроме того
<b>We confirm our order ...</b>	Мы подтверждаем наш заказ ...
<b>As stated above</b>	Как указано выше
<b>We regret to inform you ...</b>	С сожалением сообщаем Вам, что ...
<b>Please, confirm the receipt of ...</b>	Пожалуйста, подтвердите получение..
<b>Please let us know about ...</b>	Пожалуйста, сообщите нам о...
<b>Kindly send us ...</b>	Прошу прислать нам ...
<b>As soon as possible ...</b>	Как можно скорее ...
<b>With regard to your offer of 3<sup>rd</sup> March ...</b>	Ссылаясь на Ваше предложение от 3 марта ...
<b>We would ask you to send us ...</b>	Мы просим выслать нам ...
<b>Please quote your prices for ...</b>	Пожалуйста, укажите Ваши цены на..
<b>We enclose herewith our order ...</b>	Настоящим прилагаем наш заказ ...
<b>WE WOULD LIKE YOU TO DO THE FOLLOWING REPAIRS</b>	Мы хотели бы, чтобы Вы выполнили следующий
<b>...</b>	ремонт ...
<b>We want you to supply us with fuel /oil/ spare parts</b>	Мы хотим, чтобы Вы поставили нам топливо/ масло/
<b>...</b>	запасные части ...
<b>We thank you in advance.</b>	Заранее благодарим Вас ...
<b>We hope to get your prompt reply.</b>	Надеемся получить скорый ответ.
<b>We are looking forward to your reply.</b>	С нетерпением ждем Вашего ответа.
<b>We would kindly ask you to inform us</b>	Мы просили бы Вас сообщить нам...
<b>Please, let us know in due time ...</b>	Пожалуйста, своевременно сообщите нам ...
<b>On behalf of ...</b>	От имени ...

GENERAL LAY-OUT OF THE BUSINESS LETTER  
СТАНДАРТНОЕ РАСПОЛОЖЕНИЕ ЧАСТЕЙ ДЕЛОВОГО ПИСЬМА

**Northern Fishing Company**

Arkhangelsk, White Nights Street 79

1

2 8 September 2011

Messrs. Mac Andrews & Co., Ship Agents,  
24, Minor Street,  
Hull,  
England

3

Dear sirs,

4

XX  
XXXXXXXXXXXXXXXXXXXXXXXXXXXX 5 XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX  
XX  
XX

6

Yours faithfully,

A. Petrov

7

Chief Engineer of the m/v *Arctic Fish*

**Exercises****1. Translate the following business letters.**

1)

London, March 18, 2010

Messrs. Harry Cross & Co., Ship Agents,  
17 Black Friars Street,  
London, E.C. 3.

Dear Sirs,

Please supply my vessel with 500 tons of bunker coal to be delivered during the 19<sup>th</sup> or 20<sup>th</sup> inst.

It is understood that the quality and price of coal are subject to our previous approval.

Yours faithfully,  
*N.A.Petrov*  
Master of the s/s "..."

2)

London, March 20, 2010

Messrs. Harry Cross & Co., Ship Agents,  
17 Black Friars Street,  
London, E.C. 3.

Dear Sirs,

Please arrange for about 100 tons of fresh water to be supplied to my ship on Monday next from 8.00 to 11.00 a. m.

Yours faithfully,  
*N.A.Petrov*  
Master of the s/s "..."

3)

Hull, 20<sup>th</sup> November, 2010

Messrs. Parsons & Bros., Ship repairers,  
P.O. Box 297,  
Hull, England.

Dear Sirs,

Please, inform us whether you can undertake to carry out the following repairs to our turbo-generator:

1. Turbine casting to be opened up and the Curtis wheel to be removed and replaced. Turbine rotor to be overhauled, balanced and made workable.
2. Twelve roller-bearings (item No. 3992 in your catalogue) to be supplied and fitted into position.
3. The generator insulation resistance to be tested and brought up to nominal value.

Your prompt answer will be greatly appreciated.

Yours faithfully,  
*Anatoly Belov*  
 Chief Engineer of m/v "..."

**2. Translate the following business letter into English. Add the list of repairs on your own.**

1)

Фирме Мак Анджьюс и Ко, ЛТД, Судовым агентам  
 Англия, Гуль  
 Порт стрит, 24

Гуль, 29 ноября 2010 г.

Относительно ремонта т/х «В»

Уважаемые господа,

Согласно нашему рейсовому плану мы пробудем в Вашем порту около 10 суток. За это время мы хотели бы, чтобы нам произвели небольшой ремонт палубы и корпуса судна.

В связи с этим просим связаться с местным судоремонтным заводом и сообщить нам, могут ли они выполнить следующие работы:

1. Заварить электросваркой трещину на наружной обшивке в районе скулового пояса длиной около 1,5 м.
2. Вырезать лист деформированной обшивки между шпангоутами 40-41 выше ватерлинии и приварить новый.
3. ....
4. ....

Будем очень признательны за скорый ответ.

С уважением,  
 Капитан т/х «В»

2)

Фирме Йорген Касмисоа, владельцам сухого дока  
 Дания, Копенгаген  
 Амалигаде, 21

18 апреля 2010 г.

Относительно ремонта главного двигателя.

Уважаемые господа,

Нам необходимо произвести некоторый ремонт главного двигателя.

В связи с этим просим сообщить нам, сможете ли Вы выполнить следующие работы:

1. Перезалить, расточить до нужного размера и пригнать рамовые и мотылевые подшипники (всего 8 комплектов).
2. ....
3. ....

В Вашем ответе просим указать примерную стоимость приведенных выше работ.

С уважением,  
 Старший механик т/х «Л»

### 4.1.3. УСТНЫЙ ОПРОС

Устный опрос №1 по теме 1.1 Английский язык в профессиональной деятельности.

- Is it necessary for OOW to use charts?
- Must OOW be ready to read instructions?
- Does he read navigational publications?
- Does he make different calculations working on the bridge?
- Is it necessary for OOW to know how to load the cargo?
- Should he understand meteorological information?
- Does OOW understand safety messages?
- Is it necessary for OOW to communicate with agents?
- Is it OOW's duty to communicate with other ships?
- Does he communicate with shore-based stations?

Устный опрос №2 по теме 1.2 Предоставление и получение личной информации

- What is your name (surname/ middle name)?
- When is your birthday?
- When were you born?
- How old are you?
- Where are you from?
- What is your nationality?
- What is your address?
- What is your telephone (mobile) number?
- What is your e-mail?
- What is your marital status?
- Are you married or single?
- What are you?
- What school did you finish?
- Where do you study?
- What is the number of your group?
- What is your future profession? Why do you want to be a sailor?
- What is your favourite subject?
- What is your hobby?
- Are you a sport fan?

Устный опрос №3 по теме 1.3 Общение в экипаже

- What is your name (surname/ middle name)?
- When is your birthday?
- When were you born?
- How old are you?
- Where are you from?
- What is your nationality?
- What is your address?
- What is your telephone (mobile) number?
- What is your e-mail?
- What is your marital status? Are you married or single?
- What are you?
- What school did you finish?
- Where do you study?



What is the number of your group?  
 What is your future profession?  
 Why do you want to be a sailor?  
 What is your favourite subject?  
 What is your hobby?  
 Are you a sport fan?  
 What do you usually do in the evenings?  
 Do you like to watch TV?  
 What TV programmes (films) do you prefer?  
 Can you play the guitar (the piano, the violin)?  
 Do you prefer to read books or to play computer games?  
 What is your favourite book (computer game)?  
 Do you go in for sports?  
 What are your favourite sport games?  
 Do you go to a gym?  
 Do you help your parents about the house?  
 Do you clean your room (wash the dishes)?  
 Who goes shopping in your family?  
 Have you got a pet? Who looks after your pet?  
 When does your family have supper?  
 When do you go to bed?  
 Do you have a hobby? What is your hobby?  
 What do you usually do in your free time?  
 Do you visit cinemas, theatres, museums?  
 Where do you study?  
 When and whom was the Maritime college founded?  
 Who founded the Maritime college?  
 Where was it founded?  
 Where is your college?  
 How many departments are there in your college? What are they?  
 What specialists does your college train?  
 How long does the course of training last?  
 What year cadet are you now?  
 What subjects do you study?  
 What subject is interesting for you?  
 Is your education free of charge?  
 Do you get a scholarship?  
 Do you have a uniform?  
 What is your future profession?  
 When do your lessons begin?  
 When do you have your exams?  
 When will you graduate from the college?

Устный опрос №4 по теме 1.4 Типы судов. Устройство судна

What is the main part of the ship?  
 What parts is the hull divided into?  
 What is the hull divided into inside?  
 How are vertical steel walls passing across the ship and along called?  
 How are the decks which divide cargo spaces called?  
 What does the hull contain?  
 What does the space between the holds and the bottom of the hull contain?

What are double bottom tanks used for?  
 How is the left side of a ship called?  
 How is the right side of a ship called?  
 What is underwater body?  
 What is freeboard?  
 What is superstructure?  
 What is forecastle?  
 What is poop?

Устный опрос №5 по теме 1.5 Экипаж. Работа на борту судна

How many departments are there usually on board cargo ship?  
 What are they?  
 Who is the head of the Deck Department?  
 Who is the head of the Engine Department?  
 What is the Master responsible for?  
 Must the Master be a well-qualified and experienced navigator? Why?  
 Must the Master know English well?  
 Why is it important for the Master to know English well?  
 Must the Master keep watch on the navigating bridge?  
 Who keeps watch on the navigating bridge?  
 How often do the seamen relieve each other of watch on the bridge?  
 May a navigator leave the bridge when he is on watch there?  
 Who is responsible for the Engine Department?  
 How many people does the Engine Department usually consist of?  
 What must the Chief Engineer know to be well-qualified and skilled?  
 Who keeps watch in the engine-room?  
 Who keeps watch in the radio-room? 2  
 What is the Radio Officer responsible for?  
 Why is it necessary to have continuous radio watch on board some ships?  
 What equipment can radio-officers repair and maintain?  
 Who is responsible for the work of sailors?  
 What are the Boatswain's duties?  
 What are the main duties of the sailors?  
 Why must the seamen be skilled and well-qualified?

Устный опрос №6 по теме 1.6 Чрезвычайные ситуации на борту

What are main emergencies on board a vessel?  
 What fire-fighting equipment do you know?  
 What life-saving appliances are there on board a vessel?  
 What does Master's list mean?  
 What is muster station?  
 What alarms on board a vessel do you know?

What do you do in case you see someone has fallen overboard?

Who is responsible for the safety of the ship?

What is safe working practice?

Устный опрос №7 по теме 1.7 Предупреждение загрязнения водной среды

What does the word «environment» mean?

What are the most serious environmental problems?

What are the serious problems with seas and oceans?

What does poison water in lakes and rivers?

What does make the greenhouse effect?

Why is an air so polluted in big cities?

What does cause skin cancer?

What is the function of ozone layer?

What can happen if there are holes in the ozone layer?

What can we do to protect Nature?

Do you think all states must save the Earth?

Устный опрос №8 по теме 1.8 Подготовка к практике

Where do the cadets of the navigation department usually have their shipboard training?

What do they learn to do during this training?

Where do they keep watch?

What must they do to master their future profession?

Where will the cadets of the radio engineering department work during their future shipboard training?

Where will they keep watch?

What radio messages, will they receive and transmit?

Who will instruct them during their training?

Where did the cadets of the engineering department work during their last shipboard training?

Where did they keep watch?

What did they learn to do during their training?

Why is it necessary for the future engineers to have training on board ship?

Where do the cadets of the port operation department improve their skills?

What did they do during their last training?

Will they sail on board ship during their next training?

What must the cadets of this department do to master their future profession?

Устный опрос №9 по теме 2.1 Обсуждение итогов практики. Обязанности членов машинной команды

Who is in charge of the Engine Department?

What are the responsibilities of the Chief Engineer?

Who assists the Chief Engineer?

Who is responsible for lubricating systems?

Who is in charge of fuel and water systems?

What are the duties of a motorman?  
 What is called the UMS?  
 How many hours a day must running machinery be controlled?  
 How long is the period of watch at sea?  
 Who has to ensure a safe engineering watch?

What should the relieving officer check before taking over an engineering watch?  
 Who is responsible for machinery space operation?  
 What are the adequate rounds of the machinery space made for?  
 What should an officer in charges of engineering watch do in any emergency?

Устный опрос №10 по теме 2.2 Оборудование машинного отделения. Ремонтные работы.  
 Чтение технических текстов

#### Чтение технических инструкций

С помощью каких источников выполняется технический перевод?  
 В чем основная особенность технических текстов?  
 Приведите примеры использования в качестве терминов существительных, которые являются частью человеческого тела или предметами одежды.  
 Приведите примеры многозначных слов.  
 Что может помочь в том случае, когда ни одно из значений слова, приведенных в словаре, не подходит?  
 Что необходимо помнить при работе со словарем?  
 Как можно установить значение производного слова, если в словаре не указано его значение?  
 Как переводить цепочки из поставленных рядом слов, которые не связаны между собой синтаксическими средствами, т.е. предложениями?  
 Когда может быть правильным дословный перевод?  
 Что значит буквальный перевод?  
 Какая последовательность работы над текстом рекомендуется при переводе с английского языка на русский?  
 Назовите главных помощников при переводе технических текстов.

Устный опрос №11 по теме 2.3 Бункеровочные операции

Who is in charge of bunkering operations on a ship?  
 What should the vessel's and suppliers' representatives establish and agree on before pumping commences?  
 What should the Chief Engineer do in case of discrepancy between the amount received and the quantity shown on the supplier's receipt?  
 What is MARPOL?  
 When was the problem of oil pollution first recognized?  
 When was the first Convention adopted?  
 What was the main cause of oil pollution from ships?

What measures did the 1954 convention introduce?

Why was the 1954 convention no longer adequate?

What was the result of the convention of 1973?

What do the annexes to the convention deal with?

What regulations for the inspection and certification of ships did the 1978 Protocol to MARPOL 73/78 introduce?

When did the International Convention for the prevention of pollution from ships entered into force?

#### Устный опрос №12 по теме 2.4 Морская безопасность

What is the main objective of SOLAS convention?

What convention establishes basic requirements on training of seamen?

What are the objectives of ISM Code?

What convention protects marine environment from pollution?

What are the responsibilities of IMO?

What is MARPOL?

When was the problem of oil pollution first recognized?

When was the first Convention adopted?

What was the main cause of oil pollution from ships?

What measures did the 1954 convention introduce?

Why was the 1954 convention no longer adequate?

What was the result of the convention of 1973?

What do the annexes to the convention deal with?

What regulations for the inspection and certification of ships did the 1978 Protocol to MARPOL 73/78 introduce?

When did the International Convention for the prevention of pollution from ships entered into force?

What is the cause of the most accidents at sea?

What is called the SMS?

What are the functional requirements for SMS?

What do required work permits include?

When should electrical work permit be issued?

How many hours of rest should a seafarer have?

Why is the risk of electric shock greater on board ship than that ashore?

What notice should be posted in every place containing electrical equipment?

What safety precautions are necessary working on high voltage equipment?

How can you minimize hand-to-hand shock?

What insulating equipment is it recommended to use?

What accidents may happen at sea?

What is an alert?

How can alerts be divided?

What does the emergency alarm indicate?

In which events is the general alarm sounded?

What is the lowest priority of alerts?

- Where can a crewmember find information about his duties in the event of an emergency?  
 Why are drills held on board ship?  
 Why is fire considered to be one of the most dangerous accidents?  
 What are possible causes of fire in the engine room?  
 What are the actions of a crewman in case of a fire?  
 What do the crew members do as soon as the fire alarm is raised?  
 What is the alarm signal for man overboard?  
 What should any crewmember do if he sees that a person has fallen overboard?  
 What are the actions of the emergency squad in case of MOB alarm?  
 What are the actions of the crew if the person in the water is from another vessel?  
 What types of life-saving appliances do you know?  
 How many lifeboats are on a ship?  
 What type of lifeboats is the most popular nowadays and why?  
 How can life rafts be activated?  
 What are modern life buoys fitted with?  
 What do you know about the lifejackets?  
 When should lifejacket be used?  
 Where is lifejacket stored?  
 Where can you find instructions for putting the lifejacket on?  
 What does the abbreviation PFD mean?

Устный опрос №13 по теме 2.5 Деловое письмо

Каким должно быть деловое письмо?

Назовите составные части делового письма.

Расскажите о правилах оформления каждой из составных частей.

#### 4.2. Задания для промежуточной аттестации

##### П Е Р Е Ч Е Н Ь

вопросов и практических заданий  
 для подготовки к дифференцированному зачету (4 семестр)  
 по учебной дисциплине

#### **ОГСЭ.04 ИНОСТРАННЫЙ ЯЗЫК В ПРОФЕССИОНАЛЬНОЙ ДЕЯТЕЛЬНОСТИ**

для обучающихся по специальности **26.02.05 Эксплуатация судовых энергетических установок**

##### Перечень вопросов заданий

1. Поддержать беседу на предложенную тему.
2. Укажите единственно правильный вариант ответа.
3. Перевести предложения.

##### Перечень тем к вопросу 1

About you and your family.

Arkhangelsk – a cultural and industrial centre.

Arkhangelsk – a large port.  
 Around the Institute.  
 Around the ship.  
 Biography.  
 Duties on board a ship.  
 Ecological problems and my profession.  
 English and your profession.  
 Family life.  
 Free-time activities. Your hobby.  
 Healthy style of life.  
 Internet, its advantages and disadvantages.  
 Location of safety equipment on board your vessel.  
 Moscow.  
 Principal particulars of the ship, parts of ships.  
 Russia.  
 Safe working practice.  
 Ship's crew.  
 Shipboard training.  
 Speak about your daily routine.  
 Sport in your life.  
 Types of ships.  
 Visit to a doctor.  
 What did you do yesterday?  
 Your biography.  
 Your own room (your cabin).  
 Your plans for the future.

#### Перечень заданий к вопросу 2

2 *Укажите единственно правильный вариант ответа.*

1. What \_\_\_ now, Sasha?
 

a) are you doing;	c) do you do;
b) did you do;	d) were you doing.
2. What language \_\_\_\_ in foreign ports?
 

a) do you usually speak;	c) did you usually speak;
b) are you usually speaking;	d) were you usually speaking.
3. He is in his cabin now. He \_\_\_ about his future voyages.
 

a) is thinking;	c) thought;
b) thinks;	d) was thinking.
4. Yesterday he got up, washed his face, had breakfast and \_\_\_\_\_ to the University.
 

a) goes;	c) went;
b) is going;	d) was going.
5. They \_\_\_\_ the cargo the whole week.
 

a) unloaded;	c) unload.
b) were unloading;	
6. The Second Engineer \_\_\_\_ the main engine yesterday.
 

a) overhauls;	c) is overhauling;
b) overhauled;	d) was overhauling.
7. The cadets \_\_\_\_\_ the hull at 3 o'clock yesterday.
 

a) was painting;	c) painted.
b) were painting;	
8. It is 2 o'clock. The Officers \_\_\_\_\_ watch in 4 hours.
 

a) keep;	c) will keep;
----------	---------------

- b) was keeping; d) kept.
9. When the Officers comes, we \_\_\_\_ to plot the ship's position.  
a) learn; c) learnt;  
b) will learn; d) are learning.
10. We \_\_\_\_ English since we entered the Institute.  
a) studied; c) have studied;  
b) study; d) has study.
11. Next week we \_\_\_\_ come into that port.  
a) come; c) will come;  
b) came; d) were coming.
12. This equipment \_\_\_\_ modern  
a) is; c) are  
b) am;
13. They \_\_\_\_ their homework at the moment.  
a) do; c) are doing;  
b) does; d) were doing.
14. I \_\_\_\_ to London.  
a) have never been; c) will never been.  
b) had never been;
15. When the master the radio-room, I \_\_\_\_ a weather report.  
a) was receiving; c) received;  
b) receive; d) am receiving.
16. When summer comes, they \_\_\_\_ shipboard training.  
a) have; c) will have  
b) had; d) are having
17. Tomorrow I \_\_\_\_ to the port.  
a) go; c) went;  
b) will go; d) was going.
18. I \_\_\_\_ him for half an hour.  
a) have known; c) know;  
b) knew; d) will know.
19. He \_\_\_\_ by sea yet.  
a) has never been; c) is never been;  
b) have never been; d) will never be.
20. We \_\_\_\_ at the Arctic Maritime Institute.  
a) studies; c) studied;  
b) study; d) have studied.

3 *Укажите единственно верный перевод слова.*

1. брать  
a) to take; c) to put;  
b) to work; d) to see.
2. работать  
a) to overhaul; c) to work;  
b) to repair; d) to lubricate.
3. входить  
a) to come; c) to go;  
b) to enter; d) to carry.
4. красить



- |     |                        |                        |
|-----|------------------------|------------------------|
|     | a) to paint;           | c) to scrub;           |
|     | b) to clean;           | d) to work.            |
| 5.  | нести вахту            |                        |
|     | a) to keep watch;      | c) to clean the deck;  |
|     | b) to watch keep;      | d) to sail.            |
| 6.  | оставлять, покидать    |                        |
|     | a) to live;            | c) to take;            |
|     | b) to leave;           | d) to bring.           |
| 7.  | приказывать            |                        |
|     | a) to tell;            | c) to watch;           |
|     | b) to order;           | d) to explain.         |
| 8.  | понимать               |                        |
|     | a) to know;            | c) to understand;      |
|     | b) to study;           | d) to call.            |
| 9.  | to check               |                        |
|     | a) проверять;          | c) чистить;            |
|     | b) ремонтировать;      | d) мыть.               |
| 10. | to call at             |                        |
|     | a) заходить (о судне); | c) управлять (судном); |
|     | b) ходить (в море);    | d) слушать.            |
| 11. | to carry, to transport |                        |
|     | a) перевозить;         | c) осматривать;        |
|     | b) прибывать;          | d) посещать.           |
| 12. | to load                |                        |
|     | a) грузить;            | c) укладывать;         |
|     | b) разгружать;         | d) перевозить.         |
| 13. | to repair              |                        |
|     | a) осматривать;        | c) настраивать;        |
|     | b) ремонтировать;      | d) смазывать.          |
| 14. | to study               |                        |
|     | a) учиться;            | c) писать;             |
|     | b) читать;             | d) слушать.            |
| 15. | to visit               |                        |
|     | a) ходить;             | c) плавать;            |
|     | b) посещать;           | d) читать.             |

### Перечень предложений к вопросу 3

- 1 Возьмите эти документы.
- 2 Не мойте палубу.
- 3 Я знаю много типов судов.
- 4 Она не изучает английский.
- 5 Мы сдаем экзамен (сейчас).
- 6 На каком судне вы работаете?
- 7 Кто помогал Вам?
- 8 Он поможет нам получить документы.
- 9 Мы должны выйти из порта.
- 10 Я занимался спортом.
- 11 Дайте мне Ваш паспорт моряка.
- 12 Не помогайте мне.

- 13 Мы часто проверяем спасательное оборудование.
- 14 Мне не нравится моя работа.
- 15 Матрос красит корпус (сейчас).
- 16 Где Ваш капитан?
- 17 Как Вам понравился суп?
- 18 Я провожу Вас до судна.
- 19 Мы должны встретить членов экипажа во вторник.
- 20 Я учился в институте.
- 21 Идите в машинное отделение.
- 22 Не говорите по-русски.
- 23 Мы ходим в институт шесть дней в неделю.
- 24 Я не работаю на танкере.
- 25 Он читает текст (сейчас).
- 26 Что Вы делаете сейчас?
- 27 Сколько времени Вы добирались до судна?
- 28 Когда Вы с нами встретитесь?
- 29 Я могу перевести этот текст.
- 30 Мы изучали навигацию.
- 31 Следуйте за мной.
- 32 Не ходите на мостик.
- 33 Он часто встречается с друзьями.
- 34 Я никогда не хожу в увольнение.
- 35 Он ремонтирует двигатель (сейчас).
- 36 Где Вы учитесь?
- 37 Где Вы работали?
- 38 Мы окончим институт через два года.
- 39 Вы должны проверить документы.
- 40 Мне нравилась астрономия.
- 41 Улучшайте Ваш английский.
- 42 Не давайте ему карту.
- 43 Мне нравится мой институт.
- 44 Мой брат не работает.
- 45 Матрос моет палубу (сейчас).
- 46 Сколько времени Вам нужно, чтобы отремонтировать двигатель?
- 47 Мы учились в институте.
- 48 Он будет работать в крюинговой компании.
- 49 Я могу говорить по-английски.
- 50 Где Вы работали?
- 51 Познакомьтесь с нашим старпомом.
- 52 Не берите эти документы.
- 53 Я работаю на танкере.
- 54 Этот человек - не наш старпом.
- 55 Он спит (сейчас).
- 56 Вы часто ходите в увольнение?
- 57 Мы отремонтировали двигатель в прошлом году.
- 58 Мы встретимся через два дня.
- 59 Можете ли Вы ответить на вопрос?
- 60 Кто работал вместе с Вами?
- 61 Переведите это предложение.
- 62 Не ходите в увольнение.
- 63 Этот человек - наш старпом.
- 64 Мы нечасто проверяем спасательное оборудование.

- 65 Мы завтракаем (сейчас).  
66 Где Ваши документы?  
67 Я работал на контейнеровозе.  
68 Я стану судоводителем.  
69 Он должен идти.  
70 Я не работал не ледоколе.  
71 Помогите Вашему матросу.  
72 Не следуйте за мной.  
73 Я иногда хожу в увольнение.  
74 Он нечасто встречается с друзьями.  
75 Мы проверяем спасательные средства (сейчас).  
76 Кто прокладывает курс?  
77 Мой друг занимался спортом.  
78 Где Вы будете работать?  
79 Можно мне выйти?  
80 Мы не мыли палубу.  
81 Покрасьте корпус.  
82 Не переводите этот текст.  
83 Мой брат работает на буксире.  
84 Я не знаю этого человека.  
85 Он проверяет сигнализацию (сейчас).  
86 Кто отвечает за службу эксплуатации?  
87 Все были на борту судна в 10.00.  
88 Мы пойдем в кино.  
89 Вы можете быть свободны.  
90 Меня не было дома  
91 Вымойте палубу.  
92 Не красьте корпус.  
93 Она изучает английский.  
94 Мы не ходим в институт каждый день.  
95 Я ищу документы (сейчас).  
96 Кто работает в машинном отделении?  
97 Кто изучал английский в школе?  
98 Мы будем друзьями.  
99 Вы можете идти.  
100 Он не был в увольнении.

## П Е Р Е Ч Е Н Ь

вопросов и практических заданий  
для подготовки к дифференцированному зачету (6 семестр)  
по учебной дисциплине

### **ОГСЭ.04 ИНОСТРАННЫЙ ЯЗЫК В ПРОФЕССИОНАЛЬНОЙ ДЕЯТЕЛЬНОСТИ**

для обучающихся по специальности **26.02.05 Эксплуатация судовых энергетических установок**

Перечень вопросов заданий

1. Прочтите и переведите текст.
2. Поддержите беседу на предложенную тему.

3. Объясните заданную ситуацию, используя Стандартный морской навигационный словарь-разговорник и словарь Стандартных фраз общения на море ИМО.

#### Перечень практических заданий к вопросу 1

### **IN-LINE ENGINES AND V-ENGINES**

Diesel engines may have cylinders that are placed “in line” or in a bevel position. Compared to the in-line engine the advantages of the V-engine are obvious: a V-engine requires one crankshaft and takes up less space. Therefore the V-engine is very suited to be installed in engine rooms of limited size, contrary to the in-line engine, which cannot be used in small engine rooms due to its height. The in-line engine is not as costly as the V-engine. The construction of the in-line engine is simple, which makes the maintenance and overhauling relatively easy and cheap.

### **TRUNK ENGINES AND CROSSHEAD ENGINES**

As to the construction of diesel engines we distinguish two main types: the trunk engine and the crosshead engine. In a trunk engine the piston pin and crank pin are directly connected to each other by the connecting rod. Trunk engines are of compacted build and are mostly medium-speed or high-speed engines. Compared to the crosshead engines they do not require more maintenance. The crosshead engine is taller because of the crosshead and piston rod, which require more space. These engines are mainly used in large vessels.

### **OPPOSED-PISTON ENGINES**

In the opposed-piston engine the cylinder has a length equivalent to two ordinary cylinders and is open at both ends. Two pistons are provided for each cylinder, the lower piston being connected to the crankshaft in the usual way. The upper piston is attached by means of a piston rod to a yoke above the upper end of the cylinder. The ends of this yoke are connected by side rods to connecting rods extending downward to the cranks, one of each side of the crank that is driven by the lower piston. The two side cranks are set at 180° to the centre crank. The stroke of the upper cylinder is sometimes less than that of the lower cylinder. This crank arrangement causes the pistons to move in opposite directions.

On the compression stroke the two pistons move inward, compressing the air between them, and the space between the pistons forms a combustion chamber into which the fuel is injected. The pressure then forces the pistons apart and as they travel in opposite directions to the ends of the cylinder each acts on its own connection to the crankshaft, the centre crank pushing downward and the two side cranks pulling upward.

At the end of the strokes the upper piston uncovers the exhaust ports and the lower piston the scavenging ports, and the gases are blown out of the cylinder.

### **PRESSURE-CHARGING**

In an engine which draws its combustion air direct from the atmosphere the density of the induced air charge is approximately the same as the ambient air density.

This air density determines the maximum weight of fuel and maximum power that can be developed by the engine. The charge air density is increased by a compressor between the ambient air and the cylinder. The more the weight of air, the greater weight of fuel can be burned

in the same cylinder the more power is developed in the engine. The power for driving the compressor has an important influence on the operating efficiency of the engine.

It is uneconomical to drive the compressor direct from the engine because some of the additional power is absorbed and fuel consumption is increased.

If the compressor is driven by the heat energy in the engine exhaust gases – about 35% of the total heat energy in the fuel is discharged to the exhaust gases – the increase in power is proportional to the increase in charge-air density. This is the essential principle of exhaust turbo-charging.

The turboblower comprises a gas turbine, driven by the engine exhaust gases. The power generated in the turbine must equal that required by the compressor. The advantages of pressure-charging by means of an exhaust turboblower system are:

1. a substantial increase in power output;
2. a substantial reduction in the engine dimensions and weight;
3. a reduction in initial cost;
4. increased reliability and reduced maintenance costs.

## FUNCTIONS OF AUXILIARY MACHINERY

Besides running and maintaining the main propulsion machinery of the ship, the engine officer has a great deal of auxiliary machinery to look after. Auxiliary machinery covers everything mechanical on board ship except the main engines and boilers. It includes almost all the pipes and fittings and the equipment<sup>1</sup> needed to carry out a number of functions. These functions may be summarized as follows: To supply the needs of the main engines and boilers. Air compressors are used to supply compressed air for starting engines. Coolers are used for cooling either oil or water. Water for the boilers is also heated before being admitted into the boiler by feed water pumps. This increases the efficiency of the boiler.

To keep the ship dry and trimmed. This is done through the bilge and ballast pumping systems. The former<sup>2</sup> removes water which has gathered in machinery, cargo and other spaces. The latter<sup>3</sup> pumps water into and out of ballast tanks. In general cargo ships, these systems are usually interconnected and served by the same pumps. In tankers and other bulk carriers, this systems are entirely (completely) separate, because these ships may need to ballast at 12,000 tons/hour and therefore need larger pumps.

- To supply domestic needs such as fresh and sea water, sanitation; heating or cooling of air, ventilation.

- To apply the main power of the engines for propulsion and manoeuvring. The engine power is transmitted to the propeller by a line of shafting. This is made up of the thrust shaft, intermediate shafts and the propeller shaft. Steering gear is also necessary to operate the rudder for manoeuvring.

- To supply the ship with electrical power and lighting. This is done by steam or diesel-powered generators.

- To moor the ship and handle cargo. Deck machinery is extensive and varied. It can be divided into anchor-handling machinery (windlasses and capstans), mooring machinery (winches and capstans), and cargo-handling machinery (winches and cranes). It also includes cargo oil pumps.

- To provide for safety. Firefighting and fire detection equipment, lifeboat engines and launching gear are also included.

- To prevent oil and sewage pollution.

Responsibility for auxiliary machinery is often delegated to individual engineer officers, each one taking responsibility for the efficient working of certain items<sup>4</sup>. A lot of equipment is duplicated, so that for example, one generator can be overhauled without cutting off the supply of electricity to the ship. Engineer officers on tankers are also involved in (busy with) operating the cargo pumping machinery.

## MAINTENANCE SCHEDULE OF MARINE DIESEL ENGINE

Engine builders supply detailed instructions on the operation and maintenance their machinery so that regular maintenance work can be carried out and break can be kept to a minimum. These instruction manuals are usually kept by the C Engineer, but they are made available to all members of the engine-room staff. intervals at which an engine and its parts must be inspected will vary from mal make and will depend on the use the engine has been put to, and therefore the 1 outline which follows is meant only as a general guide.

At frequent intervals, fuel pumps should be examined and adjusted if necessary; When the engine is running, this will be shown by comparing engine indicator c and by exhaust temperatures. Pistons should also be examined frequently for cracks.

At intervals of six weeks, the fuel valves should be taken out and care inspected. Atomizers and filters can be washed with clean paraffin and then dried warm place. Cleaning rags must not be used because they leave behind small pieo fluff, which may block up holes. Valve seats should also be tested and if the) pitted or scratched, the surface should be reground.

If possible, the upper piston rings should be examined at intervals of one m during the first six months' service. After that inspection periods can be extends long as their condition continues to be satisfactory.

At intervals of six months the upper pistons, if cooled, must be inspectec deposits of carbon in cooling spaces and cooling pipes. When new piston ring: fitted, care must be taken to ensure there is sufficient clearance to allow foi expansion of the rings. Exhaust belts and manifold must also be examined excessive carbon deposits removed. All carbon deposits should also be removed i cylinder ports. Cylinder liners must be examined externally for deposits of seal these deposits cannot be removed by flushing with water, then the liner mus removed for cleaning. The liner should also be measured for wear and renewed, i limit for wear has been reached. The clearances of connecting-rod top and boi ends should also be examined every six months and adjusted if necessary. In addi lubricating-oil sumps and tanks should be cleaned of sediment.

At intervals of one year the manoeuvring gear must be examined for wear a joints of levers and rods. The alignment of the crankshaft should be checked and incorrect alignment corrected. The main bearings must be examined and readings taken for wear. The clearances of all crankshaft bearings must be maintained at the figure recommended by the makers. Finally, starting air piping and air bottles must be cleaned and steamed out, and the lubricating oil system thoroughly examined and cleared of deposits.

It must be emphasized that the above-mentioned parts are only some of the items which must be regularly maintained to ensure the efficient working of the machinery.

### LIST OF REPAIRS

#### I. Mechanical Part

#### Main Engine B & W (type 650 VBF – 90)

1. Disconnecting and removing the pipes, scraping the rusty areas and applying two coats of anticorrosive paint to the crankcase (200 sq. m.). Cleaning the pipes and refitting in place with new packings.

2. Replacing 6 cylinder liners with rubber packings.

3. Cleaning the 6 cylinder heads and washing the cooling spaces with chemical solution.

Pressure testing

1 — machining the sealing base of 6 heads.

2 — machining the exhaust valve seats.

3 — machining the nozzle seats.

4 — machining the inlet valve seats.

- 5 — machining the cyl. liner seats.
- 6 — rectifying in place the cyl. liner seats in the crankcase (with tools of ship's supply).
4. Cylinder head fittings (in connection with item 7).
- 1 — rectifying, adjusting and pressure testing the safety valves.
  - 2 — replacing the indicating valves "Klinger".
  - 3 — rectifying and pressure testing the starting valves.
5. Exhaust valves (6 pcs spare). Cleaning with chemical solution and overhauling in workshop the 6 valves.
- Replacing of:
- 1 — shutters and seats (12 pcs)
  - 2 — valve stem guides (12")
  - 3 — valve springs (6")
  - 4 — valve spring guides (6")
6. Maintenance in workshop of the exhaust valve gears (6 pcs) and replacing the following details (in connection with item 5):
- 1 — rocker arm fixing bolts — 6 sets
  - 2 — rocker arm pins and bushes — 8 sets
  - 3 — pins — 6 pcs
  - 4 — guide bushes — 12 pcs
7. Removing the 6 cylinder covers, withdrawing the pistons with connecting rods, replacing the piston rings, cleaning, examining, calibrating the liners and refitting.
- Removing, cleaning and refitting the telescopic pipes. Replacing 4 guide rings to each piston.
8. Withdrawing the piston pins (6 pcs), and removing the connecting rods; refitting with new piston pins.
  9. Maintenance of the air starting control system with replacement of distribution stop valve (1 pc).
10. Main stop valve. Dismantling, overhauling in workshop, testing and refitting in place.
11. Overhauling 12 injectors with replacement of nozzles, springs, air drain sleeves and high pressure pipes (nozzles of owner supply).
12. Air coolers (2 pcs): Cleaning with chemical solution, pressure testing and renewals excluded.
13. Disconnecting and dismantling 3 main bearings. Polishing in place the shaft journals and checking the alignment. Remetalling, machining in workshop and refitting in place the 3 main bearings 255 x 240 mm. Adjusting excluded. Checking twice the clearances and once the wear down.
14. Delivering to the Owner's representative the report of the M. E. measurings and checkings.
15. Diesel auxiliary engines "D & W" (4 pcs).
- Centering and aligning the generator shafts with the crankshafts (4 pcs). Assistance of our personnel for regulating and checking the auxiliary engines during the sea trials. Delivering to the Owner's representative the reports of the measurings and checkings. Delivering the certificates of the new pieces and of the trials.
16. Transporting the propeller into workshop. Disassembling the propeller hub, cleaning and checking the details and reassembling.
17. Life boat engines (2 pcs) "MWM" Manheim, type KD 211Z-2 cyl.
- Disassembling the 2 engines, rectifying in workshop the crankshafts, remetalling, machining and adjusting the main and the big end bearings. Reassembling the 2 engines with replacement of the following details:
- 1 — oil scraper ring (2 pcs)
  - 2 — piston ring (2 pcs)
  - 3 — piston and valves of fuel oil pumps (2 pcs)
  - 4 — injector nozzles (2 pcs).
- Maintenance of:
- 1 — suction and discharge valves

2 — reversing gear sleeves (2 pcs)

3 — propeller shafts.

Replacement of:

1 — cooling pumps (2 pcs)

2 — stern gland packings (2 pcs)

3 — cooling pump belts (2 pcs).

18. CO<sub>2</sub> fire prevention system "B & W". Overhauling and refilling of 16 CO<sub>2</sub> bottles.

19. Checking by pressure test the CO<sub>2</sub> system. Delivering the certificates. Repairs and renewals excluded.

20. Cleaning the fire and water side of the boilers.

Replacing the hot well (size 2000x2000x1000 mm.). Replacing the coil in the hot well 25 x 3000 mm.

## **SHIP'S FUELING OPERATIONS**

Prior to arriving at the port in which you are to take fuel oil, allow both settlers to burn down to between 4 and 6 feet. The first reason for this is that in the event of an excess of pressure on the filling line during fueling, or if all the ship's tanks are 100% full, the fuel oil will automatically overflow into the port settler. (Fuel oil may also be manually "dumped" into the settler by opening the filling valve connection from the filling line to the settler). If the port settler becomes 100% full, it will automatically overflow into the starboard settler. The starboard settler overflow is overboard. The second reason for having the settler level low prior to fueling is to provide a space for oil when taking the "head" off the fuel tanks after all the fuel has been taken.

An accuracy sounding of all fuel oil tanks must be taken before fueling, not only to enable the chief engineer to place his order but also so that you will know where the oil is going and will be able to check on the tank filling.

The double bottom tanks will fill up first and the deep tanks last. No fuel will be taken directly into the settling tanks.

When finished sounding each fuel oil tank, place the pipe plug securely in the quick closing valve to prevent any accidental spillage out of the sounding tube.

Before the fuel barge arrives, place wooden plugs in all scuppers to prevent any spillage from going over the ship's side. Hang the vent covers on the tank vents as provided. Also have on hand in the fueling port a bag of sawdust and a bag of rags, the proper size wrenches and a block and tackle to aid in hooking up the fuel hose. Have a new gasket ready for the fuel connection. A sound powered phone connection is provided in the bunkering port and at the fueling station in the engine room. Have these phones tested and ready for use before pumping operations start. Open all valves on all fuel oil manifolds, both the suction and transfer side. (Suction valves are painted black and transfer valves are red). Also open the fuel oil filling valve and the crossover from the filling to the transfer main.

When connecting the filling hose, check to make sure there are no rags, etc., in it. They are sometimes there to prevent oil spillage when disconnecting the hose, and the rags become forgotten. Any rags coming into the fuel system will become stuck on the manifold valve seats and make it impossible to get any suction with the fuel oil transfer pump.

Check with the barge man or pumpman to get the capacity of his pump or pumps, the temperature of the fuel oil, and get a sample of the oil for the chief engineer.

Notify the bridge that you are ready to start the fueling operation. Monitor the static head indicator and pressure gauge.

The static head indicator read in feet of head pressure in the fuel oil standpipe. 29 to 33 feet on the scale indicated slow filling; 33 to 37 feet indicated a normal head, and 37 to 41 feet indicated excessive head and overflowing. Normal pressure in PSI on the 0-60 pressure gauge



connected to the filling line would be about 4 PSI. The red hand on this gauge is set at 10 and indicated excessive pressure.

Immediately following fueling operations, sound all fuel oil tanks and take the head pressure off the tanks by transferring a few barrels from each tank to the settling tanks via the fuel oil transfer pump.

## **SAFETY PRECAUTIONS**

Correct operation and maintenance are crucial points for obtaining optimum safety in the engine room. The general measures mentioned here should therefore be routine practice for the entire engine room staff.

### **Special Dangers: Warning**

Keep clear of space below crane with load.

The opening of cocks may cause discharge of hot liquids or gases.

Think out beforehand which way liquids, gases or flames will move, and keep clear.

The dismantling of parts may cause the release of springs.

The removal of fuel valves (or other valves in the cylinder cover) may cause oil to run down onto the piston crown. If the piston is hot, an explosion might blow out the valve.

When testing fuel valves, do not touch the spray holes, as the jets may pierce the skin.

### **Cleanliness**

The engine room should be kept clean both above and below the floor plates.

If there is a risk of grit or sand blowing into the engine room, when the ship is in port, the ventilation should be stopped and ventilating ducts, skylights and engine room doors closed.

Welding, or other work which causes spreading of grit and/or swarf, must not be carried out near the engine unless it is closed or protected, and the turbocharger air intake filters covered.

The exterior of the engine should be kept clean, and the paintwork maintained, so that leakages can be easily detected.

**Warning !**

Keep the areas around the relief valves free of oil, grease, etc. to prevent the risk of fire caused by the emitted hot air/gas in the event that the relief valves open.

### **Fire**

Do not weld or use naked lights in the engine room, until it has been ascertained that no explosive gases, vapour or liquids are present

If the crankcase is opened before the engine is cold, welding and the use of naked flames will involve the risk of explosions and fire. The same applies to inspection of oil tanks and of the spaces below the floor.

Attention is furthermore drawn to the danger of fire when using paint and solvents having a low flash point.

Porous insulating material, soaked with oil from leakages, is easily inflammable and should be renewed.

### **Order/Tidiness**

Hand tools should be placed on easily accessible tool panels. Special tools should be fastened in the engine room, close to the area of application.

No major objects must be left unfastened, and the floor and passages should be kept clear.

### **Spares**

Large spare parts should, as far as possible, be placed near the area of application, well secured, and accessible by crane.

All spares should be protected against corrosion and mechanical damage. The stock should be checked at intervals and replenished in good time.

### **Lighting**

Ample working light should be permanently installed at appropriate places in the engine room, and portable working light should be obtainable everywhere. Special lamps should be available for insertion through the scavenge ports.

### **Low Temperatures - freezing**

If there is a risk of freezing, then all engines, pumps, coolers, and pipe systems should be emptied of cooling water.

### **Check and Maintain**

Measuring equipment, filter elements, and lubricating oil condition.

### **Entering the Crankcase or Cylinder**

Always ensure that the turning gear is engaged; even at the quay, the wake from other ships may turn the propeller and thus the engine.

Check beforehand that the starting air supply to the engine and the starting air distributor is shut off.

In case of oil mist alarm, precautions must be taken before opening to crankcase.

### **Turning Gear**

Before engaging the turning gear, check that the starting air supply is shut off, and that the indicator cocks are open.

When the turning gear is engaged, check that the indicator lamp "Turning gear in" has switched on.

## Перечень практических заданий к вопросу 2

Engine department  
 Watchkeeping  
 Duties of an engineer  
 Different types of marine engine  
 Internal combustion engine  
 Parts of an engine  
 Cycles of diesel engines  
 Scavenging  
 Fuel system  
 Cooling the engine  
 Lubricating system  
 Preparations and starting the engine  
 Operating troubles in general  
 Boilers  
 Ship's power plant  
 The electrical equipment  
 Electrical tools  
 Maintenance of electrical equipment.

## Перечень практических заданий к вопросу 3

**Ситуативные предложения для передачи информации с использованием  
 Стандартного навигационного словаря-справочника ИМО:**

(Левая/правая машины) Полный вперед/назад.  
 (Левая/правая машины) Средний вперед/назад.

(Левая/правая машины) Малый вперед/назад.  
 (Левая/правая машины) Самый малый вперед/назад.  
 Стоп (левая/правая) машины(-а).  
 Самый полный вперед/назад.  
 Товсь машина.  
 Машина(-ы) не нужна (не нужны).  
 Носовое подруливающеее полный/средний влево/вправо.  
 Кормовое подруливающеее полный/средний влево/вправо.  
 Носовое/кормовое подруливающеее стоп.  
 Двигатель - дизель/турбина.  
 Машинное отделение обслуживается механиками.  
 Управление двигателем производится с мостика.  
 Переход (с переднего на задний ход) занимает, ... секунд.  
 Запуск двигателей (после их остановки) занимает ... секунд.  
 Да, дополнительная мощность имеется.  
 Нет, дополнительной мощности не имеется.  
 У нас гребной винт регулируемого шага.  
 У нас гребной винт фиксированного шага.  
 У нас гребной винт правого/левого вращения.  
 У нас один гребной винт/два гребных винта.  
 У нас есть одно/два/ ... носовое(-ых) подруливающеее(-щих) устройство (-ва)/кормовое(-ых) подруливающеее(-щих) устройство(-ва).  
 Да, я понимаю распоряжения по вахте.  
 Нет, я не понимаю, объясните, пожалуйста.  
 Последний противопожарный обход был в ... UTC.  
 Последний сторожевой обход судна был в ... UTC.  
 Все в порядке.  
 Аварийно-предупредительная сигнализация машинного отделения сработала в ... UTC по причине ... .  
 Скорость уменьшена в ... UTC по причине ... .  
 Машина(-ны) остановлена(-ны) в ... UTC из-за ... .  
 Курс изменен в ... UTC из-за ... .  
 Капитан/старший механик был вызван в ... UTC ввиду ... .  
 Минимальная/максимальная температура ... (название оборудования)  
 (Текущие) обороты главного(-ых) двигателя(-ей) -... в минуту.  
 (Текущая) выходная мощность главного(-ых) двигателя(-ей)/вспомогательных двигателей - ... киловатт.  
 (Текущий) шаг гребного(-ых) винта(-ов) - ... градусов,  
 Отклонений от нормы нет.  
 Имеются отклонения от нормы в работе главного(-ых)/вспомогательного(-ых) двигателя(-ей),  
 Вызовите вахтенного механика (если отклонения продолжатся).  
 Вызовите вахтенного механика за ... минут до прибытия к .../в ... UTC.  
 (В ... UTC/с ... по ... UTC) имела место поломка главного(-ых) двигателя(-ей).  
 (В ... UTC/с ... по ... UTC) имела место неисправность ....  
 (В ... UTC/с ...-. по ... UTC) имело место полное обесточивание судна.  
 (В ... UTC/с ... по ... UTC) имело место обесточивание ... .  
 Главный(-е) двигатель(-и) был(-и) остановлен(-ы) (в ... UTC/с ... по ... UTC) из-за ... .  
 (В ... UTC/с ... по ... UTC) была уменьшена скорость из-за ... .  
 Вызовите капитана/старшего механика, если обороты главного(-ых) двигателя(-ей) будут ниже ... в минуту.  
 Вызывайте капитана/старшего механика/вахтенного механика, если ... .

Судовые/регистрационные журналы заполнены и подписаны.  
 Записи в черновом журнале будут перенесены (в судовые/регистрационные журналы) после вахты.  
 Замените ленты регистратора данных/самописца эхолота/самописца ... .  
 Заправьте краску/чернила регистратора данных/ самописца эхолота/самописца ... .  
 Вахту сдал.  
 Вахту принял.

**П Е Р Е Ч Е Н Ь**  
 вопросов и практических заданий  
 для подготовки к дифференцированному зачету (8 семестр)  
 по учебной дисциплине  
**ОГСЭ.04 ИНОСТРАННЫЙ ЯЗЫК**  
**В ПРОФЕССИОНАЛЬНОЙ ДЕЯТЕЛЬНОСТИ**  
 для обучающихся по специальности **26.02.05 Эксплуатация судовых энергетических установок**

Перечень вопросов заданий

1. Поддержать беседу на предложенную тему.
2. Переведите предложенные фразы словаря Стандартных фраз общения на море ИМО (15 предложений).

Перечень практических заданий к вопросу 1

International conventions  
 MARPOL 73/78  
 ISM CODE  
 Code of safe working practice  
 Engine room fire  
 Man overboard  
 Survival in an emergency

Перечень практических заданий к вопросу 2

**Chapter B: Safety on Board**

<b>IV-B/ 1</b>	<b>General Activities</b>
<b>IV-B/ 1.1</b>	<b>Raising alarm</b>
.1	Operate general emergency alarm.
.2	Inform Master / Chief engineer /... .
.2.1	Master / Chief engineer / ... informed.
.3	Inform ... coast radio station / vessels in vicinity (on radio) and report.
.3.1	... coast radio station / vessels in vicinity informed.
.4	Request assistance (on radio) from ... and report.
.4.1	Assistance requested from ... .
.4.2	Assistance offered by ... .
.4.3	Assistance accepted from ... .
.5	Transmit SECURITE/PAN-PAN /distress alert/ MAYDAY and report.
.5.1	SECURITE/ PAN-PAN/distress alert/MAYDAY transmitted.
.6	Was distress alert/MAYDAY acknowledged?

- .6.1 Yes, distress alert /MAYDAY acknowledged by ... coast radio station/RCC/vessel(s) in vicinity.
- .6.2 No, distress alert not acknowledged (yet).
- .6.1.1 Repeat distress alert.

#### **IV-B/ 1.2 Briefing crew and passengers**

(Also see: Chapter D: Passenger Care)

- .1 Make following announcement (on PA - system):
- .2 This is your Captain speaking.
  - .2.1 We have grounded / a minor flooding / a minor fire in ... .
  - .2.2 There is no immediate danger to crew, passengers or vessel - and there is no reason to be alarmed.
  - .2.3 For safety reasons I request all crew members to go to their assembly stations.
    - .2.3.1 All officers to report to the bridge.
    - .2.3.2 Watchkeepers remain at stations until further order.
  - .2.4 As soon as I have further information I will make another announcement - there is no danger at this time.
  - .2.5 Fire parties / damage control teams are fighting the fire / flooding.  
We also have radio contact with other vessels / coast radio stations.
  - .2.6 The fire / flooding is under control.
- .3 This is your Captain speaking. I have another announcement:
  - .3.1 The fire/ flooding is not under control yet.
  - .3.2 Leave the engine room / superstructure / your stations / your cabins / ... immediately - close all openings.
  - .3.3 Take lifejackets with you.
    - .3.3.1 Take your emergency equipment with you according to muster list.
  - .3.4 Stand by fire fighting stations / damage control stations.
    - .3.4.1 Fire fighting stations/damage control stations standing by.
  - .3.5 All crew members to assembly stations.
- .3.6 Follow escape routes shown.
  - .3.6.1 Route to assembly station ... not clear.
  - .3.6.2 Route to assembly station will be via ... .
- .3.7 Assemble on deck.
  - .3.7.1 Assemble on ... on foredeck/afterdeck.
  - .3.7.2 Assemble on ... deck on port side / starboard side.
  - .3.7.3 Assemble on ... deck forward of ... / aft of ... .
- .3.8 Do not go to lifeboat / liferaft stations before ordered.
- .3.9 Do not enter lifeboats / liferafts - the order to enter will be given from the bridge / by officers.
- .3.10 The following department(s)/ crew members will (temporarily) disembark for safety reasons.

#### **IV-B/ 1.3 Checking status of escape routes**

- .1 Check escape routes and report.
  - .1.1 All escape routes clear.
  - .1.2 Escape route(s) from ... (to ...) / via ... not clear (yet).
    - .1.2.1 Escape route(s) from ... (to ...) / via ... blocked.
  - .1.3 Clear escape route(s) from ... (to ...) / via ... and report.
    - .1.3.1 Escape route(s) from ... (to ...) / via ... cleared.

#### **IV-B/ 1.4 Checking status of lifeboats / liferafts**

- .1 Check launching tracks and report.
  - .1.1 All launching tracks clear.
  - .1.2 Launching track(s) of no. ...lifeboat / liferaft not clear (yet).
  - .1.3 Launching track(s) of no. ... lifeboat / liferaft clear in ... minutes.
- .2 Check working parts and report.
  - .2.1 All working parts free.
  - .2.2 Roll(s) / block(s) / rigging / ... of no. ...lifeboat not free (yet).
  - .2.3 Roll(s) / block(s) / rigging / ... of no. ... lifeboat free in ... minutes.
- .3 Check securings of launching appliances and report.

- .3.1 All securings in correct position.
- .3.2 Securing of no. ... lifeboat / liferaft not in correct position.
- .3.2.1 Correct position of securing .
- .3.3 Securing of no. ... lifeboat / liferaft damaged.
- .3.3.1 Replace / repair securing.
- .3.4 Harbour pin(s) of no. ...lifeboat missing.
- .3.4.1 Replace harbour pin(s).
- .4 Check fuel / oil of lifeboat engine(s) and report.
- .4.1 Fuel tank of no. ...lifeboat engine full / not full.
- .4.1.1 Fill up fuel.
- .4.2 Oil level of no. ... lifeboat engine normal / below normal.
- .4.2.1 Fill up oil.
- .5 Operate lifeboat engine(s) and report.
- .5.1 Lifeboat engine(s) operated.
- .5.2 No. ... lifeboat engine not operational (yet).
- .5.3 No. ... lifeboat engine operational in ... minutes.
  
- .6 Check bilge pumps of lifeboats and report.
- .6.1 Bilge pumps operational.
- .6.2 Bilge pumps of no. ... lifeboat not operational (yet).
- .6.3 Bilge pumps of no. ... lifeboat operational in ... minutes.
- .7 Check drain plugs and report.
- .7.1 Drain plug(s) available.
- .7.2 Drain plug(s) in no. ... lifeboat missing.
- .7.2.1 Replace drain plug(s).
- .8 Check slip gears in lifeboats and report.
- .8.1 Slip gears in correct position and secured.
- .8.2 Slip gears of no. ... lifeboat not in correct position.
- .8.2.1 Correct position of slip gear.
- .8.3 Slip gear(s) of no. ... lifeboat not secured.
- .8.3.1 Secure slip gear(s).
- .9 Check lifeboat equipment and report.
- .9.1 Lifeboat equipment complete and operational.
- .9.2 Lifeboat equipment not available.
- .9.2.1 Lifeboat equipment not complete.
- .9.2.2 Packaging of ... damaged.
- .9.2.3 Test certificate of ... expired.
- .9.2.4 ... not operational.
- .9.2.5 ... missing.
- .9.3 Replace ... .
- .10 Launch no. ... lifeboat(s) and report.
- .10.1 No. ... lifeboat launched.
- .10.2 Launching appliances not operational.
- .10.2.1 No. ... winch / davit not operational (yet).
- .10.2.2 No. ... winch / davit operational in ... minutes.
- .11 Hoist no. ... lifeboat and report.
- .11.1 No. ... lifeboat hoisted.
- .12 Secure lifeboats and report.
- .12.1 Lifeboats secured .
- .13 Check liferafts and report.
- .13.1 Liferafts in position and operational.
- .13.2 No. ... liferaft(s) not operational.
- .13.2.1 Inflation cord of no. ... liferaft not secured on board.
- .13.2.1.1 Secure inflation cord on board and report.
- .13.2.1.2 Inflation cord of no. ... liferaft secured.
- .13.2.2 No. ... liferaft container damaged.
- .13.2.2.1 Replace liferaft container in next port.
- .13.2.3 Test certificate of no. ... liferaft expired.
- .13.2.3.1 Replace liferaft in next port.

#### **IV-B/ 1.5 Ordering evacuation**

- .1 Evacuate all rooms / spaces / decks / ... and report.

- .1.1 All rooms / spaces / decks / ... evacuated.
- .2 Evacuate engine room and report.
- .2.1 Engine room evacuated.
- .3 Evacuate no. ... hold(s) / tank(s) and report.
- .3.1 No. ... hold(s) / tank(s) evacuated.
- .4 Evacuate superstructure and report.
- .4.1 Superstructure evacuated.
- .5 Evacuate accommodations and report.
- .5.1 Accommodations evacuated.
- .6 Evacuate ... deck / space / area and report.
- .6.1 ... deck / space / area evacuated.
- .7 Do not enter ... deck / space / area.
- .8 Report missing persons.
- .8.1 No person missing.
- .8.2 Number of missing persons: ... (in... deck / space / area).
- .8.3 ... deck / space / area not accessible (yet).
- .9 Report injured persons.
- .9.1 No person injured.
- .9.2 Number of injured persons/casualties: ... .
- .10 Provide first aid (in vessel's hospital).
- .10.1 Provide first aid at safe place.
- .10.2 Request medical assistance from ... (on radio).
- .11 All persons outside danger area.

#### **IV-B/ 1.6 Roll call**

- .1 Report number of all persons / passengers / crew members at assembly stations.
- .1.1 Number of all persons / passengers / crew members at assembly station ... : ... .
- .1.1.1 Number of persons / passengers / crew members at assembly station ... complete.
- .1.1.2 Number of persons / passengers / crew members at assembly station ... not complete (yet).
- .1.2 ... passenger(s) / crew member(s) missing.
- .1.2.1 Search for missing passenger(s) / crew member(s) and report.
- .1.2.1.1 Missing passenger(s) / crew member(s) recovered.
- .1.2.1.2 Missing passenger(s) / crew member(s) not recovered (yet)  
- (search continued).
- .2 Watchkeepers to assembly stations.
- .3 Lifeboatmen ! Check equipment of crew at assembly stations and report.
- .3.1 Equipment of crew at assembly station ... complete.
- .3.2 Equipment of crew at assembly station ... not complete (yet).
- .3.2.1 Complete equipment and report.
- .3.2.1.1 Go for blanket / stretcher / ... and report.
- .4 Lifeboatmen! Check outfit of passengers at assembly stations and report.
- .4.1 Outfit of passengers at assembly station ... correct.
- .4.2 Outfit of passengers at assembly station ... not correct (yet).
- .4.2.1 Correct outfit and report.
- .4.2.1.1 Put on warm clothing / long sleeved shirt / long trousers / strong shoes / head covering / ... and report.
- .5 Passengers and crew ! Follow lifeboatmen to lifeboat stations / liferaft stations on embarkation deck.

#### **IV-B/ 1.7 Ordering abandon vessel**

- .1 Swing out no. ... lifeboat(s) and report.
- .1.1 No. ... lifeboat(s) swung out.
- .2 Lower no. ... lifeboat(s) alongside embarkation deck and report.
- .2.1 No. ... lifeboat(s) alongside embarkation deck.
- .3 Enter lifeboat(s) (no. ...) and report.
- .3.1 Enter lifeboat(s) / liferaft(s) over ... deck.
- .3.2 Enter lifeboat(s) / liferaft(s) over ladders/ nets / manropes.
- .3.3 Jump into water and enter lifeboat(s) / liferaft(s).
- .3.4 Jump onto liferaft(s) alongside vessel.
- .3.5 Do not push each other when entering.
- .3.6 Assist injured / helpless persons.
- .3.7 Clear entrance of lifeboat / liferaft.

- .3.8 Sit down in lifeboat / liferaft immediately.
- .3.9 Hold on to ropes or to your seat when launching.
- .4 No. ... lifeboat(s) / liferaft(s) entered.
- .5 Let go no. ... lifeboat(s) / liferaft(s) and report.
- .5.1 No. ... lifeboat(s) / liferaft(s) is let go.
- .6 Throw over board no. ... liferaft and report.
- .6.1 No. ... liferaft thrown over board.
- .7 Inform coast radio stations / vessels in vicinity about number of lifeboats / liferafts launched and report.
- .7.1 Inform coast radio stations / vessels in vicinity about number of persons in each lifeboat / liferaft and report.
- .7.2 Inform coast radio stations / vessels in vicinity about number of crew members remaining on board.
- .7.3 Coast radio station ... / vessels in vicinity informed.
- .8 Stand clear of vessel and report.
- .8.1 No. ... lifeboat(s) / liferaft(s) standing clear.
- .8.2 No. ... lifeboat(s) / liferaft(s) not standing clear.
- .8.2.1 Rescue boat / no. ... motor lifeboat! Assist no. ... lifeboat(s) / liferaft(s) and report.
- .8.2.2 Rescue boat / no. ... motor lifeboat assisting - no. ... lifeboat(s) / liferaft(s) standing clear of vessel now.

#### **IV-B/ 1.8 In - boat procedures**

- .1 Stand by engine / pumps / lookout / entrance and report.
- .1.1 Engine/ pumps / lookout / entrance standing by.
- .2 Recover persons in water and report.
- .2.1 Have line / hook / knife / lifebuoy ready.
- .2.2 Number of persons recovered: ... .
- .2.3 Keep lookout for further persons in water.
- .2.4 Report total number of persons in lifeboat / liferaft.
- .2.4.1 Total number of persons now: ... .
- .3 Report number of injured persons.
- .3.1 No person injured.
- .3.2 Number of injured persons: ... .
- .3.3 Provide first aid to injured persons .
- .3.4 Secure injured / helpless persons.
- .4 Let go sea anchor and report.
- .4.1 Sea anchor is let go.
- .5 Report number of lifeboats / liferafts in sight.
- .5.1 Number of lifeboats / liferafts in sight: ... .
- .6 Contact lifeboats / liferafts on radio and report.
- .6.1 Lifeboats / liferafts contacted.
- .6.2 No contact.
- .7 Give distress signals for identification.
- .7.1 Fire rockets for identification.
- .7.2 Use glasses / lamps / mirrors for identification.
- .7.3 Give sound signals for identification.
- .7.4 Give ... signals for identification.
- .8 Start engine and report.
- .8.1 Engine started.
- .9 Set sail and report.
- .9.1 Sail set.
- .10 Use oars.
- .11 Join other lifeboats / liferafts.
- .11.1 Connect lifeboats / liferafts with lines and report.
- .11.2 ... lifeboats / liferafts connected.

#### **IV-B/ 2 Occupational Safety**

##### **IV-B/ 2.1 Instructions**

- .1 Prepare training plan for occupational safety.
- .1.1 Prepare training plan regarding type of vessel.
- .1.2 Prepare training plan regarding kind of cargo.
- .1.3 Prepare training plan regarding route of vessel.



- .1 .4 Prepare training plan regarding ... .
- .2 When was last training session on occupational safety?
- .2 .1 Last training session was on ... (*date*).
- .3 When is next training session on occupational safety?
- .3 .1 Next training session on ... (*date*).
- .3 .2 Next training session before entering port.
- .3 .3 Next training session after leaving port.
- .3 .4 Next training session in port of ... .
- .4 Next training session is about accident analysis/new regulations/... .
- .5 Are new crew members/passengers instructed on occupational safety?
- .5 .1 Yes, new crew members/passengers instructed.
- .5 .2 No, new crew members/passengers not instructed (yet).
- .5 .3 Instruct new crew members/passengers by ...(*time*) / on ...(*date*).
- .6 Participation in training sessions on occupational safety is mandatory.

#### **IV-B/ 2 .2 Practical Occupational Safety**

- .1 Instruct crew on occupational safety before departure.
- .1 .1 Instruct crew on occupational safety regarding type of vessel/  
kind of cargo/route of vessel/ ... before departure.
- .2 Have special instruction on dangerous goods/ heavy lifts/  
cargo securing/illumination/ventilation/ ... .
- .3 Where are dangerous goods carried on board?
- .3 .1 Dangerous goods of IMO Class ... carried on deck (in roped-off areas).
- .3 .2 Dangerous goods of IMO Class ... carried in no. ... hold(s).
- .3 .3 Dangerous goods of IMO Class ... carried in ... /on... .
- .4 Prepare emergency plan.
- .4 .1 Prepare emergency plan for first aid.
- .4 .2 Prepare emergency plan for limitation of damage.
- .4 .3 Prepare emergency plan for ... .
- .5 Brief all crew members/passengers on symptoms caused by  
dangerous substances.
- .6 What signals/communications are used in case of emergency ?
- .6 .1 Following signals/communications are used in case of emergency:
- .7 Brief all crew members/passengers on restricted areas/decks/spaces.
- .8 Brief all crew members/passengers how to report .
- .8 .1 Brief all crew members/passengers how to report in (when entering bridge/  
engine room/ ... ).
- .8 .2 Brief all crew members/passengers how to report out (when leaving bridge/  
engine room/ ...).
- .8 .3 Do not enter unmanned (engine) room/... space without permission by officer of the  
watch.
- .8 .4 Report on telephone/radio/ ... while in (engine) room/... space every ... minutes.
- .9 Brief all crew members/passengers on storm.
- .9 .1 Attention!  
Entering forecandle/main deck/weather side / ... of vessel prohibited/dangerous (due  
to storm).
- .9 .2 Attention!  
Make use of hand rails and lifelines in corridors and on deck.
- .9 .3 Attention!  
Close all dead lights and storm doors.
- .9 .4 Attention!  
Secure all loose objects in cabins/on deck/ in ... .
- .10 Brief all crew members/passengers on winter conditions.
- .10 .1 Entering following area(s) prohibited:...
- .10 .2 Working hours (on deck) restricted from ... to ... hours.
- .10 .3 Apply personal protective measures.
- .11 Brief all crew members/passengers on tropical conditions.
- .11 .1 Working hours (on deck/in...) restricted from ... to ... hours.
- .11 .2 Apply following personal protective measures :
- .11 .2 .1 Wear sun-protective clothing.
- .11 .2 .2 Drink mineral water/tea/... freely.
- .12 Check completeness and availability of occupational safety equipment and report.

- .12 .1 Occupational safety equipment complete and available.
- .12 .2 Following occupational safety equipment not complete/available: ...
- .12 .3 Occupational safety equipment complete and available in ... hour(s).
- .12 .4 Replace following occupational safety equipment: ... .
- .13 Appoint officer/crew member in charge of safety before working.
- .14 Take additional safety measures.
  - .14 .1 Take additional safety measures for work in masts.
  - .14 .2 Take additional safety measures for work outboard.
  - .14 .3 Take additional safety measures for work in hold(s)/tank(s).
  - .14 .4 Take additional safety measures for work in extreme weather conditions.
  - .14 .5 Take additional safety measures for ... .
- IV-B/ 2.3 Occupational Accidents**
  - .1 Reporting accident.
    - .1 .1 Accident in engine room.
    - .1 .2 Accident in no. ... hold/tank.
    - .1 .3 Accident in superstructure.
    - .1 .4 Accident in accommodation.
    - .1 .5 Accident in .. space/area.
    - .1 .6 Accident on deck.
    - .1 .7 Accident outboard.
    - .1 .8 Accident on pier.
    - .1 .9 Accident in .../on ... .
  - .2 Report injured persons.
    - .2 .1 No person injured.
    - .2 .2 Number of injured persons/casualties: ... .
  - .3 What happened?
    - .3 .1 Explosion/fire in ... .
    - .3 .2 Accident with cargo.
    - .3 .3 Fall from .../into ... .
    - .3 .4 Electrical accident in ... .
    - .3 .5 Leakage of gas/ ... .
    - .3 .6 ... .
  - .4 Take immediate action and report.
    - .4 .1 Take immediate action to recover injured person(s)/casualties and report.
      - .4 .1 .1 Injured person(s)/casualties recovered.
    - .4 .2 Provide first aid immediately
      - .4 .2 .1 First aid provided.
    - .4 .3 Take immediate action to control danger area.
      - .4 .3 .1 Danger area under control.
  - .5 What kind of assistance required?
    - .5 .1 No assistance required.
    - .5 .2 Medical assistance required.
    - .5 .3 Technical assistance required.
    - .5 .4 ... persons required.
    - .5 .5 Shoreside assistance required.
  - .6 Secure danger area and report.
    - .6 .1 Danger area secured.
  - .7 Prepare accident report.
    - .7 .1 Report location of accident.
    - .7 .2 Report time of accident.
    - .7 .3 Report number of injured persons/casualties.
    - .7 .4 Report condition of injured/casualties.
    - .7 .5 Report nature and cause of accident.
- IV-B/ 3 Fire Protection and Fire Fighting**
  - IV-B/ 3.1 Fire protection**
    - 3.1.1 Checking status of equipment**
      - .1 Have fire patrols.
        - .1 .1 Have fire patrols every ... hour(s).
        - .1 .2 Have fire patrols ... time(s) every watch.
        - .1 .3 Have fire patrols ... .
        - .1 .4 Have permanent fire watch.
        - .1 .5 Have fire patrols in all spaces/areas.

- .1 .6 Have fire patrols in engine room.
- .1 .7 Have fire patrols in cargo hold(s).
- .1 .8 Have fire patrols in superstructure.
- .1 .9 Have fire patrols in accommodation.
- .1 .10 Have fire patrols in ... space/area.
- .1 .11 Have fire patrols on deck.
- .2 Everything in order?
  - .2 .1 Yes, everything in order.
  - .2 .2 No, following not in order: ...
- .3 Check fire/smoke alarms and report.
  - .3 .1 Fire/smoke alarms operational.
  - .3 .2 Fire/smoke alarm(s) in ... not operational (yet).
  - .3 .3 Fire/smoke alarm(s) in ... operational in ... minutes.
- .4 Switch on/off fire/smoke alarms.
  - .4 .1 Switch on /off fire/smoke alarms in all spaces.
  - .4 .2 Switch on/off fire/smoke alarms in engine room.
  - .4 .3 Switch on/off fire/smoke alarms in cargo hold(s)/tank(s).
  - .4 .4 Switch on/off fire/smoke alarms in superstructure.
  - .4 .5 Switch on /off fire/smoke alarms in accommodation.
  - .4 .6 Switch on/off fire/smoke alarms in ... compartment.
  - .4 .7 Switch on/off fire/smoke alarm in ...
    - .4 .7 .1 Fire/smoke alarms in ... switched on/off.
- .5 Check fire alarm/smoke alarm displays on bridge and report.
  - .5 .1 Fire alarm/smoke alarm displays on bridge operational.
  - .5 .2 Fire alarm/smoke alarm display(s) of ... not operational (yet)
  - .5 .3 Fire alarm/smoke alarm display(s) of ... operational in ... minutes.
- .6 Check portable extinguishers and report.
  - .6 .1 Portable extinguishers in position and operational.
  - .6 .2 Portable extinguisher(s) in ... not in position (yet)..
    - .6 .2 .1 Portable extinguisher(s) in ... in position in ... minutes..
  - .6 .3 Portable extinguisher(s) in ... not accessible(yet).
    - .6 .3 .1 Portable extinguisher(s) in ... accessible in ... minutes.
  - .6 .4 Portable extinguisher(s) in ... missing.
    - .6 .4 .1 Replace missing portable extinguisher(s).
  - .6 .5 Seal(s) of portable extinguisher(s) in ... broken.
    - .6 .5 .1 Replace portable extinguisher(s) with broken seals.
  - .6 .6 Test certificate(s) of portable extinguisher(s) in ... expired.
    - .6 .6 .1 Replace expired portable extinguisher(s).
- .7 Check fire mains and report.
  - .7 .1 Fire mains operational.
  - .7 .2 Hydrant(s) in ... not operational (yet)..
    - .7 .2 .1 Hydrant(s) operational in ... minutes.
  - .7 .3 Hydrant(s) in ... not accessible (yet).
    - .7 .3 .1 Hydrant(s) in ... accessible in ... minutes.
  - .7 .4 Hose(s) to hydrant(s) in ... worn/cut.
    - .7 .4 .1 Replace worn/cut hose(s).
  - .7 .5 Hose(s) to hydrant(s) in ... missing.
    - .7 .5 .1 Replace missing hose(s).
  - .7 .6 Spanner(s) to hydrant(s) in ... missing.
    - .7 .6 .1 Replace missing spanner(s).
  - .7 .7 Nozzle(s) to ... not operational (yet).
    - .7 .7 .1 Nozzle(s)to ... operational in ... minutes.
    - .7 .8 Nozzle(s) to ... do/does not fit.
      - .7 .8 .1 Replace nozzle(s) to ... (by fitting ones).
    - .7 .9 Nozzle(s) to ... missing.
      - .7 .9 .1 Replace missing nozzle(s).
  - .7 .10 Fire pump(s) in ... not operational (yet).
    - .7 .10 .1 Fire pump(s) in ... operational in ... minutes.
  - .7 .11 Water pipe(s) in ... leaking.
    - .7 .11 .1 Repair leaking water pipe(s) in ...
  - .7 .12 Water pipe(s) in ... blocked.
    - .7 .12 .1 Free blocked water pipe(s)in ...

- .7 .13 Pressure in water pipe(s) in ... too high.
- .7 .13 .1 Reduce pressure in water pipe(s) in ... .
- .7 .14 Pressure in water pipe(s) in ... too low.
- .7 .14 .1 Increase pressure in water pipe(s) in ... .
- .8 Check fixed foam/gas fire extinguishing system and report.
- .8 .1 Fixed foam/gas system operational.
- .8 .2 Fixed foam/gas system not operational (yet)
- .8 .2 .1 Fixed foam/gas system operational in ... minutes.
- .9 Check sprinkler system and report.
- .9 .1 Sprinkler system operational.
- .9 .2 Sprinkler system in ... not operational (yet).
- .9 .2 .1 Sprinkler system in ... operational in ... minutes.
- .10 Check ventilation system and report.
- .10 .1 Ventilation system operational.
- .10 .2 Ventilation system not operational (yet)
- .10 .2 .1 Ventilation system operational in ... minutes.
- .10 .3 Remote control not operational (yet).
- .10 .3 .1 Remote control operational in ... minutes.
- .10 .4 Indicators not operational (yet).
- .10 .4 .1 Indicators operational in ... minutes.
- .10 .5 Dampers in ... not operational (yet).
- .10 .5 .1 Dampers in ... operational in ... minutes.
- .11 Check skylights/windows/ ... and report.
- .11 .1 Skylights/windows/ ... in/to ... open.
- .11 .2 Close skylights/windows/ ... in/to ... .
- .11 .2 .1 Skylights/windows/ ... in/to ... closed.
- .12 Check watertight door control and report.
- .12 .1 Watertight door control operational.
- .12 .2 Watertight door control in ... not operational (yet).
- .12 .2 .1 Watertight door(s) in ... do(es) not open/close.
- .12 .3 Watertight door control in ... operational in ... minutes.
- .13 Check electrical lighting and report
- .13 .1 Electrical lighting operational.
- .13 .2 Electrical lighting in ... not operational (yet).
- .13 .2 .1 Black-out/short circuit in ... .
- .13 .3 Electrical lighting in ... operational in ... minutes.
- .13 .4 Switch on/off electrical lighting in ... .
- .13 .4 .1 Electrical lighting in ... switched on/off.
- .14 Check emergency power supply and report.
- .14 .1 Emergency power supply operational.
- .14 .2 Emergency power supply not operational (yet).
- .14 .2 .1 Emergency power supply operational in ... minutes.
- .15 Check firemen's outfits and report.
- .15 .1 Firemen's outfits complete and available.
- .15 .2 Firemen's outfits not complete.
- .15 .2 .1 Complete firemen's outfits.
- .15 .3 Breathing apparatus/smoke helmets/safety lamps/ ... not operational/missing.
- .15 .3 .1 Replace (missing) breathing apparatus/smoke helmets/safety lamps/ ... .
- .15 .4 Test certificate(s) of ... expired.
- .15 .4 .1 Replace ... .

#### **IV-B/ 3.2 Fire fighting and drills**

##### **3.2.1 Reporting fire**

- .1 Fire on board!
- .1 .1 Smoke/fire/explosion in engine room.
- .1 .2 Smoke/fire/explosion in no. ... hold(s)/tank(s).
- .1 .3 Smoke/fire/explosion in superstructure.
- .1 .4 Smoke/fire/explosion in accommodation.
- .1 .5 Smoke/fire/explosion in ... space/area.
- .1 .6 Smoke/fire/explosion on deck.
- .1 .7 Smoke from ventilator(s).
- .1 .8 Burnt smell in .../ from... .
- .2 Report injured persons:

- .2 .1 No person injured.
- .2 .2 Number of injured persons/casualties: ... .
- .3 What is on fire?
- .3 .1 Fuel on fire.
- .3 .2 Cargo on fire.
- .3 .3 Car(s)/truck(s)/waggon(s) on fire.
- .3 .4 Containers/ ... (with dangerous goods) on fire.
- .3 .5 ... on fire.
- .3 .6 No information.
- .4 Is smoke toxic?
- .4 .1 No, smoke not toxic.
- .4 .2 Yes, smoke toxic
- .5 Is fire under control?
- .5 .1 Yes, fire (in ... ) under control.
- .5 .2 No, fire (in ... ) not under control (yet).
- .5 .2 .1 No, fire spreading (to ... ).
- .5 .2 .2 No, fire (in ... ) not accessible.
- .6 What is damage?
- .6 .1 No damage.
- .6 .2 Minor/major damage in .../ to ... .
- .6 .3 No power supply (in ... ).
- .6 .4 Making water in ... .
- .7 Pressure on fire mains.
- .7 .1 Fire mains under pressure.
- .8 Shut down main engine(s)/auxiliary engine(s)/ ... .
- .8 .1 Main engine(s)/auxiliary engine(s)/ ... shut down.
- .9 Stop fuel.
- .9 .1 Fuel stopped.
- .10 Close hatch covers.
- .10 .1 Hatch covers closed.
- .11 Close damper(s) (in ... ).
- .11 .1 Damper(s) (in ... ) closed.
- .12 Close all openings.
- .12 .1 All openings closed.
- .13 Switch off ventilator(s) (in ... ) .
- .13 .1 Ventilator(s) (in ... ) switched off.
- .14 Turn bow/stern to windward.
- .14 .1 Bow/stern turned to windward.
- .15 Turn port side/starboard side to windward.
- .15 .1 Port side/starboard side turned to windward.
- .16 Alter course to ... .