



TRANSCONTRACT
Ukrainian Crew Manning Company

STUDENT'S TEXTBOOK



ENGLISH FOR MARINE ENGINEERS



SEAMANSHIP AND QUICK GRAMMAR GUIDE



PROVIDING FIRST CLASS CREW MANNING SERVICE



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ENGLISH FOR MARINE ENGINEERS

**WITH QUICK
GRAMMAR GUIDE**

Севастополь
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ОТ АВТОРОВ

Данное учебно-методическое пособие адресовано всем желающим овладеть английским языком и пополнить свои знания в области судомеханики на интенсивных курсах в «Украинской Крюинговой Компании «Трансконтракт».

Здесь собраны специальные термины и наиболее употребительная лексика английского языка, необходимые для работы на контракте в англоязычном экипаже.

Пособие включает три раздела.

В первом разделе даются общие сведения об устройстве судна, экипаже, типах судов, правилах безопасности. Приводится список наиболее распространенных вежливых фраз и вопросов на собеседованиях в морских агентствах, а также выражений, которые помогут Вам при посещении аэропорта и врача.

Во втором разделе рассматриваются двух- и четырехтактные двигатели, системы дизельного двигателя со схемами, вспомогательные механизмы, неисправности, стандартные рабочие операции, а также требования международных конвенций.

Третий раздел посвящен грамматике. Он содержит справочные материалы по фонетике и грамматике с упражнениями и текстами для практического закрепления материала.

В приложениях Вы найдете перечень часто употребляемых глаголов английского языка и технический англо-русский и русско-английский словарь.

В состав учебных материалов входит аудио- и видеокурс, разработанный с участием носителей языка.

Благодарим за помощь в проекте Graham Morrisey (Великобритания), John Travis (США), Nathan Laye (США), Roger Anderson (Австралия).

CONTENTS

PART 1. SEAMANSHIP

UNIT 1	Экипаж / Crew	6
UNIT 2	Судно / Vessel.....	7
UNIT 3	Типы судов / Types of Vessels	10
UNIT 4	Рабочий день / Working Day	12
UNIT 5	Безопасность / Safety.....	14
UNIT 6	Полезные фразы / Useful Phrases	25

PART 2. ENGINEERING

UNIT 1	Дизельный двигатель / Diesel Engine	30
UNIT 2	Топливная система / Fuel Oil System.....	36
UNIT 3	Смазочная и охлаждающая масляная система / Lubricating and Cooling Oil System	38
UNIT 4	Водяные охлаждающие системы / Cooling Water Systems	41
UNIT 5	Системы пускового и импульсного воздуха / Starting and Control Air Systems	44
UNIT 6	Система продувочного воздуха / Scavenge Air System	46
UNIT 7	Система выхлопных газов / Exhaust Gas System	48
UNIT 8	Система маневрирования / Manoeuvring System	50
UNIT 9	Паровая система / Steam System	51
UNIT 10	Стандартные рабочие операции и обслуживание / Standard Operation Procedures and Maintenance	56
UNIT 11	Неисправности / Troubleshooting	58
UNIT 12	Бункеровка / Bunkering Operation.....	64
UNIT 13	Инструкции / Instructions	66
UNIT 14	Журнал / Log-Book	68
UNIT 15	Конвенции / Conventions (ISM, SOLAS, MARPOL).....	69
UNIT 16	Глаголы ремонта / Repair Verbs.....	72
UNIT 17	Символы системы трубопроводов / Basic Symbols for Piping	81

PART 3. GRAMMAR

UNIT 1	Транскрипция, алфавит / Transcription, Alphabet	84
UNIT 2	Числительные / Numerals	86
UNIT 3	Множественное число / Plurals	89
UNIT 4	Местоимения / Pronouns.....	90
UNIT 5	Притяжательный падеж / Possessive Case	92
UNIT 6	Глагол to be, обороты there is / there are	93
UNIT 7	Настоящее неопределенное время / Present Indefinite Tense	98
UNIT 8	Настоящее продолженное время / Present Continuous Tense	107
UNIT 9	Страдательный залог / Passive Voice.....	112
UNIT 10	Будущее неопределенное время / Future Indefinite Tense	115
UNIT 11	Прошедшее неопределенное время / Past Indefinite Tense	120
UNIT 12	Прошедшее продолженное время / Past Continuous Tense	125
UNIT 13	Настоящее совершенное время / Present Perfect Tense	128
UNIT 14	Модальные глаголы / Modal Verbs.....	131
UNIT 15	Времена английского глагола / Verb Tenses	134
APPENDIX 1	Полезные глаголы / Useful Verbs.....	137
APPENDIX 2	Технический словарь / Technical Vocabulary	142

1. TIMU

2. SEAMANSHIP

PART 1. SEAMANSHIP



UNIT 1

ЭКИПАЖ / CREW

As powered ships developed in the 19th century, their crews evolved into three distinct groups:

- the deck department which steered, kept lookout, handled lines in docking and undocking, and performed at-sea maintenance on the hull and non-machinery components,
- the engine department which operated machinery and performed at-sea maintenance, and
- the catering department which controlled general housekeeping, prepared and served foods.

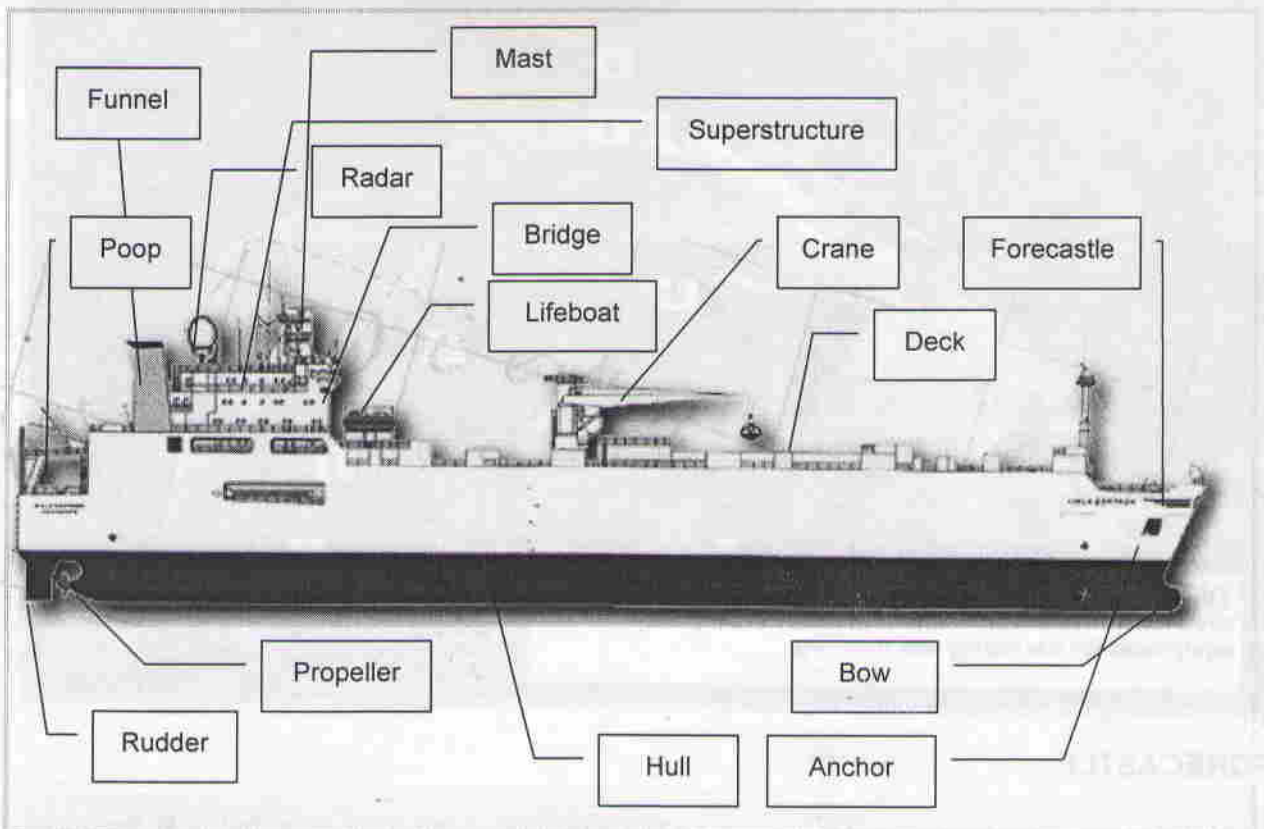


Прослушайте и выучите слова

	crew	экипаж	[kru:]
	officers	командный состав	['ɔ:fisəz]
Deck Officers	master	капитан	['mɑ:stə]
	chief officer	старший помощник	[tʃi:f 'ɔ:fisə]
	2 nd (second) officer	второй помощник	['sekənd 'ɔ:fisə]
	3 rd (third) officer	третий помощник	[θə:d 'ɔ:fisə]
Engine Officers	chief engineer	старший механик	[tʃi:f endʒi'niə]
	2 nd , 3 rd , 4 th engineer	2-ой, 3-ий, 4-ый механик	['sekənd] [θə:d] [fɔ:θ] [endʒi'niə]
	electrical engineer	электромеханик	[i'lektrikəl endʒi'niə]
	ref engineer	рефмеханик	[ref endʒi'niə]
	gas engineer	газовый механик	[gæs endʒi'niə]
	ratings	рядовой состав	['reitiŋz]
Deck Ratings	bosun (boatswain)	боцман	['bəʊsən]
	AB (able bodied) seaman	матрос 1-го класса	[ei bi:] ['eɪbəl 'bɔ:di:d 'si:mən]
	OS (ordinary) seaman	матрос 2-го класса	[əʊ es] ['ɔ:dənəri 'si:mən]
	deck cadet	кадет-помощник	[dek kə'det]
Engine Ratings	motorman (oiler)	моторист 1-го класса	['məʊtəmən] ['ɔ:ɪlə]
	wiper	моторист 2-го класса	['waɪpə]
	engine trainee	моторист-практикант	['endʒɪn treɪ'ni:]
Other Ratings	fitter	слесарь	['fɪtə]
	welder	сварщик	['weldə]
	pumpman	донкерман	[pʌmpmən]
	carpenter	плотник	['kɑ:pɪntə]
	turner	токарь	['tɜ:nə]
	sandblaster	пескоструйщик	['sænd'bla:stə]
Catering	cook	кок	[kuk]
	steward	стюард	['stjuəd]
	messman	стюард	['mesmən]

UNIT 2

СУДНО / VESSEL



Прослушайте и выучите слова

anchor	якорь	[ˈæŋkə]
bow	нос	[bau]
bridge	мостик	[brɪdʒ]
crane	кран	[kreɪn]
deck	палуба	[dek]
forecastle	бак	[ˈfəʊksəl]
funnel	труба	[ˈfʌnl]
hull	корпус	[hʌl]
lifeboat	спасательная шлюпка	[ˈlaɪfbəʊt]
mast	мачта	[maːst]
poop	полуяк, корма	[puːp]
propeller	гребной винт	[preˈpələ]
radar	радар	[ˈreɪdər]
rudder	руль	[ˈrʌdə]
superstructure	палубные сооружения, надстройка	[ˈsjuːpəˈstrʌktʃə]



The forecastle, which is also known as the foc'sle, is the deck area that is at the very front of the ship. Here you find all the equipment for anchoring and mooring.

FORECASTLE

forecastle	бак	['fauksəl]	The forecastle is the deck area that is at the very front of the ship.
1. capstan	шпиль	['kæpstən]	The capstan place is on the forecastle and it is used for heaving ropes and chain cables for anchors.
2. bitts / bollards	кнехты	[bits] ['bɔlədz]	Bitts and bollards are used for securing ropes or cables when mooring a ship.
3. windlass	брашпиль	['windləs]	A windlass is used for working cables.
4. ladder	трап, лестница	['lædə]	A ladder is used to get from one deck to another.
5. Panama lead	панамский клюдз	['pænə'ma: li:d]	The Panama lead is necessary when the ship is towed by shore locomotives in the Panama canal.
6. jackstaff	гойс-шток	['dʒæksta:f]	The jackstaff is at the front of the ship. When in a harbor a flag with the company ensign is normally shown on the jackstaff.

boat	шлюпка, лодка	[bəʊt]
boiler-room	котельная	['bɔilərum]
bunk	койка	[bʌŋk]
cabin	каюта	['kæbin]
cargo	груз	['kɑ:gəʊ]
cargo crane	грузовой кран	['kɑ:gəʊ kreɪn]
central control room	центральный пульт управления (ЦПУ)	['sentrəl kən'trəʊl ru:m]
cover	крышка	['kʌvə]

derrick	подъемное приспособление, стрела	['derɪk]
engine-room	машинное отделение	['endʒɪnrʊm]
equipment	оборудование	['kwɪpmənt]
galley	камбуз	['gæli]
gangway	парадный трап	['gæŋweɪ]
hatch	люк	[hætʃ]
hatch cover	крышка люка	[hætʃ 'kʌvə]
hold	трюм	[həʊld]
laundry	прачечная	['ləʊndri]
main deck	главная палуба	['meɪndek]
mess-room	кают-компания	['mesrʊm]
mooring gear	швартовное устройство	['muərɪŋ ɡiə]
mooring winch	швартовная лебедка	['muərɪŋ wɪntʃ]
paint room	малярная	['peɪntrʊm]
port side	левый борт	['pɔ:tsaɪd]
porthole	иллюминатор	['pɔ:θəʊl]
pump-room	насосное отделение	['pʌmpru:m]
rope	канат, трос	[rəʊp]
scupper	шпигат	['skʌpə]
sick-bay / hospital	лазарет	['sɪkbeɪ] ['hɒspɪtəl]
signal flags	сигнальные флаги	['sɪgnəl flægz]
starboard side	правый борт	['stɑ:bɔ:d saɪd]
steering gear room	румпельное отделение	['stiəriŋ ɡiə ru:m]
stern	корма	[stɜ:n]
store-room	кладовая	['stɔ:rʊm]
upper deck	верхняя палуба	['ʌpə dek]
workshop	мастерская	['wɜ:kʃɒp]





SHIP'S DESCRIPTION

area of sailing	район плавания	['eəriə əv 'seɪlɪŋ]
beam / width	ширина (судна)	[bi:m] [wɪð]
deadweight (DWT)	дедвейт	['dedweɪt]
draught / draft	осадка	[dra:ft]
flag	флаг	[flæɡ]
gross tonnage	валовая вместимость	['grəʊs 'tʌnɪdʒ]
length overall	общая длина (судна)	[leŋθ 'əʊvəɔ:l]
shipmanager	судовой менеджер	[ʃɪp'mænidʒə]
shipowner	судовладелец	[ʃɪp'əʊnə]
speed	скорость	[spi:d]
type of vessel	тип судна	['taɪp əv 'vesəl]

UNIT 3

ТИПЫ СУДОВ / TYPES OF VESSELS

bulk carrier, bulker	балкер	[bʌlk 'kæriə] ['bʌlkə]
bunkering tanker	танкер-бункеровщик	['bʌŋkəriŋ 'tæŋkə]
chemical tanker	танкер-химовоз	['kemikəl 'tæŋkə]
coaster	костер	['kəustə]
container carrier	контейнеровоз	[kən'teɪnə] ['kæriə]
crude oil tanker	танкер для перевозки сырой нефти	[kru:d oɪl 'tæŋkə]
cruise liner	круизный лайнер	[kru:z 'lɑɪnə]
double-decker, tweendecker	двухпалубное судно	['dʌbəl'dekə] ['twi:n'dekə]
dredge	драга	[dredʒ]
dry cargo ship	сухогруз	[draɪ 'kɑ:gəʊ 'ʃɪp]
feeder	фидер	['fi:də]
ice-breaker	ледокол	['aɪs'breɪkə]
liner	лайнер	['lɑɪnə]
ferry	паром	['feri]
fishing vessel	рыбодобывающее судно	['fɪʃɪŋ 'vesəl]
general cargo vessel	судно для перевозки генеральных грузов	[dʒenərəl 'kɑ:gəʊ 'vesəl]
heavy-lift ship	тяжеловоз	['hevi lift 'ʃɪp]
LPG / LNG carrier	газовоз	[əl pi: dʒi:] [el en dʒi:] ['kæriə]
Navy ship	военно-морское судно	['neɪvi 'ʃɪp]
merchant ship	торговое судно	['mɑ:tənt 'ʃɪp]
multi-purpose ship	многоцелевое судно	['mʌlti'pʊrəs 'ʃɪp]
off-shore vessel	оффшорное судно	['ɔ:fʃə 'vesəl]
passenger ship	пассажирское судно	['pæsɪndʒə 'ʃɪp]
product tanker	танкер-продуктовоз	['prɒdʌkt 'tæŋkə]
reefer	рифер	['ri:fe]
research vessel	исследовательское судно	[ri'sə:tʃ 'vesəl]
ro-ro	ро-ро	['rəʊrəʊ]
salvage tug	спасательный буксир	['sælvi:dʒ tʌg]
supply vessel	судно-снабженец	[sə'plai 'vesəl]
tanker	танкер	['tæŋkə]
timber carrier	лесовоз	['tɪmbə 'kæriə]
tug	буксир	[tʌg]
vehicle carrier	автомобилевоз	['vi:kl 'kæriə]

<p>CONTAINER SHIP</p> <p>This type of ship is designed to carry standard-sized containers in cargo holds and as deck cargo.</p>		<p>BULK CARRIER (BULKER)</p> <p>This is a Bulk Carrier. This type of ship carries cargo such as iron ore, grain, etc. that is loaded in bulk not in containers.</p>	
<p>RO-RO (VEHICLE CARRIER)</p> <p>This is a Ro-Ro. This type of ship carries cars, buses, and trucks.</p>		<p>MULTI-PURPOSE VESSEL</p> <p>This ship is a Multi-Purpose Vessel. This type of ship carries different general cargoes, containers, etc.</p>	
<p>GENERAL CARGO SHIP</p> <p>This is a General Cargo Ship. She carries different packed cargoes on the deck and different cargoes in holds.</p>		<p>REEFER</p> <p>This is a Reefer. This type of ship carries different cooled fruit, vegetables, frozen meat, fish, etc.</p>	
<p>CHEMICAL TANKER</p> <p>This is a Chemical Tanker. This type of ship carries different chemicals in liquid form in tanks.</p>		<p>TANKER (CRUDE OIL TANKER)</p> <p>This is a Tanker. This type of ship carries crude oil in huge tanks.</p>	
<p>TANKER (PRODUCT TANKER)</p> <p>This is a Product Tanker. This type of ship carries different oil products.</p>		<p>PASSENGER SHIP (CRUISE LINER)</p> <p>This is a Passenger Ship. Such ships usually carry passengers.</p>	
<p>TUG (TUG BOAT)</p> <p>This small ship is a Tug. Tug boats pull ships or push them ahead in ports.</p>		<p>FISHING VESSEL</p> <p>This is a Fishing Vessel. This ship catches different types of fish in seas and oceans.</p>	

UNIT 4

РАБОЧИЙ ДЕНЬ / WORKING DAY



ПОКРАСКА / PAINTING

to prepare surface	подготавливать поверхность	[pri'peə 'sə:fis]
broom	веник, метла	[brʊm]
to chip off	отбивать	[tʃip ɔf]
rust	ржавчина	[rʌst]
scraper	скребок	['skreɪpə]
loose paint	облупившаяся краска	[lu:s peɪnt]
primer	грунтовка	['praɪmə]
putty	шпатлевка	['pʌtɪ]
to grind	шлифовать	['graɪnd]
glue	клей	[glu:]
to degrease	обезжиривать	[di:'grɪ:s]
to mix	смешивать	[mɪks]
painting	окраска	['peɪntɪŋ]
to apply a coat of paint	наносить слой краски	[ə'plai ə kəʊt əv peɪnt]
paint can	банка краски	[peɪnt kæn]
brush	кисть	[brʌʃ]
roller	каток	['rɔ:lə]
paint	краска	[peɪnt]
waterproof	водостойкий	['wɔ:tə'pru:f]
enamel	эмаль	['næmə]
varnish	лак	['vɑ:nɪʃ]
solvent	растворитель	['sɒlvənt]
thinner	разбавитель, растворитель	['θɪnə]
drying	сушка	['draɪɪŋ]

ЦВЕТА / COLORS

black	черный	[blæk]
blue	синий	[blu:]
brown	коричневый	[braʊn]
green	зеленый	[grɪ:n]
grey	серый	[greɪ]
red	красный	[red]
white	белый	[waɪt]
yellow	желтый	['jeləʊ]



ИНСТРУМЕНТЫ / TOOLS

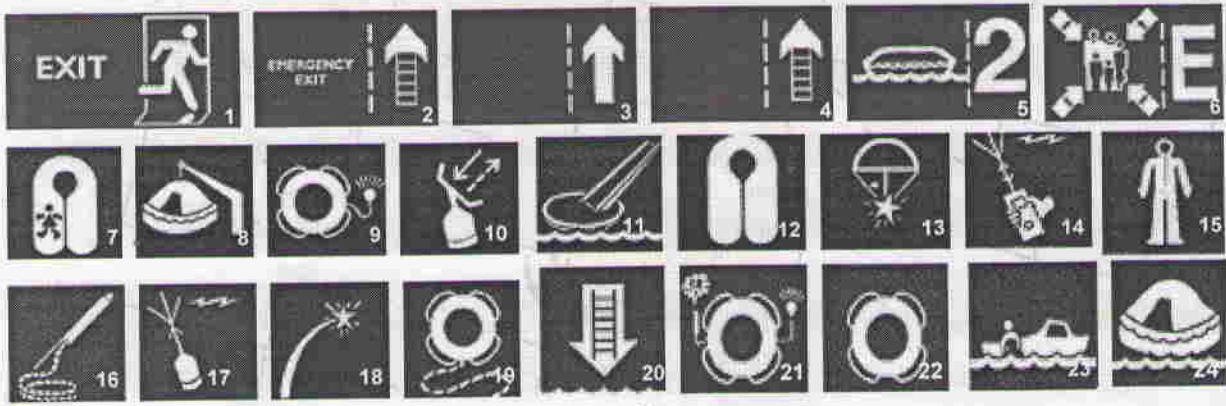


Прослушайте и выучите слова

axe	топор	[æks]
blade	лезвие, режущая пластина	[bleid]
bucket	ведро	['bʌkɪt]
chisel	зубило, долото, стамеска	['tʃɪzəl]
crow-bar	лом	['krəʊbɑ:]
cutter	резец	['kʌtə]
cutting pliers	кусачки	['kʌtɪŋ 'plaiəz]
drill	дрель	[drɪl]
driller	сверлильный станок	['drɪlə]
ear muffs	наушники	[iə mʌfs]
ear plugs	беруши	[iə plʌgz]
file	напильник	[faɪl]
gauge	измерительный прибор	[geɪdʒ]
glasses / goggles	очки	['glɑ:sɪz] ['gɔ:gəlz]
gloves	перчатки	[glʌvz]
grinder	болгарка	['graɪndə]
hammer	молоток	['hæmə]
handsaw	ножовка	['hændsɔ:]
helmet / hard hat	каска	['helmit] ['hɑ:d'hæt]
lathe	токарный станок	[leɪð]
nail puller	гвоздодер	['neɪl 'pu:lə]
overall, boiler suit	роба, комбинезон	['əʊvəɔ:l] ['bɔɪlə sju:t]
plane	рубанок	[pleɪn]
pliers	плоскогубцы	['plaiəz]
rags	ветошь	[rægz]
reamer	развертка, райбер	['ri:mə]
safety shoes	защитная обувь	['seɪftɪ 'ʃu:z]
sand paper	наждачная бумага	[sænd 'peɪpə]
saw	пила	[sɔ:]
scissors	ножницы	['sɪzəz]
screwdriver	отвертка	['skru:'draɪvə]
• cross-head screwdriver	крестообразная отвертка	['krɒshed 'skru:'draɪvə]
shovel	лопата	['ʃʌvəl]
spanner / wrench	ключ	['spænə] [rent]
• adjustable spanner	разводной ключ	[ə'dʒʌstəbl 'spænə]
tongs	клещи	[tɒŋz]
torch	паяльная лампа	[tɔ:tʃ]

UNIT 5

БЕЗОПАСНОСТЬ / SAFETY



1. Exit	Виход
2. Emergency Exit	авар. виход
3. Direction Indicator	направлення руху
4. Emergency Exit Indicator	небезпека - авар. вих.
5. Embarkation Station	місце посадки
6. Muster Station	місце збору
7. Child's Life Jacket	дитячий спасіт - муніт
8. Davit-launched Life Raft	спасіт - муніт з дриж - муніт
9. Life Buoy with Light	спасіт - муніт з світлом
10. Radar Transponder	буї радіолокації
11. Evacuation Slide	спасіт з дриж
12. Life Jacket	спасіт - муніт
13. Rocket Parachute Flares	ракетні парашути
14. Survival Craft Portable Radio	переносний спасіт. радіо
15. Immersion Suit	гидрокостюм
16. Line-throwing Appliance	муніт
17. EPIRB	радіомаяк - буї
18. Survival Craft Pyrotechnic Distress Signals	сигнальні ракети
19. Life Buoy with Line	буї з муніт
20. Emergency Ladder	аварійний драбина
21. Life Buoy with Light and Smoke	спасіт - муніт з світлом і димом
22. Life Buoy	спасіт - муніт
23. Rescue Boat	спасіт - муніт
24. Life Raft	спасіт - муніт



INSTRUCTIONS FOR LIFE RAFT USE

How to survive in a life raft:

- Identify a person in charge of the life raft.
- Post a lookout.
- Issue anti-seasickness medicine and seasickness bags.
- Dry the life raft floor.
- Provide the first aid if necessary.
- Manoeuvre towards other life rafts, secure life rafts together.
- Arrange watches and duties.



Duties – Outside: lookout for searching ships and aircraft, survivors in water.

Duties – Inside: gather useful floating objects, maintain the life raft, check the sea anchor, and look after the equipment.

- Check the life raft for correct operation and remove any problems if possible (ventilate if CO₂ leaking into the life raft).
- Prepare to use radio and other detection equipment.
- Protect against cold and wet conditions.
- Decide on food and water rations.
- Take measures to maintain morale. High morale and will to live are very important if a person must survive after abandoning a ship. Discipline is also important inside the life raft. Fear comes only if you don't have enough knowledge about the life raft and its equipment and your chances of rescue.
- Make proper use of available survival equipment.
- Prepare actions for:
 - arrival of rescue units;
 - rescue by a helicopter;
 - towing;
 - landing.

The order in which you follow these instructions depends on particular circumstances.



SKIN AND EYE CONTACT WITH PAINT

If paint is spilled:

- Ventilate the area to remove the fumes.
- Mop up all paint with absorbent material, and then dispose it in closed metal containers.

To prevent paint coming into contact with skin and eyes:

- Wear working clothes that cover as much body as possible.
- Always wear gloves and eye protection, also when you chip before painting.
- Do not touch your mouth or eyes with gloves.
- Read and follow precautionary measures on paint containers.

Eyes are very sensitive, so if paint or thinner splashes into your eyes wash your eyes immediately with fresh water for at least 10 minutes. It maybe also necessary to see the doctor. If paint gets on your skin, remove it with soap and water or an industrial cleaner. NEVER USE SOLVENT.

Remember it is most important to avoid skin contact. If your clothes become soaked in paint, change them immediately and carefully wash with soap and water.



MAN OVERBOARD



This can happen any time. If someone falls overboard it's necessary to take an immediate action. First, shout "Man Overboard" and throw him a life buoy. A life buoy or a life jacket will help the man overboard to survive until he is rescued. To make the rescue operation possible and fast, it's necessary to inform the bridge and the watchkeeping officer as soon as possible. Make sure that the watchkeeping officer gets your message about the man overboard. The watchkeeping officer will inform the Captain and will take an immediate action. He will turn or stop the ship to rescue the person as soon as possible. If necessary he will send a distress message to other ships in the area and Rescue Center, so that they can help in the rescue operation. Then the officer will give the command to prepare a rescue boat to bring the person onboard back again. After this the rescued man should be taken to the sick-bay immediately.

If you get overboard get clear of the ship and continue shouting and splashing water as long as there is a chance that you will be heard or seen. Then swim on your back to keep your body warm. Do not panic!



ABANDON YOUR SHIP

If for some reason a ship is going to sink the crew must abandon it. Only the Master can decide when and if the ship will be abandoned. He will give the command: "Prepare to abandon the ship on the starboard (or port) side". Put on your life jacket and run to the muster station for starboard (port) side where lifeboats and life rafts are.

When the ship is abandoned everything possible will be done to rescue the crew as soon as possible.



drill	учебная тревога	[dri:l]
dry powder	порошок	[drai 'paudə]
emergency alarm	сигнал тревоги	[i'mə:dʒənsi ə'lɑ:m]
fire extinguisher	огнетушитель	['faɪə ɪks'tɪŋgwɪʃə]
foam	пена	[fəʊm]
to extinguish fire / to stop fire	гасить, тушить пожар	[ɪks'tɪŋgwɪʃ] [stɒp] ['faɪə]
to evacuate	эвакуировать	[i'vækju:et]
fire alarm	пожарная сирена	['faɪə ə'lɑ:m]
first aid box	аптечка	[fə:st əɪd bɒks]
to launch	спускать	[lɔ:ntʃ]
life buoy	спасательный круг	['laɪfbɔɪ]
life jacket	спасательный жилет	['laɪf'dʒækɪt]
life raft	спасательный плот	['laɪfra:ft]
life saving equipment	спасательное оборудование	['laɪfseɪvɪŋ ɪ'kwɪpmənt]
muster list	расписание по тревогам	['mʌstə 'lɪst]
muster station	место сбора	['mʌstə 'steɪʃən]



FIRE

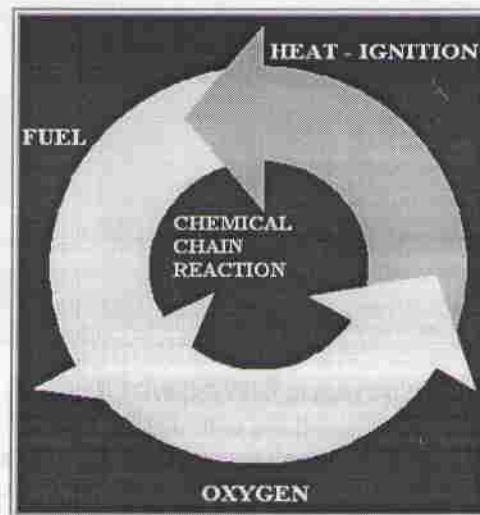
NATURE OF FIRE

Fire is a chemical reaction – combustion which happens when fuel and oxygen are brought together with sufficient heat to cause ignition.

A fire cannot start or continue if fuel, oxygen, or heat is absent. If one of these elements is removed, the fire will stop burning.

Oxygen is normally present in the air in sufficient quantity to sustain a fire.

Ignition happens only when there is critical temperature but after a fire starts it will normally keep its own heat supply.



FIRE SPREAD

Heat and fire may spread in one or more of the following four different ways:

Direct heat transfer when heat travels along or through unprotected steel-work.	The spread of heat via gases, liquids, or hot air circulating through stairwells, lift shafts, ventilation, etc.	Radiation. Materials may ignite when they are kept near electric heaters or other heating appliances.	Direct burning when combustible materials come into contact with a naked flame. For example, a mattress is ignited by a lighted cigarette.
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TYPES OF FIRE

It is important to find out the type of fire because if you fight with a fire in incorrect way, it can only increase the danger.

CLASS A Fire of solid materials usually of organic nature such as wood, paper, furniture, plastics, rope, etc.	CLASS B Fire of liquids such as petrol, oils, paraffin, paint, cooking fats, etc.	CLASS C Fire of gases such as propane, acetylene, butane, etc.	CLASS D Fire of burning metals such as aluminium, magnesium, etc.
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ELECTRICAL FIRE:

Electricity does not burn. Any electrical fire is a Class A, B, C, or D fire. After the electrical circuits are isolated, the fire is extinguished as normal according to its normal class.

STOP THE FIRE

- If you remove the fuel from a fire, combustion will not continue.
- You can also reduce the oxygen (air) around the fire with the help of CO₂, foam, sand, blankets, steam, etc.
- Reduce the temperature of the burning materials below their ignition temperature — usually this is achieved by water.
- You can try to break the chemical chain reaction that sustains a fire. Use halon and dry powder to extinguish a fire in this way.

EXTINGUISHERS (PORTABLE)



A fire extinguisher is designed to attack a fire onboard in the early stage.

1. Water fire extinguisher.
2. Foam fire extinguisher.
3. Powder fire extinguisher.
4. CO₂ fire extinguisher.

WATER, FOAM & DRY POWDER

Extinguishers with water, foam, or dry powder operate on the same principle. In each case water, foam, or dry powder are stored in a welded container. When the valve is opened, CO₂ gas has a downward pressure on the water, foam, or dry powder and forces it up a siphon tube and out through the delivery hose. The discharge is controlled by squeezing and releasing the operating head valve or by a control lever at the end of the discharge hose.

WATER	FOAM	DRY POWDER
<p>Use on wood, paper, plastics.</p> <p>DO NOT USE on fires involving liquid (oils, paints, fats, etc.).</p> <p>DO NOT USE on fires where there is live electricity.</p>	<p>Use on liquid spills and liquid fires of oils, paints (Class B fires).</p> <p>DO NOT USE on fires where there is live electricity.</p>	<p>Powder can be used for liquids (Class B fires). Powder may also, with the correct technique, be used to extinguish a high pressure gas flame (Class C fires). Dry powder gives a fast flame knock-down, and may be used on fires on live electrical equipment.</p>

CARBON DIOXIDE (CO₂)

CO₂ gas is stored as a liquid under pressure. Use on Class A, Class B, and Class C fires when in a liquid state (for example, when liquid gas leaks such as methane, propane, butane, or acetylene). It is safe for use on fires involving electricity. But it may not be effective when used outside especially in a breeze.

HALON

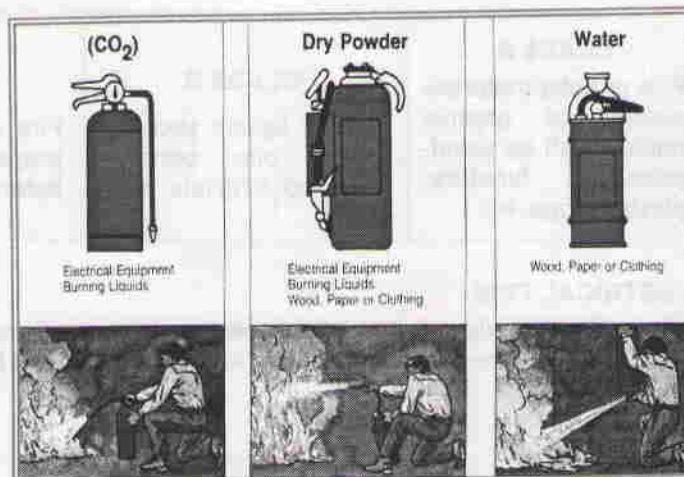
Halon is also stored as a liquid under pressure, but not at such high pressure as CO₂, and so it is not cold on discharge. Halon 1211 (BCF) is discharged as a liquid which can be sprayed at the fire with some direction. Halon 1301 (BTM) discharges as a gas.

LOCATION

Normally, extinguishers should be located on stands where they will be easily seen by persons following an escape route. The carrying handle of large and heavy extinguishers should be about 1m from the deck but small extinguishers handles should be about 1.5m from the deck. The extinguishers, their type and size should be shown on the Fire Plan of the vessel. Extinguishers should always be available for immediate use. The number of extinguishers depends on the type of vessel and the risk of fire.

Normally, one extinguisher should be provided in each of the following spaces:

- accommodation space;
- service spaces;
- control stations;
- machinery spaces.



CHOOSING THE CORRECT EXTINGUISHER

The most appropriate extinguisher should be located near any risk area, but this may not always be the case, especially where there is more than one risk in the same area. For example, in a control room there may be hydraulics, computers and other electrical equipment, papers and books. If the wrong type of extinguisher is used on a fire, a serious situation may become a danger. It is important that every crewmember knows the advantages and limitations of each fire extinguisher.

USING A FIRE EXTINGUISHER

You can activate an extinguisher by removing the safety pin and pressing the control lever. This way you will check that the extinguisher is working before you approach the fire. Hold the extinguisher in front of your body and come to the fire, keeping it as low as possible. Do not allow flames, smoke, or heat to cut you off your way of escape.

INSPECTION OF FIRE EXTINGUISHERS

EXTERNAL INSPECTION

- The safety pin should be in place and operating freely.
- Examine the exterior for signs of corrosion.
- All instructions must be clear and in appropriate languages.
- Examine the hose and/or horn and their securing clips for any sign of cracks or damage.
- Inspect that it is securely attached.
- It is not practical to recharge CO₂ onboard. If they lost more than 10% of their weight they should be replaced.

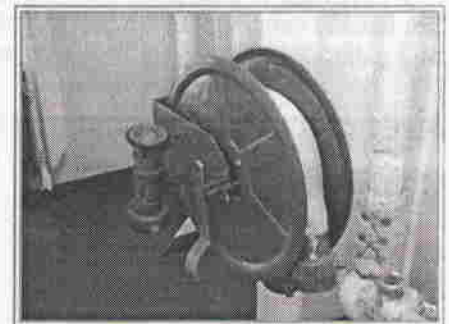


INTERNAL INSPECTION (cartridge operated units)

- Discharge or empty the cylinder completely.
- Do not internally inspect dry powder extinguishers in moist atmosphere.
- Remove the cap slowly and carefully.
- Empty the contents into a clean bucket.
- Water (from water or foam extinguishers) should be clean and show no signs of rusty color.
- Powder must be dry.
- Remove the CO₂ cartridge and check its condition and date. If date expired it should be replaced.
- Check the operating mechanism.
- Check that all hoses, siphon tubes, pressure relief ports and other orifices, rings and seals are in good condition.
- Refill and reassemble the extinguisher.
- Lightly lubricate threads.

HOSES

Cargo ships of over 1000 gross tones must have one hose for each 30m length of the vessel, plus one spare, but not less than five hoses (this number does not include a number of hoses required in the engine-room or boiler-room). In some cases the number of hoses may be increased if necessary. Their storage should be in dry, well-ventilated conditions. After contact with oils and grease and after use with foam, hoses should be washed and blown through. Drain and wipe down before stowing. Each hose should be tested according to the instructions. Damaged hoses must be removed from service.



HOSES REELS

The water supply to the hose may be automatic or manual. In the automatic version the water supply valve is opened when the hose is removed from the reel and the delivery is made by the nozzle.

Hoses are 19mm or 25mm bore and 20 – 50m in length.



Hose reel units must be inspected according to the instructions:

- Check that the water supply to the hose is turned off.
- Completely run out the hose and check its general condition.
- Check that all couplings are tight.

- Turn on the water and open the nozzle. Check that its operation is free.
- Close the nozzle and check couplings, pipe work, and valves for leaks.
- For automatic hose reels turn the water on again after stowing.
- On automatic models follow the manufacturer's instructions when inspecting the automatic valve.

FIRE DETECTION

A Fire Detection system is designed to detect immediately a fire, give early warning of the situation, and so provide the crew with the best possible chance to control and extinguish a fire before it can destroy property, a ship, and lives. The system has a central control and monitoring panel, heat, smoke, and flame detectors, alarm sounders.

MACHINERY SPACE FIRES

The machinery spaces of all ships including the pump-room are fitted with a fixed fire-fighting system which may be operated by water, foam, CO₂, or halon. Such systems should be used onboard only by the Master's instructions. Before start of CO₂ system all personnel must evacuate the area and all ventilation must be shut off.

Pump-room fire checklist:

- Alarm raised.
- All pumping operations stopped.
- All pump-room valves closed.
- All personnel of pump-room is evacuated.
- Ventilation fans stopped.
- Pump-room entrances closed.
- Water spray equipment operated.
- Inert gas pressure maintained in all cargo tanks.

Emergency generator-room fire checklist:

- Alarm sounded.
- Diesel generator shut down.
- All fuel tanks shut off.
- Emergency switchboard isolated.
- Compressed air line from engine-room shut off.
- Compressed air bottles shut off.
- All ventilation stopped.
- Doors closed.
- CO₂ fire extinguishing system operated.

FIXED WATER FIRE EXTINGUISHING SYSTEMS

Water is cheap for fire-fighting and has a large capacity to absorb heat. Water systems are usually simple to install and maintain. Ideally, automatic sprinkler systems detect, control, and extinguish a fire in its early stages.



FIXED GAS FIRE EXTINGUISHING SYSTEMS

Fixed gas fire extinguishing systems are often used to protect large high risk areas such as machinery spaces and cargo holds.





FIRE ONBOARD

Fire onboard of a ship is a danger. Everybody on the ship should remember that it's better to prevent a fire than to extinguish it.

Fire-fighting onboard can be extremely difficult and fatal. Good fire prevention practices minimize the possibility of a fire. Fire prevention discipline should be a part of the every day routine of all personnel.

SMOKING

- Use proper ashtrays.
- Never smoke in bed.
- Pay attention to smoking and no-smoking areas.
- Extinguish matches and cigarettes before throwing them away.
- Do not smoke when moving around the ship.
- Only use safety matches.



MACHINERY

- Regularly inspect and maintain all items.
- Safety equipment such as fuel shut-offs, overflow alarms, heat sensors, etc. must be kept in good order.
- Follow safe working practices.

HOT WORK

- Do not use equipment if you were not trained and ordered to do so.
- Check that hoses are not leaking and are securely connected.
- Keep the working area free of sharp objects.
- Move around your working area very carefully.
- Make sure someone knows where you are.
- Check there are no combustible/flammable materials.
- Do not work in areas where surface is covered with grease, oil, or other flammable material.
- Close all portholes through which sparks may fall.
- Have fire extinguishers during all operation.
- A person with a fire extinguisher should keep watch on areas which a welder cannot see.
- Frequent checks should be made for at least two hours after the work was stopped.

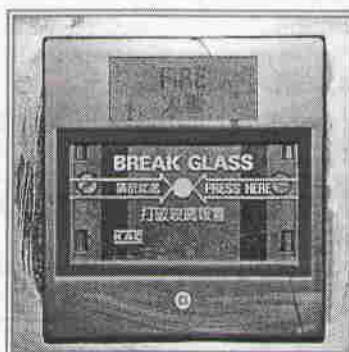


Some of the crew will be specially trained in fire fighting and be part of the fire-fighting team on board. At a fire alarm the fire team will muster at the Fire Station and rapidly prepare themselves to fight whatever fire on board.



In case of fire sailors must:

- break the glass of the fire-alarm box and push the button;
- inform the bridge about the fire;
- close all waterproof doors;
- evacuate the people;
- use an extinguisher.



Every crewmember must know:

- what to do when discover a fire;
- what to do when hear the alarm;
- where fire-fighting equipment is kept;
- how to use it effectively;
- about his personal and others' safety during fire-fighting.

RAISING THE ALARM

If you take correct first actions in the beginning of a fire when it is still small, it will maximize your chances to extinguish it successfully. Remember, all large fires started as a small flame.

Very often the actions of the person who discovers a fire can make the difference between a small flame which is quickly extinguished and a catastrophic fire which can cause the loss of the ship or even loss of life.

"Fire always happens to others, never to me", is a very common but such a wrong idea.

The first reaction when discovering a fire is usually shock. Without training this can lead to actions which are instinctive and often incorrect such as to run away leaving doors open.

You may discover a fire anywhere by seeing, smelling, or hearing it. If you find a fire:

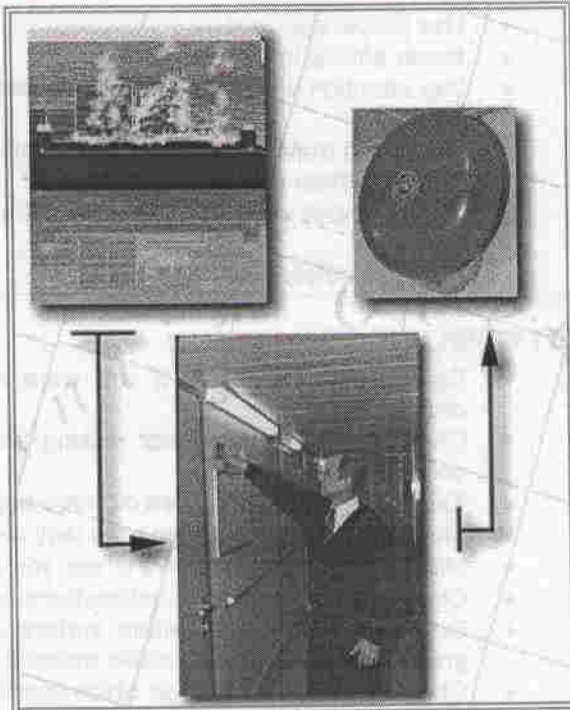
1. think about the correct procedure for raising the alarm;
2. don't panic.

WHEN YOU SEE A FIRE

- Shout "FIRE, FIRE, FIRE" and give its location.
- Knock into doors in case people are sleeping, but do not open doors as this may cause the smoke entrance.
- Start a fire alarm.
- If possible use a telephone to inform the bridge or other control center.
- Inform the control center about: fire location, fire type and size, details, what actions have already been taken.
- Do not attempt to fight the fire until you inform others.

IF THE FIRE IS BEHIND CLOSED DOORS

- If you see smoke behind a closed door you cannot know a fire size or type.
- **DO NOT OPEN THE DOOR.**
- Raise the alarm.
- Prepare fire-fighting equipment.
- When the Fire Attack Party comes, describe the leader all details that you know about the situation.



IF THE DOOR OF THE COMPARTMENT IS ON FIRE

- Raise the alarm.
- If it is safe to do so, attack the fire using proper equipment and do not let smoke and fire get between you and your way of escape.
- If you are attacked back, **CLOSE THE DOOR.**
- Start preparing fire-fighting equipment for the Fire Attack Party.
- Switch off local electrical equipment.

FIREMAN'S OUTFIT - PROTECTIVE CLOTHING



Fireman's protective clothing is designed to protect the skin from heat of fire and from burns by steam. They are made of material which is flameproof, water resistant, and easy to clean.

These suits must be used when close to a fire. But they are NOT Fire Entry suits.

Fireman's equipment should be stored in positions which will not be cut off in case of fire.

If there is more than one set of equipment they should be stored in separate positions.

FIREMAN'S AXES

Fireman's axes have a wooden handle. One side of the head has a cutting edge and the other side has a spike.



FIREMAN'S SAFETY LAMPS

Fireman's lamps are battery operated and must have duration of not less than three hours. The batteries should be of the re-chargeable type.

There are two classes of lamps. Class I safety lamps are used on any vessel. They can be used on oil tankers but not for flammable cargoes. Class II lamps are used when there is a risk of flammable gases.

FIREMAN'S BREATHING APPARATUS



Breathing apparatus may be of the Smoke Helmet type or of the Self-contained type. It is important to have training for the crew so that they know how to use this apparatus correctly and efficiently. Breathing apparatus is necessary to fight a fire in an enclosed space and in an open space when there are toxic fumes. The equipment may be also necessary to search for a missing person in case of a fire or an incident.

SMOKE HELMET

A Smoke Helmet or Smoke Mask consists of a helmet or a mask, a pump, and an air hose. The pump is used to manually pump air through the hose to the mask.

All equipment must be inspected at regular intervals and always after use in practice or in an emergency. It should never be stowed when it is wet or dirty. The mask must be cleaned according to the instructions and disinfected. Check that the fastenings are in good order.

ADVANTAGES:

- no time limit;
- cool in use;
- minimal training required;
- easy to maintain and test.

DISADVANTAGES:

- at least two men required;
- distance is limited;
- air tube may be heavy;
- air line may get damaged.

SELF-CONTAINED BREATHING APPARATUS

The self-contained breathing apparatus has a facemask, an air cylinder and valve, a high pressure reducing valve, a warning whistle and a pressure gauge. Each cylinder must have not less than 1200 litres of fresh breathing air. The air is supplied via an automatic regulator. It is required that spare charged breathing air cylinders are also carried.

A pressure gauge shows the pressure of air remaining in the cylinder at any time.

A warning whistle shows that the cylinder capacity is low and that a person should remove himself from any unsafe atmosphere.

The weight of the apparatus must not exceed 16 kg. After each use of a BA set it is necessary to stow it in a condition ready for immediate use. Follow the instructions:

- clean the set carefully;
- clean the face mask;
- inspect the set;
- install a fully charged cylinder;
- make high pressure and low pressure tests;
- disinfect the facemask.





CHEMICAL TANKER INSTRUCTIONS

Personnel joining a chemical tanker for the first time should receive basic safety instructions. The Chief Officer and Safety Officer should give the basic lecture.

SMOKING

Smoking should be prohibited onboard with the exception of special places that are used at sea and agreed by the Master/Chief Officer. When there is tanks cleaning the Master should prohibit smoking if he feels it is right. This should be a normal procedure.

A smoking room at port should satisfy the following criteria:

- At least two closed doors between the room and the outside.
- A fire extinguisher is in the place where it can be reached immediately.
- Ashtrays should be of the "safety type".

TORCHES (FLASHLIGHTS), LAMPS, AND PORTABLE BATTERY POWERED EQUIPMENT

Only torches that are approved to use in flammable atmospheres must be used onboard. All torches must be kept in good order and any necessary repairs must be carried out only by competent persons.

Electronic calculators, cameras, and flash equipment are not permitted on the tank deck or any other location where flammable gas may be reached.

HAND TOOLS

Hand tools should be used only for the purpose for which they are designed. The risk of ignition of petroleum gas by sparks produced by metal in normal use is not big but care must be taken to prevent incorrect use.

SPONTANEOUS COMBUSTION

Some materials when soaked with oil, especially oil of vegetable origin, can ignite without the external effect of heat as the result of gradual heating within the material. The risk of spontaneous combustion is smaller with petroleum oils but it can still happen if the material is kept warm, for example, near a hot pipe.

Cotton waste, rags, or any absorbent material should not be kept near oil, paint, on decks, on equipment, on or around pipelines, etc. If such materials are soaked with oil, they should be cleaned or destroyed.

HOT WORK

Hot Work is any work involving welding or burning, and any other work including certain drilling and grinding operations, electrical work, which might produce a spark. So it is important when planning "hot work" (which includes hammering, chipping, scraping, etc.) to make sure that the area is gas free and completely safe. Some gas can exist in parts of a tank or within a pipeline. Regular checks must be made.

Hot Work is only permitted in accordance with the national, international, and terminal/port requirements.

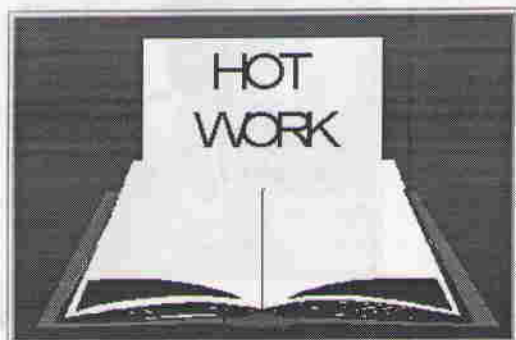
Hot Work is prohibited during cargo, ballast, tank cleaning, and on deck when the vessel is not gas free.

All Hot Works must be planned. The Master must examine the work that will be carried out and decide if it is safe and all required precautions are made. Before the Hot Work the Master must have a safety meeting to 1) discuss the planned work; 2) consider all risks; 3) consider all precautions; 4) identify duties and responsibilities.

Hot Work Permits will not be valid for more than one working day.

Hot Work must immediately be stopped if there will be any changes in circumstances.

Records of Hot Work Permits and safety meetings must be kept onboard for one year.



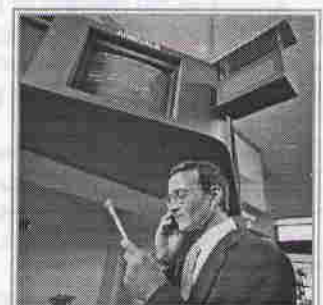
UNIT 6

ПОЛЕЗНЫЕ ФРАЗЫ / USEFUL PHRASES

ПРИВЕТСТВИЕ / ПРОЩАНИЕ		
Hello!	Здравствуйте!	[ˈheɪləʊ]
Hi!	Привет!	[haɪ]
How are you?	Как дела?	[haʊ a: ju:]
I am fine, good.	Отлично, хорошо.	[aɪ æm] [faɪn] [ɡʊd]
Nice to meet you.	Приятно познакомиться с Вами.	[naɪs tə mi:t ju:]
Good-bye! / Bye-bye!	До свидания! Прощайте!	[ɡʊdˈbaɪ] [ˈbaɪˈbaɪ]
ВЫРАЖЕНИЕ БЛАГОДАРНОСТИ		
Thank you!	Спасибо!	[θæŋk ju:]
Thank you very much!	Большое спасибо!	[θæŋk ju: ˈveri mʌtʃ]
Thanks a lot!	Большое спасибо!	[θæŋks ə lɒt]
ВЫРАЖЕНИЕ СОЖАЛЕНИЯ, ИЗВИНЕНИЕ		
(I'm) sorry.	Виноват, простите.	[aɪm ˈsɔ:ri]
I am so sorry.	Мне так жаль.	[aɪ æm səʊ ˈsɔ:ri]
Excuse me!	Извините! Простите меня!	[ɪksˈkju:z mi:]
НЕПОНИМАНИЕ		
Sorry, I didn't understand.	Извините, я не понял.	[ˈsɔ:ri aɪ ˈdɪdnət ʌndəˈstænd]
Please repeat.	Пожалуйста, повторите.	[pli:z riˈpi:t]
Please explain to me.	Пожалуйста, объясните мне.	[pli:z ɪksˈpleɪn tə mi:]
What did you say?	Что вы сказали?	[wɒt dɪd ju: seɪ]
Say it again please.	Повторите, пожалуйста.	[seɪ ɪt əˈɡeɪn pli:z]
ВЫРАЖЕНИЕ СВОЕГО МНЕНИЯ		
Let me see / Let me think.	Дайте подумать.	[let mi: si:] [let mi: θɪŋk]
By the way.	Между прочим.	[baɪ ðə weɪ]
It seems to me.	Мне кажется.	[ɪt si:mz tə mi:]
To my mind.	По моему мнению.	[tə maɪ maɪnd]
Just a moment.	Одну минуту.	[dʒʌst ə ˈməʊmənt]
Just a second.	Одну секунду.	[dʒʌst ə ˈsekənd]
First of all.	Прежде всего.	[fɜ:st əv ɔ:l]
It depends (on).	В зависимости (от).	[ɪt dɪˈpendz ɔn]
No difference.	Без разницы.	[nəʊ ˈdɪfərəns]
I do my best.	Я делаю все, что от меня зависит.	[aɪ du: maɪ best]
It's OK for me.	Мне это подходит.	[ɪts əʊˈkeɪ fɔ: mi:]
No problem.	Без проблем.	[nəʊ ˈprɒbləm]
I agree.	Я согласен.	[aɪ əˈɡri:]
I am not sure.	Я не уверен.	[aɪ æm nɒt ʃʊə]
As far as I remember.	Насколько я помню.	[æz fɑ: æz aɪ rɪˈmembə]
As far as I know.	Насколько я знаю.	[æz fɑ: æz aɪ nəʊ]
Can I ask you?	Можно Вас спросить (попросить)?	[kæn aɪ əˈsk ju:]

ЗДОРОВЬЕ / HEALTH		
I don't feel well.	Я чувствую себя неважно.	[ai daunt fi:l wel]
I feel a little better.	Я чувствую себя немного лучше.	[ai fi:l ə 'lɪtl 'betə]
I have pain in my back.	У меня болит спина.	[ai hæv peɪn ɪn maɪ bæk]
I have chills.	Меня знобит.	[ai hæv tʃɪlz]
I feel dizzy.	У меня кружится голова.	[ai fi:l 'dɪzi]
My head is spinning.	У меня сильное головокружение.	[maɪ hed ɪz 'spɪnɪŋ]
I have a headache.	У меня болит голова.	[ai hæv ə 'hedeɪk]
I'm allergic to penicillin.	У меня аллергия на пенициллин.	[aɪm ə'ledʒɪk tu: 'penɪ'sɪlɪn]
I have high blood pressure.	У меня высокое давление.	[ai hæv haɪ blʌd 'preʃə]
I have a pain here.	У меня болит здесь.	[ai hæv ə peɪn hɪə]
I have a fever.	У меня жар. (Меня лихорадит).	[ai hæv ə 'fi:və]
I have a cold.	Я простыл.	[ai hæv ə kəʊld]
I have toothache.	У меня болит зуб.	[ai hæv 'tu:θeɪk]
I have something in my eye.	Что-то попало в глаз.	[ai hæv 'sʌmθɪŋ ɪn maɪ aɪ]
I feel like throwing up.	Меня тошнит.	[ai fi:l laɪk 'θrəʊɪŋ ʌp]
I feel sick.	Мне плохо.	[ai fi:l sɪk]
I've got a heart problem.	У меня проблемы с сердцем.	[aɪv gɒt ə ha:t 'prɒbləm]
My ankle is sprained.	Я растянул связки на ноге.	[maɪ 'æŋkəl ɪz 'sprɛɪnd]
I've got a sore throat.	У меня болит горло.	[aɪv gɒt ə sɔ: θrəʊt]
My nose is running.	У меня насморк.	[maɪ nəʊz ɪz 'rʌnɪŋ]
I'm very seasick.	У меня сильный приступ морской болезни.	[aɪm 'veri 'si:sɪk]
Can you get a doctor please?	Вызовите врача, пожалуйста.	[kæn ju: get ə 'dɒktə plɪz]
Would you please call an ambulance?	Вызовите скорую помощь.	[wʊd ju: plɪz kɔ:l ən 'æmbjuləns]
Please take me to the hospital.	Отвезите меня в больницу, пожалуйста.	[plɪ:z teɪk mi: tə ðə 'hɒspɪtəl]
Is it contagious?	Это заразно?	[ɪz ɪt kən'teɪdʒəs]
Can you give me something to stop the pain?	Можете дать мне что-нибудь болеутоляющее?	[kæn ju: gɪv mi: 'sʌmθɪŋ tu: stɒp ðə peɪn]
Do I need an operation?	Мне нужна операция?	[du: aɪ ni:d ən 'ɒpə'reɪʃən]
My blood type is A positive.	У меня первая группа крови, резус положительный.	[maɪ blʌd taɪp ɪz eɪ 'pɒzətɪv]
What's my temperature?	Какая у меня температура?	[wɒts maɪ 'tempɪrətʃə]
How long will it take to recover?	Долго я буду выздоравливать?	[haʊ lɒŋ wɪl ɪt teɪk tu: rɪ'kʌvə]
Would you inform my family please?	Сообщите моей семье, пожалуйста.	[wʊd ju: 'ɪnfɔ:m maɪ 'fæməli plɪ:z]
How often do I take this medicine?	Сколько раз в день мне принимать это лекарство?	[haʊ 'ɒfən du: aɪ teɪk ðɪs 'medɪsɪn]
Can I have something for a cough?	Можно попросить что-нибудь от кашля?	[kæn aɪ hæv 'sʌmθɪŋ fɔ: ə kɔʃ]
I would like to have a tooth filled.	Я хотел бы запломбировать зуб.	[aɪ wʊd laɪk tə hæv ə tu:θ fɪld]

В АЭРОПОРТУ / AT THE AIRPORT		
Is that a direct flight?	Это прямой рейс?	[iz ðæt ə di'rekt flait]
What flights are there to London?	Какие есть рейсы до Лондона?	[wɒt flaitz a: ðeə tə 'lʌndən]
How early must I be at the airport?	Когда мне нужно быть в аэропорту?	[haʊ 'ɜ:l mʌst ai bi: ət ði 'eəpɔ:t]
How much luggage am I allowed to take?	Сколько мне можно брать багажа?	[haʊ mʌtʃ 'lʌɡidʒ əm ai ə'laʊd tu: teɪk]
How much is the ticket?	Сколько стоит билет?	[haʊ mʌtʃ iz ðə 'tikit]
Please reserve the next flight to London.	Забронируйте место на ближайший рейс до Лондона, пожалуйста.	[pli:z ri'zə:v ðə nekst flait tu: 'lʌndən]
Where is the airport terminal?	Где здание аэропорта?	[weə iz ði 'eəpɔ:t 'tɜ:mɪn]
Where do I check in?	Где проходит регистрация?	[weə du: ai tʃek in]
I'm in transit for Los Angeles.	Я транзитом до Лос-Анжелеса.	[aim in 'trænzit fɔ: lɒs'æŋdʒi:lɪ:z]
I am a transit passenger to San Francisco.	Я транзитный пассажир до Сан-Франциско.	[ai əm ə 'trænzit 'pæsɪndʒə tu: 'sænfɾənsɪskəʊ]
When is boarding time?	Когда посадка?	[wen iz 'bɔ:diŋ taim]
What is the gate number?	На какой выход?	[wɒt iz ðə geit 'nʌmbə]
Will this flight leave on time?	Этот рейс отправится вовремя?	[wil ðis flait li:v ɔn taim]
What time do we arrive?	Когда мы прибываем?	[wɒt taim du: wi: ə'raɪv]
May I have another customs form?	Дайте мне, пожалуйста, другой бланк декларации.	[meɪ ai hæv ə'nʌðə 'klstəmz fɔ:m]
Where can I get my baggage?	Где можно получить багаж?	[weə kæn ai get maɪ 'bæɡɪdʒ]
I can't find my baggage.	Я не могу найти свой багаж.	[ai kɑ:nt faɪnd maɪ 'bæɡɪdʒ]
I didn't receive the claim tag when I checked in.	Мне не выдали багажную квитанцию при регистрации.	[ai 'dɪdnət ri'si:v ðə kleɪm tæg wen ai tʃekt in]
My baggage is broken and some things are missing.	Мой багаж поврежден, и некоторых вещей не хватает.	[maɪ 'bæɡɪdʒ iz 'brəʊkən ænd sʌm θɪŋz a: 'mɪsɪŋ]
May I use this baggage cart?	Можно взять эту багажную тележку?	[meɪ ai ju:s ðis 'bæɡɪdʒ kɑ:t]
Where is the tourist information office?	Где находится туристическое информационное бюро?	[weə iz ðə 'tuərɪst 'ɪnfə'meɪʃən 'ɔfɪs]
Can I make a connection on the same day?	Я успею сделать пересадку в тот же день?	[kæn ai meɪk ə kə'nekʃən ɔn ðə seɪm deɪ]
How long does it take to make a connection?	Сколько нужно времени на пересадку?	[haʊ lɔŋ dɪz ɪt teɪk tu: meɪk ə kə'nekʃən]
Can I reserve a hotel room here?	Можно мне заказать номер в гостиницу?	[kæn ai ri'zə:v ə haʊ'tel ru:m hɪə]





INTERVIEW

What's your name?	My name is Ivan Petrov.
How old are you?	I am thirty-one.
What's your date of birth?	25 th of February, 1976.
Are you married?	Yes, I am / No, I am not.
Do you have children?	Yes, I do / No, I don't.
What's your rank?	I am a motorman.
Where are you from?	I am from Sevastopol, Ukraine.
What position are you looking for?	I'd like to get a position of an oiler / motorman.
What's your seaman's book number?	AB235489.
What's your total sea experience?	I have 10 years of sea experience.
What types of ships did you work on?	I worked onboard a container ship, a Panamax bulk carrier, and reefers.
Do you have foreign crew experience?	Yes, I do. I worked with a Greek Master, Filipino deck ratings. Engine crewmembers were from Romania.
What were your previous wages / salary? How much did you make per month?	I made about twelve hundred U.S. dollars per month, plus I had 2 dollars per hour for extra overtime.
Describe your last vessel.	I worked onboard a container ship. She carried up to 2000 TEU. Her DWT is 32000 MT, length is 265 meters, flag is Liberia. Her shipowner is Zodiac Maritime Agencies, U.K.
Describe your last Main Engine.	It was MAN B&W, 2-stroke, total power - 19398, model - 6S70MC.
Describe some of your daily responsibilities and daily activities.	I kept watch in the engine-room, took care of machinery and repaired it in case of emergency.



KEEPING YOUR JOB

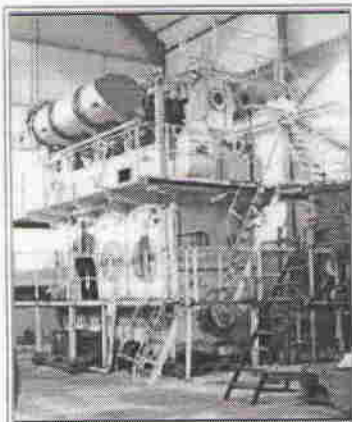
So you have a job and onboard now.
How do you keep your position?

Ten advices to be successful:

1. Be flexible! Do with a smile all what the company or someone asks you to do.
2. Do not complain! People who work on ships find that they have nothing to talk about except ships so they find many things to complain about. Don't do it.
3. Don't gossip to crew or clients. It always comes back to you. It's a small city onboard and everyone knows everything about everybody.
4. Be careful whom you trust your private things or thoughts. Friendships are made and broken in a matter of weeks. Think twice before revealing your ambitions to other crewmembers.
5. Always show respect to the officers onboard.
6. All Aboard is one half hour before sailing time. For example, Sailing Time is 4 p.m. and All Aboard is 3:30 p.m. Always start your return at least 45 minutes before All Aboard.
7. Do not miss the ship! If you do, the Captain will give your passport to the port officials. If you had an accident you will need to get a police report to get back to the ship. To identify yourself as a crewmember, provide the police with your Crew Identification Card. They will contact the port officials. After the police you must go directly to the port officials' office. They will take you directly to the airport, return your passport and put you on the first flight to the next Port-of-Call of your ship, and you will be responsible for all your traveling expenses.
8. If you miss the ship for a not serious reason like oversleeping because you had too much fun the night before, you are already history!
9. Problems, questions, concerns, suggestions? Always go through the proper chain of command.
10. Look nice and smile all the time in public areas; your looks say a lot about you.



PART 2. ENGINEERING



UNIT 1

ДИЗЕЛЬНЫЙ ДВИГАТЕЛЬ / DIESEL ENGINE

INTERNAL COMBUSTION ENGINE is an engine in which fuel oil is burned directly within the working cylinder. Both gas and diesel engines are examples of internal combustion engines.

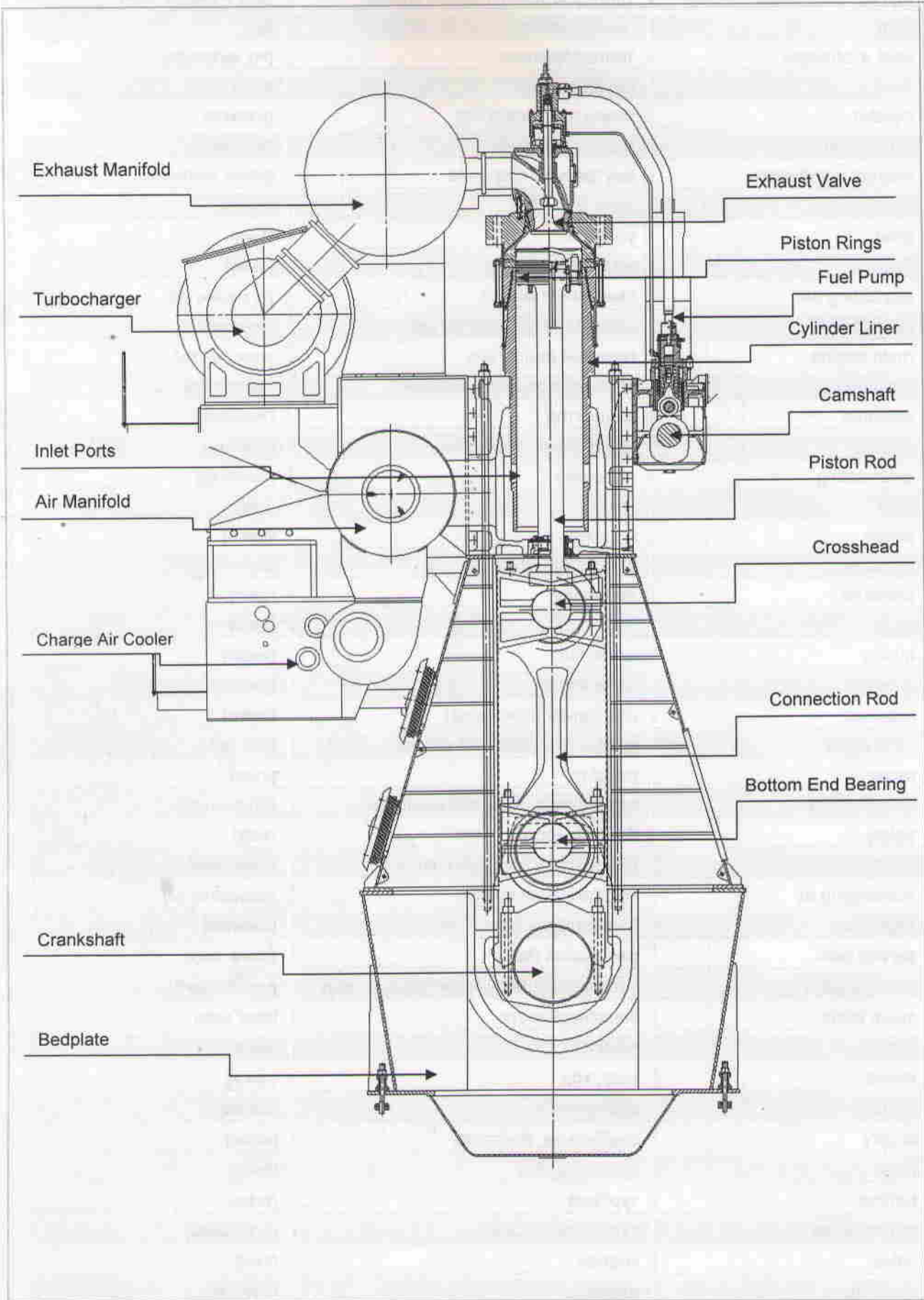
DIESEL ENGINE is an engine which uses a low grade oil for fuel and ignites it directly in the cylinder by the heat of air compression.

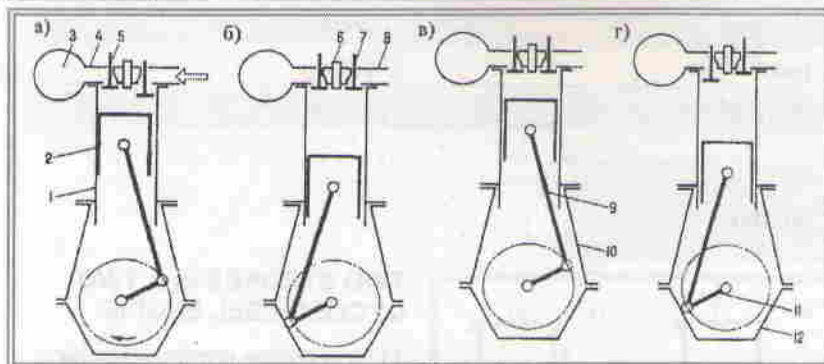
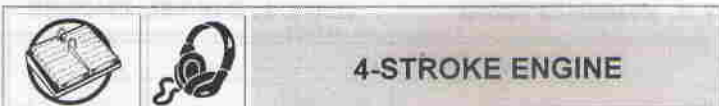


Прослушайте и выучите слова

air compressor	воздушный компрессор	[eə kəm'presə]
air receiver	воздухосборник	[eə ri'si:və]
auxiliary engine	вспомогательный двигатель	[ɔ:g'zi:ljəri 'endʒin]
bearing	подшипник	['beəriŋ]
bilge	трюмная вода	[bildʒ]
boiler	котел	['bɔilə]
bunkering	бункеровка	['bʌŋkəriŋ]
camshaft	распредвал	['kæmʃa:ft]
combustion chamber	камера сгорания	[kəm'bstʃən 'feimbə]
compression	сжатие, компрессия	[kəm'preʃən]
condition	состояние	[kən'diʃən]
connection rod	шатун	[kə'nekʃən rɒd]
cooling system	охлаждающая система	['ku:lɪŋ 'sɪstɪ:m]
corrosive wear	коррозионный износ	[kə'rəʊsɪv wəə]
crack	трещина, щель	[kræk]
crankcase	картер	['kræŋkeɪs]
crankshaft	коленчатый вал	['kræŋkʃɑ:ft]
cylinder liner	втулка цилиндра	['sɪlɪndə 'laɪnə]
cylinder wall	стенка цилиндра	['sɪlɪndə wɔ:l]
damage	повреждение, поломка	['dæmɪdʒ]
device	прибор	[dɪ'vaɪs]
emergency	авария, чрезвычайная ситуация	['ɪmə:dʒənsɪ]
equipment	оборудование	['i:kwɪpmənt]
exhaust valve	выхлопной клапан	[ɪg'zɔst vælv]
experience	опыт	[ɪks'piəriəns]
explosion	взрыв	[ɪks'pləʊʒən]
fault	дефект, неисправность	[fɔ:lt]
feed water	питательная вода	[fi:d 'wɔ:tə]
flame	пламя, огонь	[fleɪm]
flame arrester	пламегаситель	[fleɪm ə'restə]

friction	трение	['frɪkʃən]
fuel injection valve	топливно-инжекторный клапан	[fjuəl ɪn'dʒɛkʃən vælv]
gear	приспособление, устройство	[gɪə]
heat exchanger	теплообменник	[hi:t ɪks'tʃeɪndʒə]
hose	шланг	[haʊz]
injector	инжектор, форсунка	[ɪn'dʒɛktə]
insufficient	недостаточный	['ɪnsə'fɪjənt]
internal combustion	внутреннее сгорание	[ɪn'tə:nl kəm'bastʃən]
leakage	течь, утечка	['li:kɪdʒ]
level	уровень	['levəl]
liquid	жидкость	['lɪkwɪd]
lubricating oil	смазочное масло	['lu:brikeɪtɪŋ ɔɪl]
machinery	машинное оборудование	[mə'ʃi:nəri]
main engine	главный двигатель	[meɪn 'endʒɪn]
maintenance	техническое обслуживание	['meɪntənəns]
manifold	коллектор	['mænɪfaʊld]
manual	справочник, инструкция	['mænjuəl]
overheating	перегрев	['əʊvə'hi:tɪŋ]
pipe	труба	[paɪp]
piston	поршень	['pɪstən]
precaution	предосторожность	[pri'kə:ʃən]
pressure	давление	['preʃə]
pump	насос	[pʌmp]
quality	качество	['kwɔ:lɪti]
quantity	количество	['kwɔ:ntɪti]
readings	показания (приборов)	['ri:dɪŋz]
relief valve	предохранительный клапан	[rɪ'li:f vælv]
repair	ремонт	[rɪ'peə]
responsibility	ответственность, обязанность	[rɪs'pɒnsə'bɪlɪti]
safety	безопасность	['seɪftɪ]
safety valve	предохранительный клапан	['seɪftɪ vælv]
scavenging air	продувочный воздух	['skævɪndʒɪŋ eə]
separator	сепаратор	['sepəreɪtə]
service tank	расходной бак	['sə:vɪs tæŋk]
sewage plant	установка для очистки сточных вод	['sju:ɪdʒ plɑ:nt]
spare parts	запасные части	[speə pɑ:ts]
spring	пружина	[sprɪŋ]
stroke	такт, ход	[strəʊk]
suction	всасывание	['sʌkʃən]
supply	снабжение, поставка	[sə'plaɪ]
tank	цистерна, бак	[tæŋk]
turbine	турбина	['tɜ:bin]
turbocharger	турбокомпрессор	['tɜ:bə'tʃɑ:dʒə]
valve	клапан	[vælv]
viscosity	вязкость	[vɪs'kɔ:sɪti]





FOUR STROKES IN A FOUR-CYCLE DIESEL ENGINE:

Intake stroke supplies air into the cylinder.	intake stroke	такт впуска	['inteik]
Compression stroke compresses air by upward motion of the piston.	compression stroke	такт сжатия	[kəm'preʃən]
Power stroke: mixed hot air and fuel produce power by the burning gases.	power stroke	рабочий ход	['paʊə]
Exhaust stroke releases product of combustion.	exhaust stroke	такт выпуска	[ig'zɔ:st]

Series of events in a cylinder of a four-stroke cycle engine:

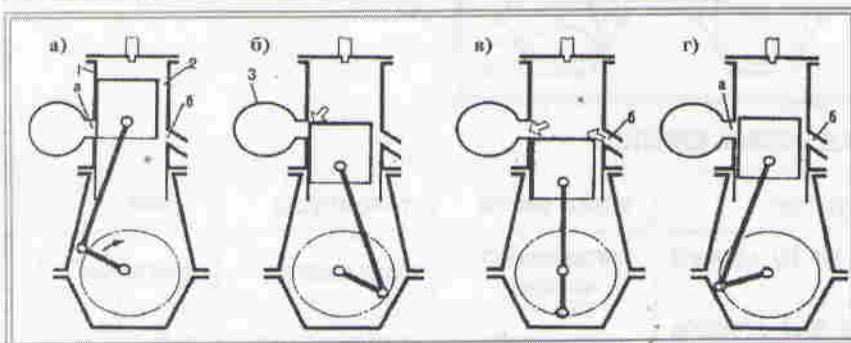
- the inlet air valve opens and air is drawn into the cylinder by the downward stroke of the piston;
- the valve is closed, the piston starts upward and compresses the air to produce the heat that is needed to ignite the fuel;
- the fuel-injection valves open and the fuel oil is injected into the hot air where it ignites;
- the burning fuel forms gases which create pressure and send the piston downward; this is the power stroke of the engine;
- when the piston completes its power stroke, the exhaust valve opens and permits the burned gases to escape;
- the piston returns upward and forces the remaining gases out of the cylinder. The exhaust valve closes and the cycle repeats.

series	последовательность	['siəri:z]
event	событие	['i'vent]
inlet valve	впускной клапан	['inlet vœlv]
to draw	затягивать, тащить	[drɔ:]
downward	вниз	['daunwəd]
upward	вверх	['ʌpwəd]
to compress	сжимать	[kəm'pres]
to produce	производить, изготавливать	[prə'dju:s]
to inject	впрыскивать	[in'dʒekt]
to ignite	зажигать, воспламенять	[ig'naɪt]
burning	горящий	['bɜ:nɪŋ]
to form	формировать, организовывать	[fɔ:m]
to create	создавать	[kri:'eɪt]
to complete	завершать, заканчивать	[kəm'pli:t]
to escape	избегать, выходить	[is'keɪp]

to force out	вытеснять	[fɔ:s aʊt]
remaining	остающийся	[ri'meɪnɪŋ]
cycle	такт, цикл	['saɪkl]
to repeat	повторять(ся)	[ri'pi:t]



2-STROKE ENGINE



TWO STROKES IN A TWO-CYCLE DIESEL ENGINE:

- 1) One stroke compresses air in the cylinder to ignite the fuel oil.
- 2) Another stroke is produced by the burning gases. It is the power stroke.

Series of events in a two-stroke cycle diesel engine:

- air under light pressure is drawn into the cylinder and fills the cylinder through the open ports in the walls;
- the piston starts upward to compress the air to produce heat to ignite the fuel. The air is fully compressed and very hot;
- the fuel-injection valve opens and fuel oil is injected into the hot air where it ignites;
- the burning fuel forms gases which create pressure and send the piston downward; this is the power stroke.

light	легкий, незначительный	[laɪt]
to fill	наполнять	[fɪl]
through	через, сквозь	[θru:]
fully	полностью, совсем	['fʊli]

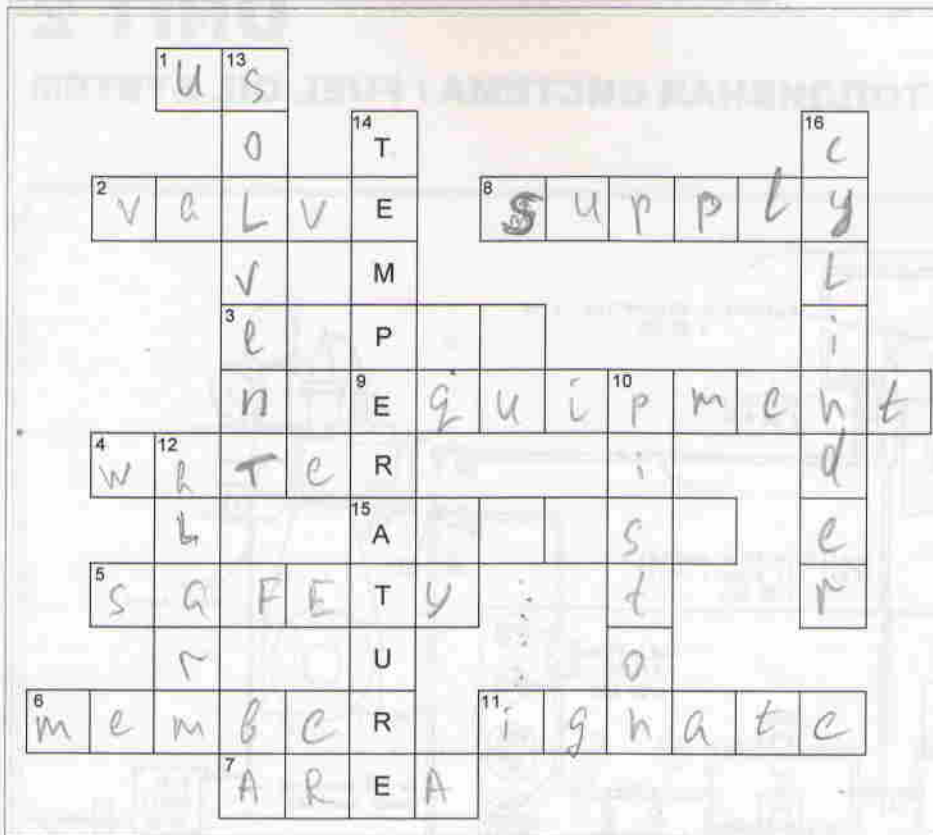


ENGINE ORDERS

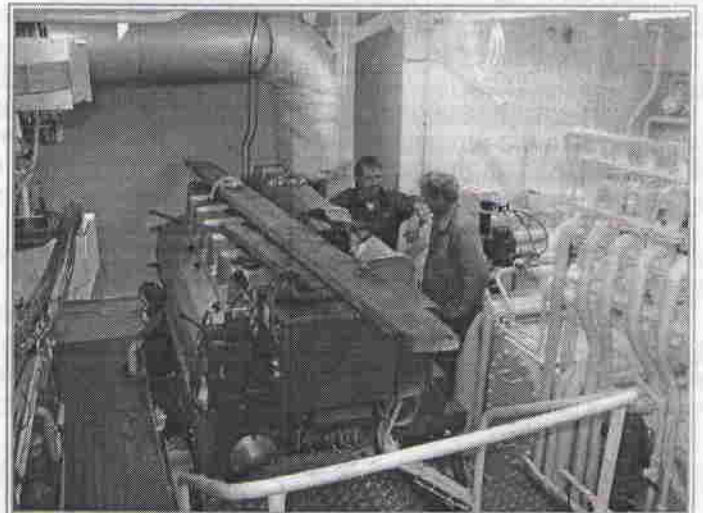
Full Ahead!	Вперед полный!	[ful ə'hed]
Half Ahead!	Вперед средний!	[hɑ:f ə'hed]
Slow Ahead!	Вперед малый!	[sləʊ ə'hed]
Dead Slow Ahead!	Вперед самый малый!	[ded sləʊ ə'hed]
Stop Engine!	Стоп машины!	[stɒp 'endʒɪn]
Dead Slow Astern!	Назад самый малый!	[ded sləʊ əs'tə:n]
Slow Astern!	Назад малый!	[sləʊ əs'tə:n]
Half Astern!	Назад средний!	[hɑ:f əs'tə:n]
Full Astern!	Назад полный!	[ful əs'tə:n]
Emergency Full Ahead!	Вперед максимально возможный ход!	[i'mə:dʒənsi ful ə'hed]
Emergency Full Astern!	Назад максимально возможный ход!	[i'mə:dʒənsi ful əs'tə:n]
Stand by Engine!	Приготовить машину!	[stænd baɪ 'endʒɪn]
Finished with Engines!	Машины не нужны!	['fɪnɪʃt wɪð 'endʒɪnz]



CROSSWORD

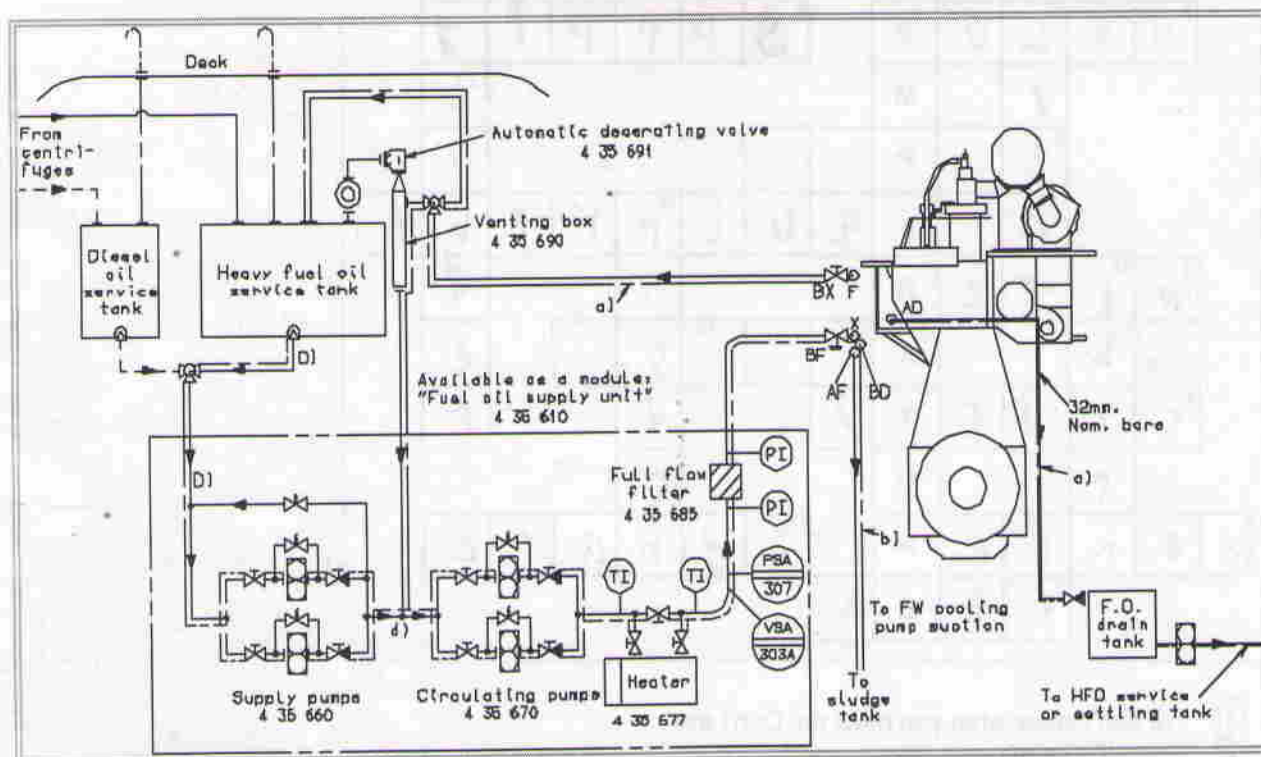


1. We don't know what you must do. Don't ask
2. Close the safety ...
3. This tank is You need to fill it.
4. Sea ... is used to cool the engine.
5. You must wear protective equipment for your ... during hot works.
6. We have 21 crew ... onboard.
7. The ... of sailing was the Atlantic Ocean.
8. Fuel ... was stopped due to the problems with the pump.
9. Electrical engineer is responsible for electrical ... on a ship.
10. The ... goes upward and downward in the cylinder.
11. When the fuel gets into the cylinder, it ...
12. If you find a fire, start ...
13. You can use ... to dissolve paints.
14. ... of exhaust gases is too high.
15. to help (synonym).
16. The liner is broken.



UNIT 2

ТОПЛИВНАЯ СИСТЕМА / FUEL OIL SYSTEM



FUEL OIL SYSTEM

The system is so arranged that both diesel oil and heavy fuel oil can be used. From the service tank the fuel is led to an electrically-driven supply pump. The venting box is connected to the service tank through an automatic deaerating valve, which will release any gases, but will retain liquids.

From the low pressure part of the fuel system the fuel oil is led to an electrically-driven circulating pump, which pumps the fuel oil through a heater and a full-flow filter.

To ensure enough filling of the fuel pumps, the capacity of the electrically-driven circulating pump is higher than the amount of fuel consumed by the diesel engine. The rest of fuel oil is recirculated from the engine through the venting box. To ensure constant fuel pressure to the fuel injection pumps during all engine loads, a spring-loaded overflow valve is inserted in the fuel oil system in the engine.

When the engine is stopped in case of emergency, the circulating pump will continue to circulate the heated heavy fuel oil through the fuel oil system in the engine and to keep the fuel pumps heated and the fuel valves deaerated.

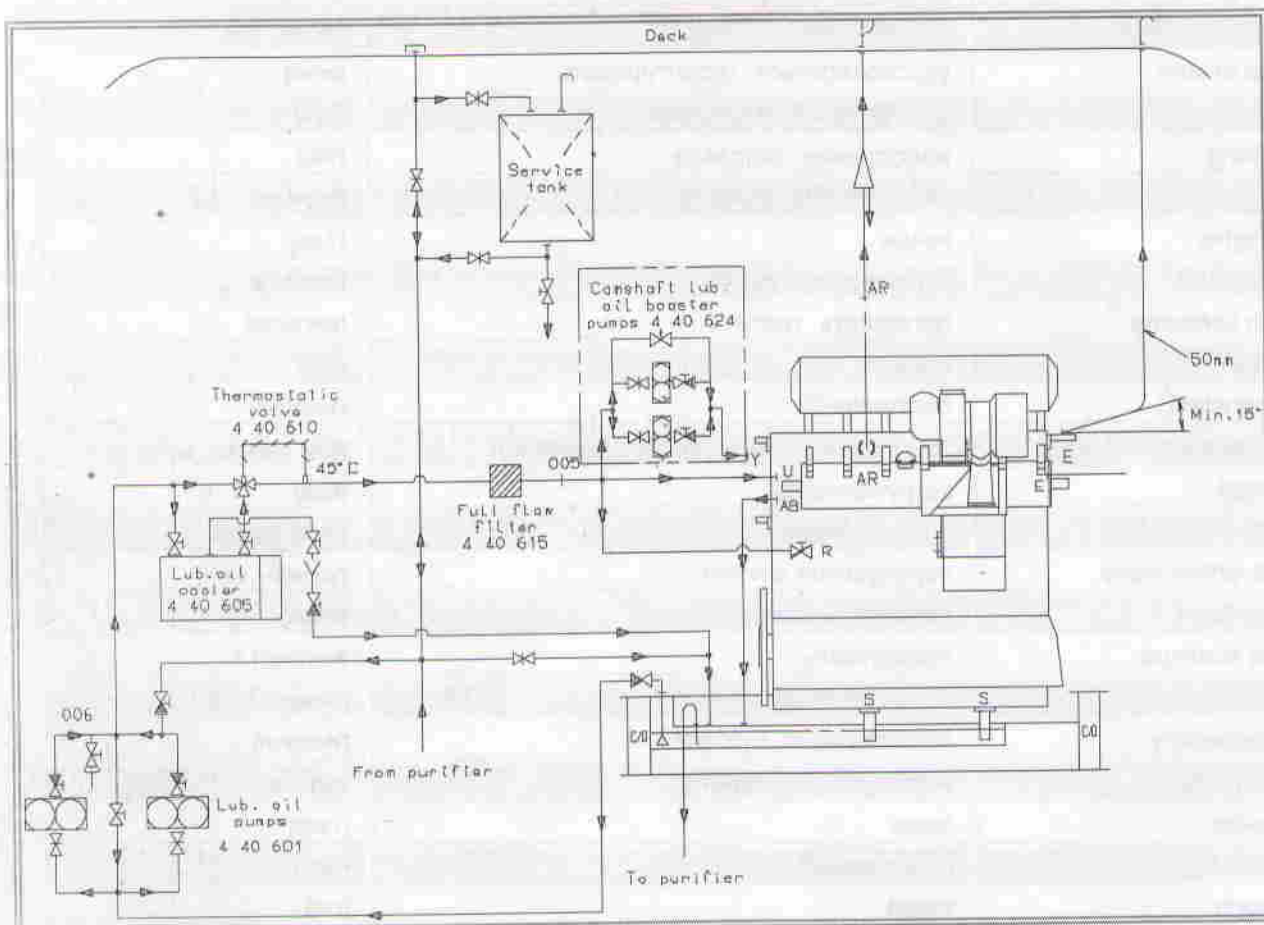
In special circumstances a change-over to diesel oil may become necessary – and this can be performed at any time, even when the engine is not running. Such a change-over is necessary if, for example, the vessel will be inactive for a prolonged period with a cold engine because of docking, stop for more than five days, major repairs of the fuel system, environmental requirements.

to arrange	устанавливать, организовывать	[a'reindʒ]
diesel oil	дизельное топливо	[ˈdi:zəl ɔil]
heavy fuel oil	тяжелое топливо (мазут)	[hevi ˈfju:əl ɔil]
to lead (led, led)	вести, приводить	[li:d] [led]
electrically-driven	с электроприводом	[i'lektrikali 'drɪvən]
supply pump	питательный насос	[sə'plai pʌmp]

to connect	соединять	[kə'nekt]
through	через	[θru:]
to release	освобождать	[ri'li:s]
to retain	удерживать, сохранять	[ri'tein]
liquid	жидкость	['likwid]
low	низкий	[ləu]
circulating pump	циркуляционный насос	['sə:kjuleitiŋ pʌmp]
to pump	работать насосом, накачивать	[pʌmp]
full-flow filter	полнопоточный фильтр	[ful'fləʊ 'filtə]
to ensure	удостовериться, гарантировать	[in'ʃuə]
enough	достаточный, достаточно	['nʌf]
filling	наполнение, заправка	['filɪŋ]
capacity	емкость, вместимость	[kə'pæsəti]
higher	выше	['haɪə]
amount	количество, сумма	[æ'maʊnt]
to consume	поглощать, тратить	[kən'sju:m]
rest	остаток	[rest]
constant	постоянный	['kɒnstənt]
fuel injection pump	топливный насос высокого давления	[fjuəl in'dʒekʃn pʌmp]
load	загруженность	[ləʊd]
spring-loaded	подпружиненный	[sprɪŋ 'ləʊdɪd]
overflow valve	перепускной клапан	['əʊvəfləʊ vælv]
to insert	вставлять, добавлять	[ɪn'sɜ:t]
to continue	продолжать	[kən'tɪnju:]
change-over	переключение, переход	['tʃeɪndʒ 'əʊvə]
necessary	необходимый, нужный	['nesəsəri]
to perform	исполнять, выполнять	[pə'fɔ:m]
even	даже	['i:vən]
running	работающий	['rʌnɪŋ]
such	такой	[sʌt]
inactive	неактивный	[ɪn'æktɪv]
prolonged	длительный, затянувшийся	[prəʊ'lɒŋd]
major	большой, значительный	['meɪdʒə]
environmental	относящийся к окружающей среде	['ɪn'vaɪərən'mentl]
requirement	требование	[rɪ'kwaɪəmənt]

UNIT 3

СМАЗОЧНАЯ И ОХЛАДИТЕЛЬНАЯ МАСЛЯНАЯ СИСТЕМА / LUBRICATING AND COOLING OIL SYSTEM



LUBRICATING AND COOLING OIL SYSTEM

This system supplies lubricating oil to the engine bearings through the inlet "R", and cooling oil to the pistons through the inlet "U". The butterfly valve at the lubricating oil inlet "R" is supplied with the engine. The engine crankcase is vented through "AR" by a pipe which extends directly to the deck. This pipe has a drain arrangement so that condensed oil in the pipe can be led to a drain tank.

Lubricating oil is pumped from a bottom tank by means of the main lubricating oil pump to the lubricating oil cooler, a thermostatic valve and through a full-flow filter to the engine, where it is distributed to pistons and bearings. The major part of the oil is divided between piston cooling and crosshead lubrication. It was necessary to introduce the booster pumps for the large bore engines in order to maintain the required oil pressure at the inlet "Y" for the exhaust valve actuators and the camshaft.

The turbochargers are lubricated from the main engine system, through AA "Turbocharger lubricating oil pipes", "AB" is the lubricating oil outlet from the turbocharger to the lubricating oil bottom tank, and it is vented through "E" directly to the deck from the engine, the oil collects in the oil pan, from where it is drained off to the bottom tank.

LUBRICATING OIL CENTRIFUGES

Manual cleaning of centrifuges can only be used for attended machinery spaces (AMS). For unattended machinery spaces (UMS) automatic centrifuges with total discharge or partial discharge are used.

LUBRICATING OIL COOLER

The lubricating oil cooler is of a tube type (made of seawater resistant material) or a plate type heat exchanger with plate material of titanium unless fresh water is used in a central cooling system.

LUBRICATING OIL TEMPERATURE CONTROL VALVE

The temperature control system can, by means of a three-way valve, by-pass the cooler totally or partly.

to supply	обеспечивать, поставлять	[sə'plai]
lubricating oil	смазочное масло	['lu:brikeitɪŋ ɔɪl]
bearing	подшипник	['beərɪŋ]
through	через, сквозь	[θru:]
inlet	входное отверстие	['ɪnlet]
to cool	охлаждать, остужать	[ku:l]
butterfly valve	клапан-бабочка	['bʌtəflaɪ vælv]
to extend	тянуть(ся)	[ɪks'tend]
directly	прямо	[dɪ'rektli]
drain arrangement	дренажный механизм	['dreɪn ə'reɪndʒmənt]
to condense	конденсировать	[kən'dens]
drain tank	сточная цистерна	[dreɪn tæŋk]
by means of	посредством	[baɪ mi:nz əv]
thermostatic valve	клапан термостата	['θə:mə'stætik vælv]
to distribute	распределять, раздавать	[dɪs'trɪbjʊ:t]
to divide	разделять	[dɪ'vaɪd]
to introduce	вводить, представлять	['ɪntrə'dju:s]
booster pump	вспомогательный насос	['bu:stə ɒmp]
bore	диаметр	[bɔ:]
to require	требовать	[rɪ'kwaɪə]
actuator	силовой привод	['æktjueɪtə]
outlet	выпускное отверстие	['aʊtlet]
to collect	собирать	[kə'lekt]
oil pan	масляной поддон, маслосборник	[ɔɪl pæn]
manual	ручной	['mænjuəl]
centrifuge	центрифуга	['sentrɪfju:dʒ]
attended	обслуживаемый	[ə'tendɪd]
total	полный	['təʊtl]
discharge	разгрузка	[dɪs'tʃɑ:dʒ]
partial	частичный, неполный	['pɑ:ʃəl]
water resistant	водостойкий	['wɔ:tə ri'zɪstənt]
three-way valve	трехходовой клапан	['θri:wei vælv]
to by-pass	обходить	['baɪpɑ:s]



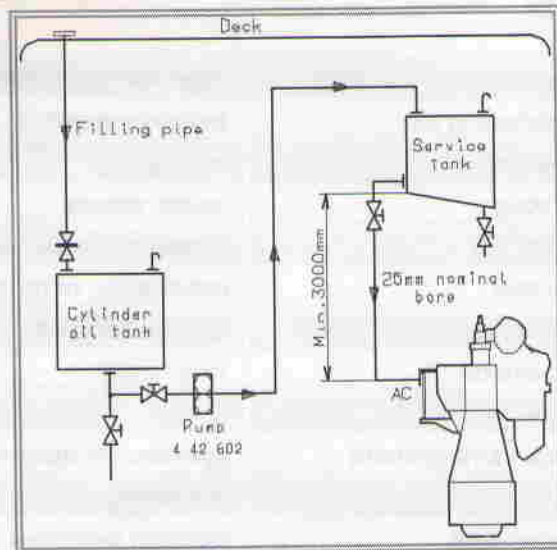
CYLINDER LUBRICATING OIL SYSTEM

The cylinder lubricators are supplied with oil from a gravity-feed cylinder oil service tank, and they are equipped with built-in floats, which keep the oil level constant in the lubricators.

The size of the cylinder oil service tank depends on the owner's and yard's requirements, and it is normally dimensioned for minimum two days' consumption.

CYLINDER LUBRICATION

Each cylinder liner has a number of lubricating orifices, through which the cylinder oil is introduced into the cylinders. The oil is delivered into the cylinder via non-return valves when the piston rings during the upward stroke pass the lubricating orifices.



gravity-feed	подача (масла) самотёком	[ˈgrævətɪ fi:d]
to be equipped with	быть оснащённым чем-либо	[ɪˈkwipt wið]
built-in	встроенный	[ˈbɪltɪn]
float	поплавок	[fləʊt]
to keep	хранить, держать	[ki:p]
size	размер	[saɪz]
to depend on	зависеть от	[dɪˈpend ɒn]
owner	владелец, хозяин	[ˈəʊnə]
yard	верфь	[jɑ:d]
dimensioned	имеющий размеры	[daɪˈmenʃənd]
consumption	потребление, расход	[kənˈsʌmpʃən]
orifice	отверстие	[ˈɔrɪfɪs]
to introduce	помещать, вводить	[ɪntrəˈdju:s]
to deliver	доставлять, снабжать	[dɪˈlɪvə]
via	через, сквозь	[ˈvaɪə]
non-return valve	невозвратный клапан	[nənriːˈtə:n vælv]
during	в течение, во время	[ˈdʒʊərɪŋ]
to pass	проходить	[pɑ:s]

UNIT 4

ВОДЯНЫЕ ОХЛАДИТЕЛЬНЫЕ СИСТЕМЫ / COOLING WATER SYSTEMS

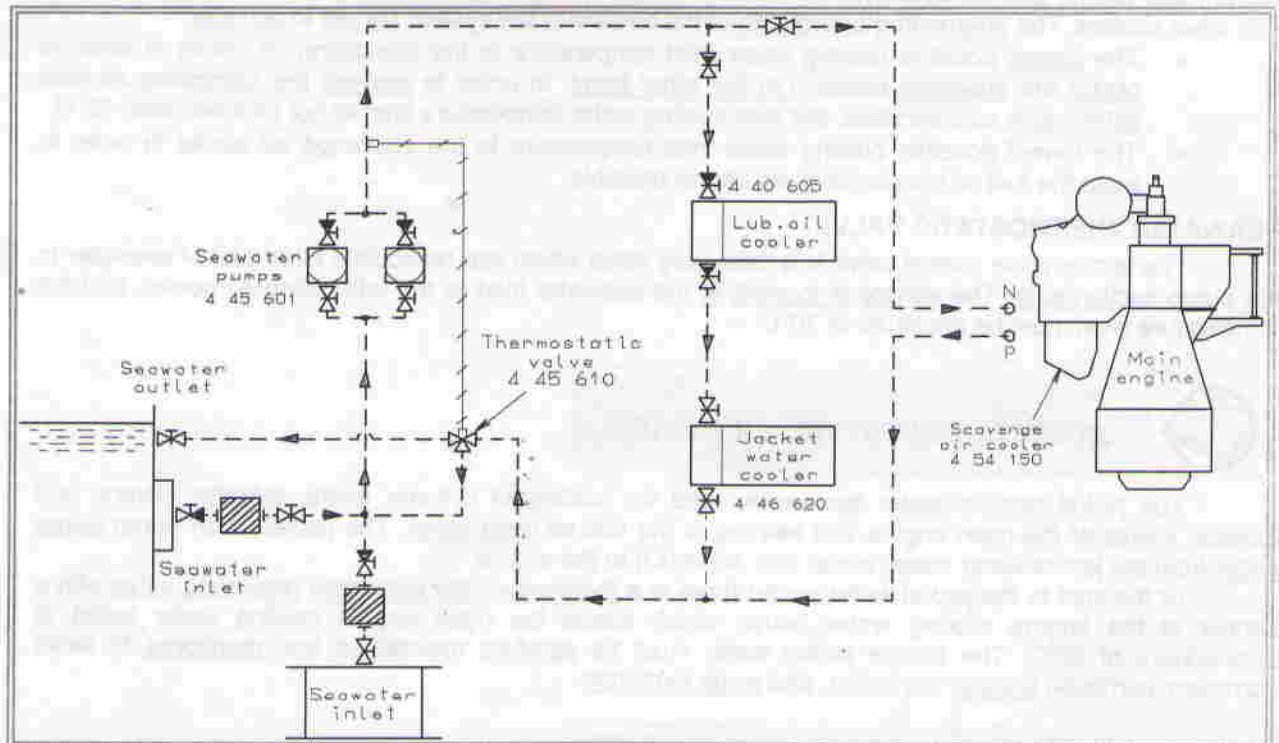


Fig. 4.01: Low Temperature Seawater Cooling System



COOLING WATER SYSTEMS

The water cooling can be arranged in several systems:

- A low temperature seawater cooling system (Fig. 4.01) and a freshwater cooling system only for jacket cooling.
- A central cooling water system with three circuits: a seawater system, a low temperature freshwater system for central cooling (Fig 4.02), and a high temperature freshwater system for jacket water.

The advantages of the seawater cooling system are mainly related to the first cost:

- only two sets of cooling water pumps (seawater and jacket water);
- simple installation with few piping systems.

The disadvantages are:

- seawater goes to all coolers and so maintenance cost is higher;
- expensive seawater piping of non-corrosive materials such as galvanized steel pipes.

The advantages of the central cooling system are:

- only one heat exchanger cooled by seawater and so only one exchanger will be overhauled;
- all other heat exchangers are freshwater cooled and can be made of a less expensive material;
- few non-corrosive pipes are installed;
- reduced maintenance of coolers and components;
- increased heat utilization.

The disadvantages are:

- three sets of cooling water pumps (seawater, freshwater low temperature, and jacket water high temperature);
- higher first cost.



SEAWATER COOLING SYSTEM

The seawater cooling system is used for cooling of the main engine lubricating oil cooler, the jacket water cooler, and the scavenge air cooler. The lubricating oil cooler should be connected in parallel with other coolers. The interrelated positioning of the coolers in the system serves to achieve:

- The lowest possible cooling water inlet temperature to the lubricating oil cooler in order to obtain the cheapest cooler. On the other hand, in order to prevent the lubricating oil from stiffening in cold services, the inlet cooling water temperature should not be lower than 10°C.
- The lowest possible cooling water inlet temperature to the scavenge air cooler in order to keep the fuel oil consumption as low as possible.

SEAWATER THERMOSTATIC VALVE

The temperature control valve is a three-way valve which can recirculate all or part of seawater to the pump suction side. The sensor is located at the seawater inlet to the lubricating oil cooler, and the temperature level must be minimum of 10°C.



JACKET COOLING WATER SYSTEM

The jacket cooling water system is used for cooling of cylinder liners, cylinder covers, and exhaust valves of the main engine and heating of the fuel oil drain pipes. The jacket water pump draws water from the jacket water cooler outlet and delivers it to the engine.

At the inlet to the jacket water cooler there is a thermostatically controlled regulating valve with a sensor at the engine cooling water outlet, which keeps the main engine cooling water outlet at temperature of 80°C. The engine jacket water must be carefully maintained and monitored to avoid corrosion, corrosion fatigue, cavitation, and scale formation.



CENTRAL COOLING WATER SYSTEM

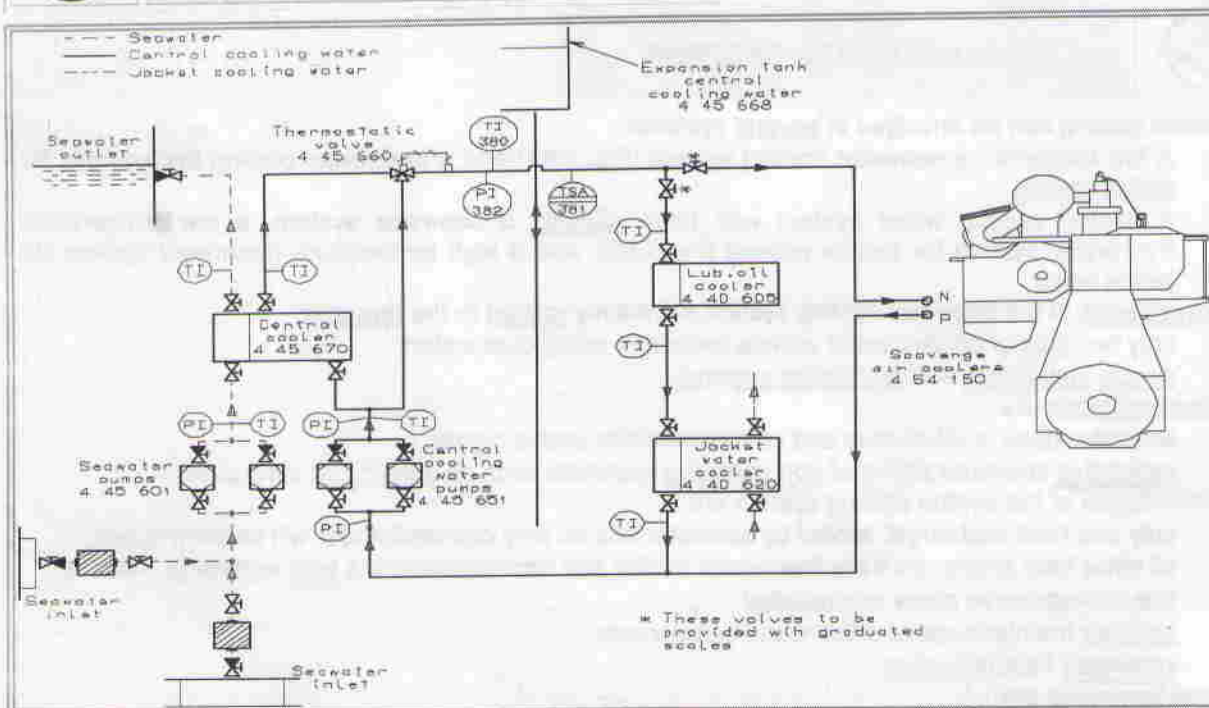


Fig. 4.02: Central Cooling System

The central cooling water system has only one heat exchanger cooled by seawater and by the other coolers, including the jacket water cooler, which is cooled by the FW-LT (freshwater low

temperature) system. To prevent too high scavenge air temperature, the cooling water temperature in the FW-LT system is normally 36°C. The components of seawater system:

- central cooling water pumps, low temperature;
- central cooling water thermostatic valve;
- sea-water cooling pumps;
- central cooler.

The low temperature cooling system must be equipped with a three-way valve which by-passes all or part of the fresh water around the central cooler.

The sensor is located at the outlet pipe from the thermostatic valve and keeps a temperature level at minimum 10°C.

several	несколько	['sevrəl]
jacket cooling	охлаждение водяной рубашкой	['dʒækɪt 'ku:lɪŋ]
circuit	круг, схема	['sə:kɪt]
advantage	преимущество	[əd'vɑ:ntɪdʒ]
related	связанный, имеющий отношение к	[rɪ'leɪtɪd]
first cost	себестоимость	['fɜ:stkɔ:st]
set	комплект, набор	[set]
simple	простой, легкий	['sɪmpəl]
installation	установка	['ɪnstə'leɪʃn]
few	мало, пара	[fju:]
pipng system	трубопроводная система	['paɪpɪŋ 'sɪstɪm]
disadvantage	недостаток	[dɪsəd'vɑ:ntɪdʒ]
non-corrosive	нержавеющий	[nɒnkə'rəʊsɪv]
galvanized	оцинкованный	['gælvənaɪzɪd]
to reduce	сокращать	[rɪ'dju:s]
utilization	утилизация	[ju'tɪlaɪ'zeɪʃən]
interrelated	взаимосвязанный	['ɪntər'leɪtɪd]
positioning	установка, расстановка	[pə'zɪʃənɪŋ]
to serve	служить	[sə:v]
to achieve	добиваться	[ə'tʃi:v]
lowest	наименьший	['ləʊəst]
to obtain	получать, добывать	[əb'teɪn]
on the other hand	с другой стороны	[ɒn ðɪ 'ʌðə 'hænd]
to prevent	предотвращать	[prɪ'vent]
stiffening	загустевание, загущение	['stɪfənɪŋ]
suction side	сторона всасывания	['sʌkʃən saɪd]
sensor	датчик	['sensə]
to be located	находиться, располагаться	[ləu'keɪtɪd]
drain pipe	сточная труба	[dreɪn paɪp]
to draw water	набирать воду	[drɔ: 'wɔ:tə]
thermostatically controlled	регулируемый с помощью термореле	['θə:mə'stætɪkəlɪ kən'traʊld]
regulating valve	регулирующий клапан	['regjuleɪtɪŋ vælv]
carefully	тщательно, внимательно	['keəflɪ]
to monitor	наблюдать, проверять	['mɒnɪtə]
fatigue	износ	[fə'ti:g]
cavitation	кавитация	[kævɪ'teɪʃən]
scale formation	накипеобразование	[skeɪl fɔ:'meɪʃn]

UNIT 5

СИСТЕМЫ ПУСКОВОГО И ИМПУЛЬСНОГО ВОЗДУХА / STARTING AND CONTROL AIR SYSTEMS

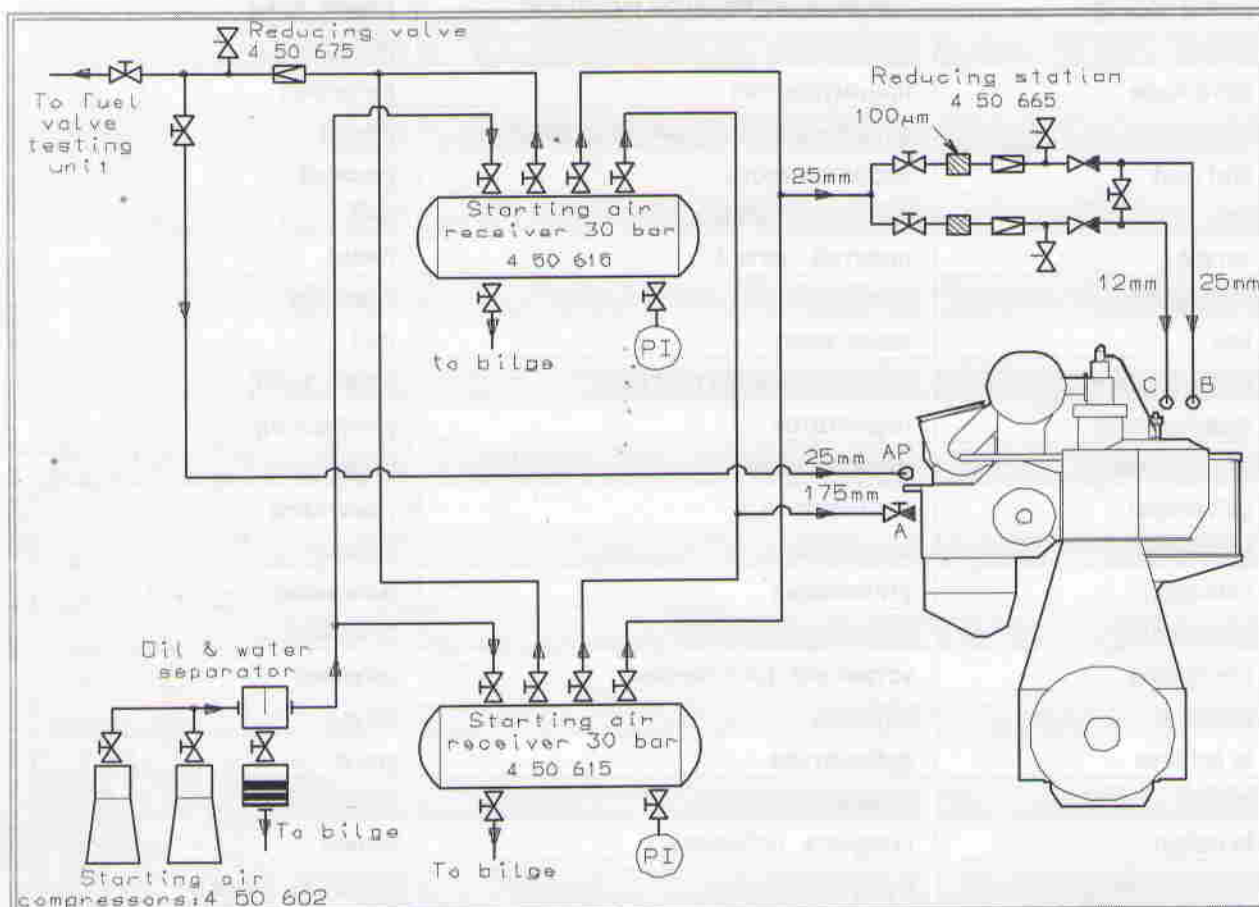


Fig. 5.01: Starting and Control Air Systems



STARTING AND CONTROL AIR SYSTEMS

The starting air of 30 bar is supplied by the starting air compressors to the starting air receivers and from them to the main engine inlet "A".

Through a reducing station compressed air at 7 bar is supplied to the engine as:

- control air for manoeuvring system and for exhaust valve air springs through "B";
- safety air for emergency stop through "C".

Through a reducing valve compressed air at 10 bar is supplied to "AP" for turbocharger cleaning (soft blast), and a minor volume is used for the fuel valve testing unit.

The starting air pipes contain a main starting valve (a ball valve with actuator), a non-return valve, a starting air distributor and starting valves. The main starting valve is combined with the manoeuvring system, which controls the start of the engine.

The sealing air for the exhaust valve spindle comes from the manoeuvring system and is activated by the control air pressure.

The starting air distributor regulates the supply of control air to the starting valves in accordance with the correct firing sequence.



COMPONENTS FOR STARTING AIR SYSTEM

STARTING AIR COMPRESSORS

The starting air compressors are the water-cooled, two-stage type with intercooling. More than two compressors may be installed to supply capacity required.

TURNING GEAR

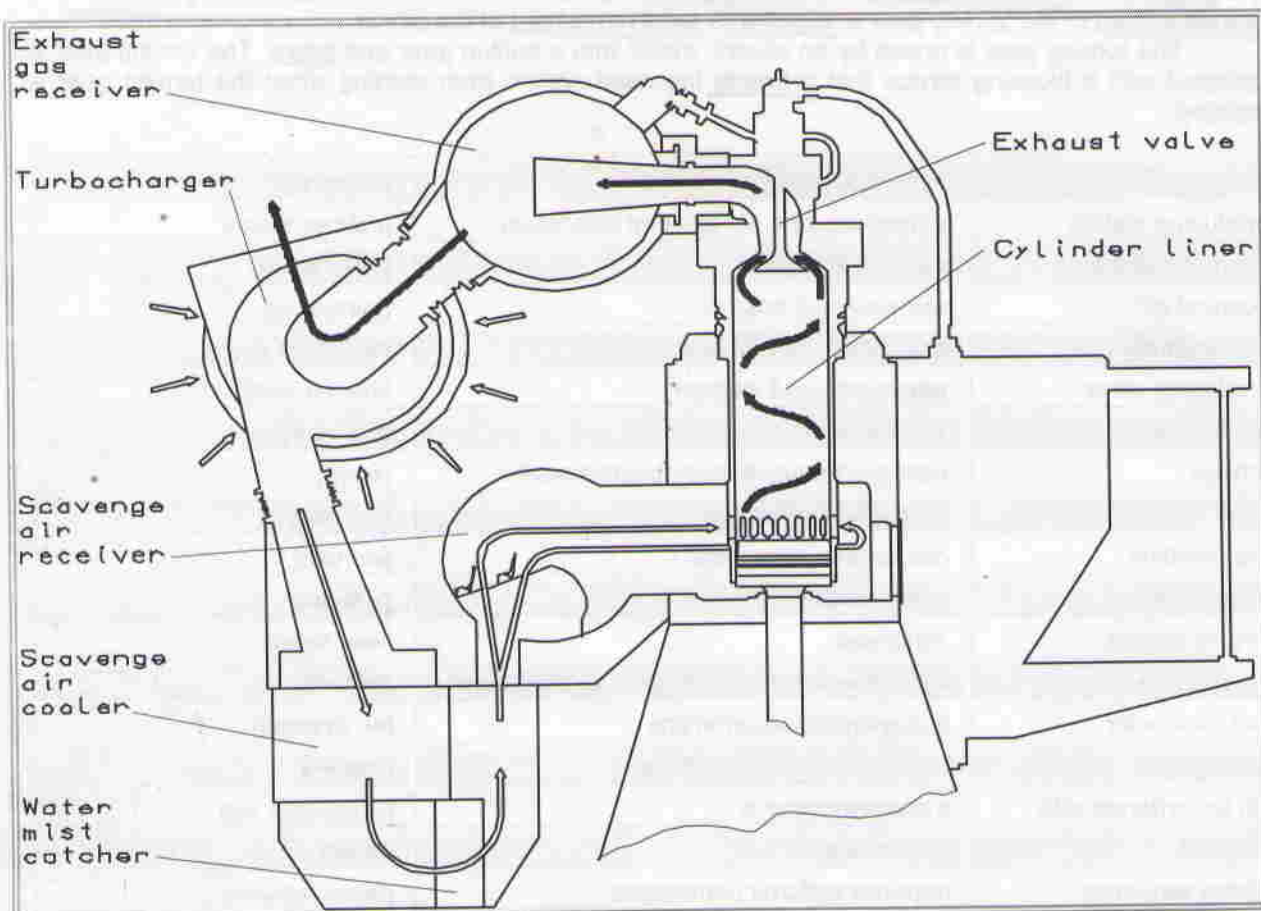
The turning wheel has cylindrical teeth and is fitted to the thrust shaft. The turning wheel is driven by a pinion on the terminal shaft of the turning gear which is mounted on the bedplate. Engagement and disengagement of the turning gear is effected by axial movement of the pinion.

The turning gear is driven by an electric motor with a built-in gear and brake. The turning gear is equipped with a blocking device that prevents the main engine from starting when the turning gear is engaged.

starting air	пусковой воздух	['sta:tɪŋ eə]
reducing station	установка для понижения давления	[rɪ'dju:sɪŋ 'steɪʃən]
compressed air	сжатый воздух	[kəm'prest eə]
control air	импульсный воздух	[kən'trəʊl eə]
emergency stop	аварийная остановка	[ɪ'mə:dʒənsɪ stɒp]
reducing valve	редукционный клапан	[rɪ'dju:sɪŋ vælv]
soft blast	мягкая продувка	[sɒft bla:st]
minor	незначительный, несущественный	['maɪnə]
ball valve	шаровой клапан	[bɔ:l vælv]
to combine	соединять, смешивать	[kəm'baɪn]
sealing air	уплотняющий воздух	['si:lɪŋ eə]
valve spindle	золотник	[vælv 'spɪndl]
to activate	активизировать, приводить в действие	[æktɪveɪt]
air distributor	воздухораспределитель	[eə dɪs'trɪbjʊtə]
to regulate	регулировать, управлять	[ˈregjuleɪt]
in accordance with	в соответствии с	[ɪn ə'kɔ:dəns wɪð]
correct	правильный	[kə'rekt]
firing sequence	порядок работы цилиндров	['faɪərɪŋ 'sɪ:kwəns]
teeth	зубцы	[ti:θ]
thrust shaft	упорный вал	[θrʌst ʃɑ:ft]
pinion	шестерня	['pɪnjən]
brake	тормоз	[breɪk]

UNIT 6

СИСТЕМА ПРОДУВОЧНОГО ВОЗДУХА / SCAVENGE AIR SYSTEM



SCAVENGE AIR SYSTEM

The engine is supplied with scavenging air from one or two turbochargers. The compressor of the turbocharger sucks air from the engine-room through an air filter, and the compressed air is cooled by the scavenge air cooler (one for each turbocharger).

Each cooler is provided with a water mist catcher which prevents condensed water from being carried with the air into the scavenge air receiver and to the combustion chamber.



AUXILIARY BLOWERS

The engine is provided with two electrically-driven auxiliary blowers. Between the scavenge air cooler and the scavenge air receiver non-return valves are fitted which will close automatically when the auxiliary blowers start to supply the scavenge air.

The auxiliary blowers start operating before the engine is started and will ensure complete scavenging of the cylinders in the starting phase. This way they provide the best conditions for safe start.

During operation of the engine the auxiliary blowers will start automatically every time the engine load is reduced to 30-40% and will continue to operate until the load exceeds approximately 40-50% again.



AIR COOLER CLEANING SYSTEM

The air side of the scavenge air cooler can be cleaned by injecting grease dissolvent to a spray pipe arrangement fitted to the air chamber above the air cooler element.

Sludge is drained to the bilge tank, and the polluted grease dissolvent returns through a filter to the chemical cleaning tank. The cleaning must be carried out while the engine is at standstill.

DRAIN FROM WATER MIST CATCHER

The drain line for the air cooler system is, during running, used as permanent drain from the air cooler water mist catcher. The water is led through an orifice to prevent major losses of scavenge air.

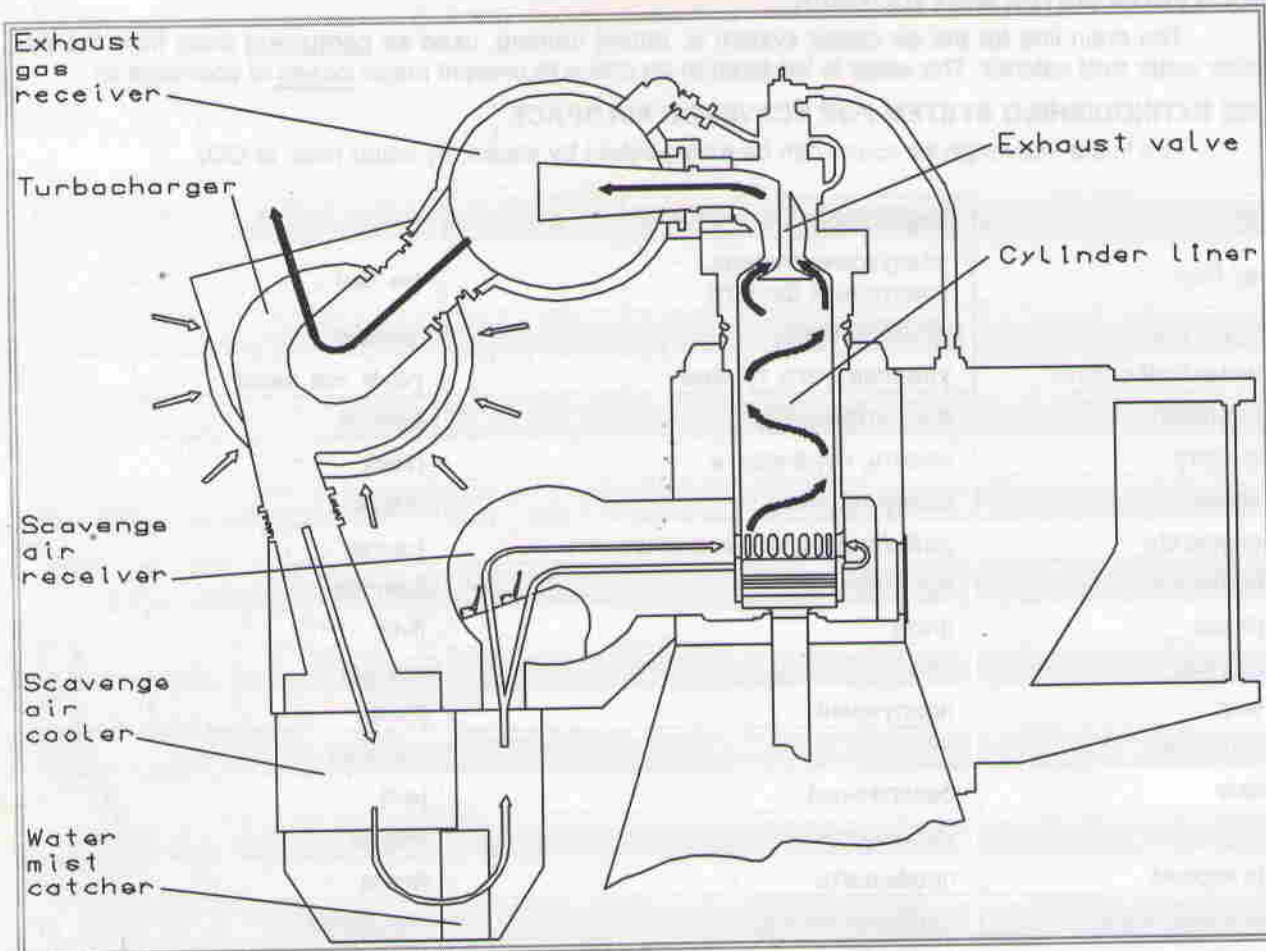
FIRE EXTINGUISHING SYSTEM FOR SCAVENGE AIR SPACE

Fire in the scavenge air space can be extinguished by steam, by water mist, or CO₂.

to suck	всасывать	[sʌk]
air filter	воздухоочиститель, воздушный фильтр	[eə 'fɪltə]
to provide	обеспечивать	[prə'vaɪd]
water mist catcher	улавливатель тумана	['wɔ:tə mist 'kætfə]
to prevent	предотвращать	[pri'vent]
to carry	носить, переносить	['kæri]
blower	воздуходувка	['bləʊə]
to operate	действовать, функционировать	['ɒpəreɪt]
complete	полный	[kəm'pli:t]
phase	фаза	[feɪz]
this way	таким образом	[ðɪs weɪ]
best	наилучший	[best]
condition	условие	[kən'dɪʃən]
safe	безопасный	[seɪf]
to reduce	уменьшать	[rɪ'dju:s]
to exceed	превышать	[ɪk'si:d]
approximately	приблизительно	[ə'prɒksɪmɪtli]
again	снова, вновь	[ə'geɪn]
grease	жир	[greɪs]
dissolvent	растворитель	[dɪ'zɒlvənt]
sludge	грязь	[slʌdʒ]
to return	возвращать(ся)	[rɪ'tə:n]
standstill	пауза, простой	['stændstɪl]
permanent	постоянный, неизменный	['pɜ:mənənt]

UNIT 7

СИСТЕМА ВЫХЛОПНЫХ ГАЗОВ / EXHAUST GAS SYSTEM



EXHAUST GAS SYSTEM

The exhaust gas is led from the cylinders to the exhaust gas receiver where the changing pressures from the cylinders are equalized and from where the gas is led to the turbocharger at constant pressure.

Compensators are fitted between the exhaust valves and the exhaust gas receiver, and between the receiver and the turbocharger. A protective grating is placed between the exhaust gas receiver and the turbocharger. The turbocharger is fitted with a pickup for remote indication of the turbocharger speed.

The exhaust piping system for the main engine has:

- exhaust gas pipes;
- exhaust gas boiler;
- silencer;
- spark arrester;
- expansion joints;
- pipe bracings.

EXHAUST GAS BOILER

Engine plants are usually designed for utilisation of the heat energy of the exhaust gas for steam production or for heating of the oil system. The exhaust gas passes an exhaust gas boiler which is usually placed near the engine top or in the funnel.

UNIT 8

СИСТЕМА МАНЕВРИРОВАНИЯ / MANOEUVRING SYSTEM

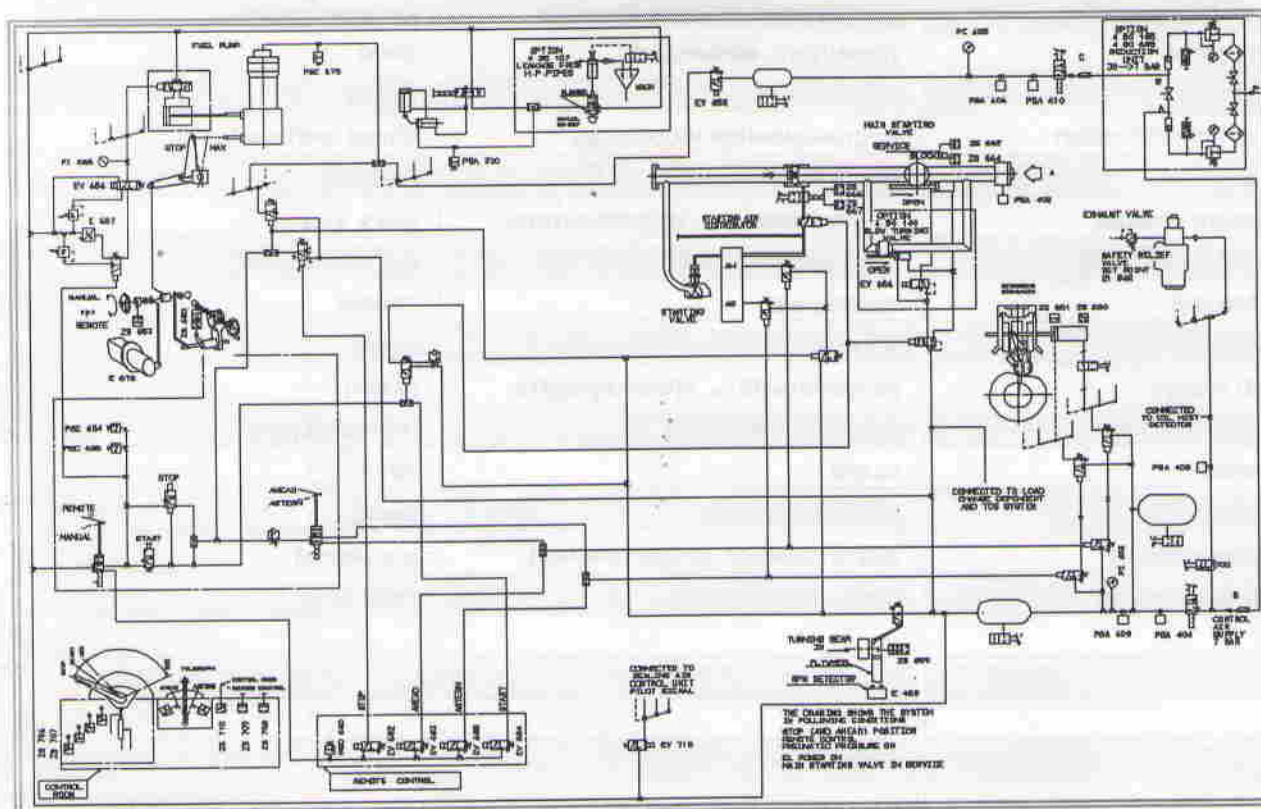


Fig 8.01: Manoeuvring System



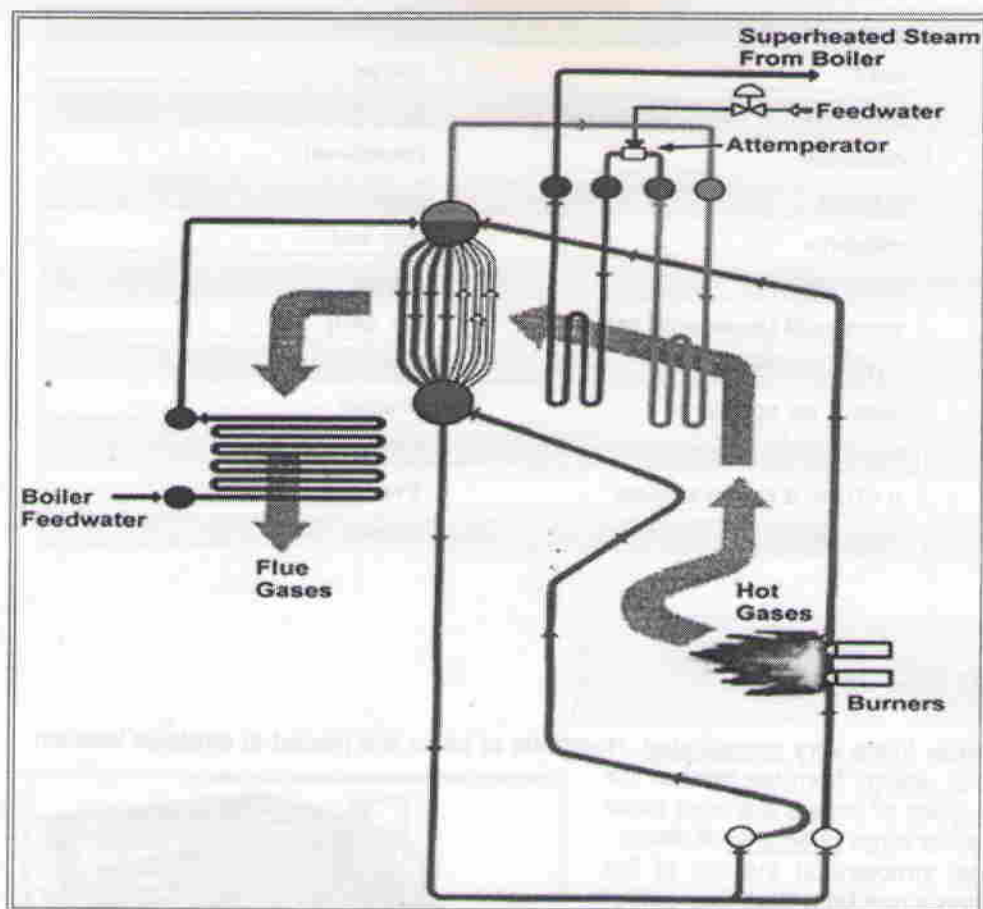
MANOEUVRING SYSTEM

The engine is, as standard, provided with a pneumatic/electronic manoeuvring system (see Fig. 8.01). The lever on the "Engine side manoeuvring console" can be set to "Manual" or "Remote" position. In the "Manual" position the engine is controlled from the Engine Side Manoeuvring console by the push buttons START, STOP, and AHEAD/ASTERN. The speed is set by the "Emergency speed setting" by the handwheel. In the "Remote" position all signals to the engine are electronic; the START, STOP, AHEAD, and ASTERN signals activate the solenoid valves and the speed setting signal through the electronic governor and the actuator. The electrical signal comes from the remote control system: the Bridge Control console or from the Engine Control-Room console.

lever	рычаг	['li:və]
console	пульт (управления)	[kən'səʊl]
to set	приводить (в положение)	[set]
manual	ручной	['mænjʊəl]
remote	дистанционный	[ri'məʊt]
push button	нажимная кнопка	[puʃ 'bʌtn]
ahead	вперед	[ə'hed]
astern	назад	[əs'tə:n]
handwheel	маховик	[hændwi:l]

UNIT 9

ПАРОВАЯ СИСТЕМА / STEAM SYSTEM



STEAM SYSTEM

STEAM PLANTS

Water in the form of steam can store a lot of energy and be easily controlled and delivered onboard.

There are still steam-powered vessels such as ULCC (Ultra Large Crude Carrier) where steam turbines can provide necessary high power shaft requirements to propel the ship. However, most ships nowadays use the more economical diesel-burning heavy fuels.

Although boilers are not much used for ship's propulsion now, they are used for different duties onboard a ship such as heating of cargo, fuel, and accommodations. Some ships also use boilers for auxiliary power such as deck winches and pumps, where electrical machines can be dangerous as in the oil industry.

STEAM THEORY

Within the boiler fuel and air are forced into the furnace by the burner in order to burn and produce heat. From there, the heat (flue gases) travels throughout the boiler. The water absorbs the heat, and eventually absorbs enough to change into a gaseous state - steam.

to store	хранить, сохранять	[stɔ:]
a lot of	много	[ə lɒt əv]
easily	легко, свободно, без труда	['i:zili]
still	(все) еще	[stil]

however	однако	[haʊ'evə]
most	большинство	[məʊst]
nowadays	в наше время	['naʊədəɪz]
although	хотя	[ɔ:lð'əʊ]
propulsion	движение вперед, движущая сила	[prə'pʌlʃən]
dangerous	опасный	['deɪndʒərəs]
within	внутри	[wɪ'dɪn]
to force into	вводить	[fɔ:s ɪntə]
burner	горелка	['bɜ:nə]
flue gas	топочный (дымовой) газ	[flu: gæs]
to travel	путешествовать	['trævəl]
throughout	через, по всему	[θru:'aʊt]
to absorb	всасывать, поглощать	[əb'sɔ:b]
eventually	в итоге, в конце концов	['ɪventʃuəli]
gaseous state	газообразное состояние	['gæsiəs steɪt]



WATER-TUBE BOILER

The water-tube boiler looks very complicated. Hundreds of tubes are placed in strategic location to optimize the exchange of energy from the heat to the water in the tubes. These types of boilers are used more often because they can deliver large quantities of steam.

The large tube-like structure at the top of the boiler is the steam drum and it can be called the heart of the boiler. Here the steam collects before discharge from the boiler. The hundreds of tubes start and eventually end up at the steam drum.

Water enters the boiler, preheated, at the top. The hot water naturally circulates through the tubes down to the lower area where it is hot. The water heats up and flows back to the steam drum where the steam collects. Not all the water becomes steam, so the process starts again. Water continues to circulate until it becomes steam.

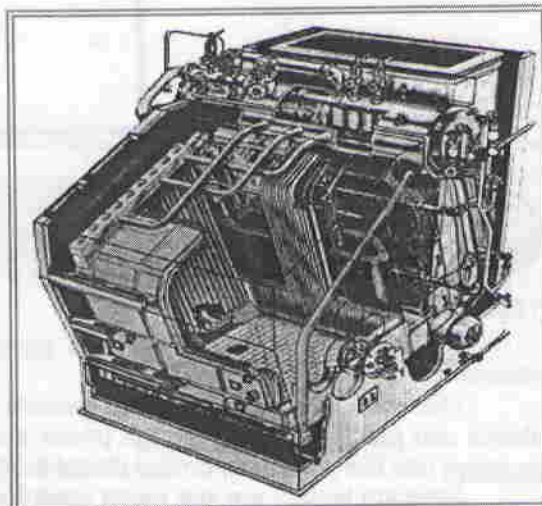
At the same time, the control system is taking the temperature of the steam drum and many other readings to determine if it should keep the burner burning or shut it down.

As well, sensors control the quantity of water entering the boiler. This is feed water and it is not regular drinking water. It has some chemicals to neutralize various minerals in the water, which can clog or rust tubes.

On the fire side of the boiler, carbon deposit resulting from improper combustion or impurities in the fuel can accumulate on the outer surface of the water tube. This creates an insulation which quickly decreases the energy transfer from the heat to the water. To remedy this problem the engineer will carry out soot blowing. At a specified time the engineer uses a long tool and inserts it into the fire side of the boiler. This device, which looks like a lance, has a tip at the end which "blows" steam. This blowing action of the steam "scrubs" the outside of the water tubes, cleaning the carbon deposit.

Water-tube boilers can have pressures from 7 bar to 250 bar. The steam temperatures can vary between saturated steam, 100 degrees Celsius steam with particles of water, or be as high as 600 - 650 degrees Celsius, known as superheated steam or dry steam (all water particles have turned into a gaseous state).

A water-tube boiler can produce tons of steam in one hour from 1.5 t/hr to 2500 t/hr.





AUXILIARY BOILER

On smaller ships the auxiliary boiler can be a stand-alone unit and would most likely be of the fire-tube boiler arrangement. But on large vessels it is more efficient for the auxiliary boiler to take advantage of the main engine flue gases to heat the water. This means that the hot gases from the main engine must pass through a heat exchanger (the auxiliary fire-tube boiler) before exiting to the atmosphere.

If the ship's main engine is not running, there are no hot flue gases to make steam. The auxiliary boiler also has a burner assembly which can be operated while the ship is in port or when the flue gases are not hot enough to provide the necessary steam.

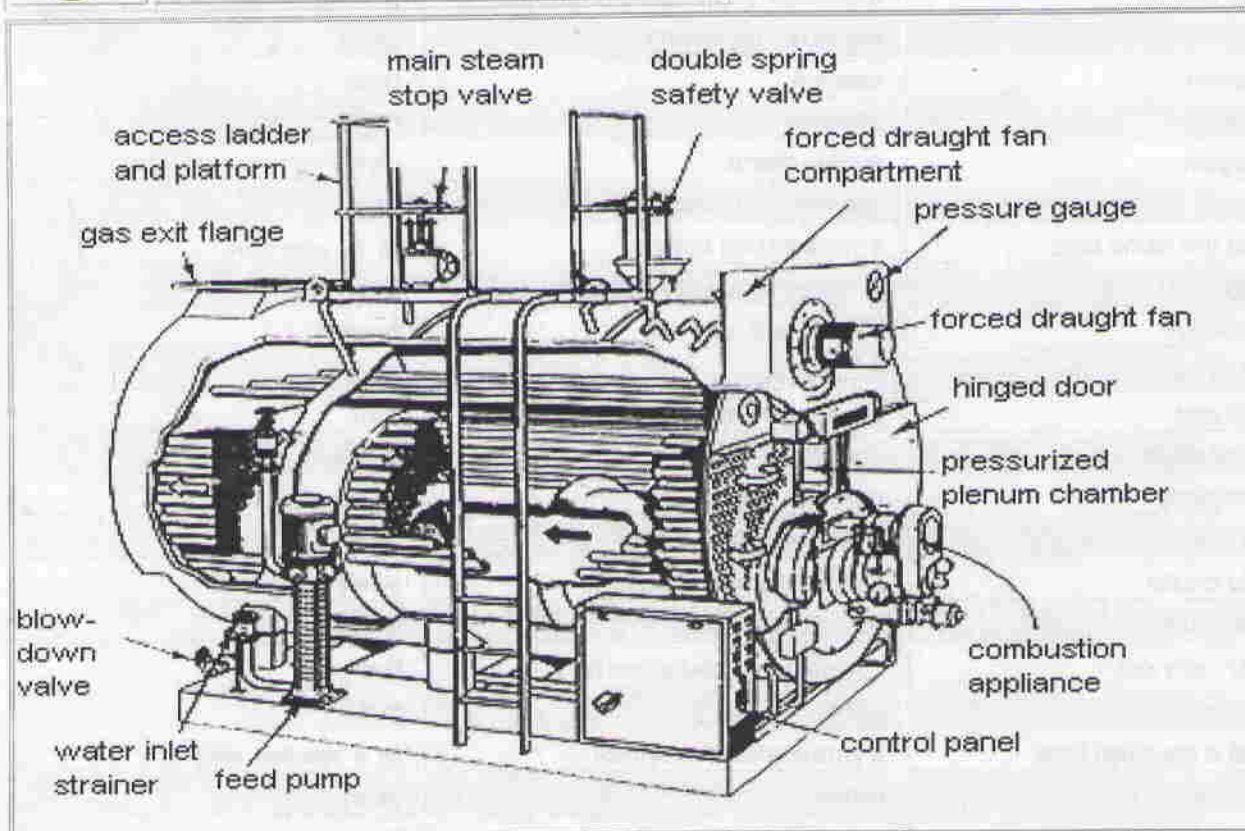
The flow of flue gases from the engine is usually controlled by a damper. If the damper does not allow engine flue gases to pass through, the burner will automatically start and provide heat for the water to absorb until the damper control allows the flue gases to flow through the boiler providing the necessary heat for the water.

to look	выглядеть, казаться	[lʊk]
complicated	сложный	['kɒmplikeɪtɪd]
quantity	количество	['kwɒntəti]
tube-like	похожий на трубу	[tju:b laɪk]
to call	называть	[kɔ:l]
heart	сердце	[hɑ:t]
here	здесь	[hɪə]
to end up	оканчивать(ся), прекращать(ся)	[end ʌp]
to enter	входить, проникать	['entə]
lower	нижний	['ləʊə]
back	обратно	[bæk]
again	вновь, опять	[ə'geɪn]
until	(до тех пор) пока (не)	[ʌn'tɪl]
at the same time	в тоже самое время	[ət ðə seɪm taɪm]
to determine	устанавливать, определять	[dɪ'tɜ:mɪn]
various	различный, разный	['veəriəs]
to clog	засорять	[klɒg]
to rust	подвергать коррозии, окислять	[rʌst]
improper	неправильный	[ɪm'prɒpə]
impurity	примесь, грязь	[ɪm'pjʊəreɪtɪ]
outer	внешний, наружный	['aʊtə]
to create	создавать, производить	[kri'eɪt]
to remedy	исправлять, исцелять	['remɪdi]
to carry out	производить, выполнять	['kæri aʊt]
soot	сажа	[su:t]
at a specified time	в установленное время	[ət ə 'spesɪfaɪd taɪm]
lance	копье	[lɑ:ns]
tip	наконечник	[tɪp]
action	действие	['ækʃən]
to scrub	скрести	[skrʌb]
outside	внешняя, наружная часть	['aʊt'saɪd]
to vary	отличаться, различаться	['veəri]

saturated steam	насыщенный пар	['sætʃəreɪtɪd stɪ:m]
superheated steam	перегретый пар	['sju:pəhi:tɪd stɪ:m]
to turn into	превращать во (что-либо)	[tə:n ɪntə]
would most likely be	скорее всего будет	[wʊd məʊst 'laɪkli bi:]
to take advantage	воспользоваться с выгодой	[teɪk əd'vɑ:ntɪdʒ]
to exit	выходить, покидать	['egzɪt]
damper	амортизатор, заслонка	['dæmpə]
to allow	позволять, разрешать	[ə'lau]



FIRE-TUBE BOILER



On a modern ship the fire-tube boiler meets the ship's heating needs and is generally not used for deck machinery. The steam produced will circulate through coils in the cargo tanks, fuel tanks, and accommodation heating system. They are generally supplied as a complete package.

This is a single-furnace, three-pass type fire-tube boiler. Heat (flue gases) travels through three different sets of tubes. All the tubes are surrounded by water which absorbs the heat. As the water turns to steam, pressure builds up within the boiler. When there is enough pressure the engineer will open the main steam outlet valve slowly, supplying steam for service.

Fire-tube boilers are also known as "smoke tube" and "donkey boiler".



OPERATING INSTRUCTIONS

To avoid the danger of a blowback when lighting boilers, follow the procedures:

- there should be no oil on the furnace floor;
- the oil should be at the correct temperature for the grade of oil that is used;
- the furnace should be blown through with air to clear any oil vapour;
- the torch, specially provided for the purpose, should always be used for lighting a burner unless another burner in the same furnace is already lit. Other means of ignition, such as placing burning material into the furnace should not be used;
- if all is in order, the engineer should stand to one side, and the lighted torch inserted and fuel turned on. Care should be taken that there is not too much oil on the torch which may leak and possibly cause a fire;
- if the oil does not light immediately, the fuel supply should be turned off and the furnace ventilated by allowing air to blow through for 2 or 3 minutes to clear any oil vapour before the second attempt to light is made. During this interval the burner should be removed and the atomizer and tip inspected to check that they are in good order;
- if there is a total flame failure while the burner is alight, the fuel supply should be turned off.

to meet needs	отвечать нуждам	[mi:t ni:dz]
generally	как правило, в большинстве случаев	['dʒenərəli]
coil	змеевик	[kɔil]
complete package	полный комплект	[kəm'pli:t 'pækidʒ]
to surround	окружать	[sə'raund]
to build up	постепенно усиливать(ся)	[bild ʌp]
slowly	медленно	['sləʊli]
also	тоже, также	['ɔ:lsoʊ]
to avoid	избегать	[ə'vɔid]
blowback	проскок пламени (в горелке)	['bləʊbæk]
to light	зажигать	[laɪt]
grade	сорт, марка	[greɪd]
vapour	пары, испарения	['veɪpə]
torch	горелка	[tɔ:tʃ]
purpose	назначение, цель	['pə:pəs]
unless	если не	[ʌn'les]
same	такой же, одинаковый	[seɪm]
lit	зажженный	[lɪt]
means	средство, способ	[mi:nz]
ignition	воспламенение, зажигание	[ɪg'niʃən]
to cause	послужить причиной	[kɔ:z]
immediately	тотчас же, сразу, незамедлительно	['ɪmi:diətli]
attempt	попытка	[ə'tempt]
atomizer	распылитель	['ætəumaɪzə]
flame	огонь, пламя	[fleɪm]
failure	повреждение, отказ	['feɪljə]
alight	зажженный	[ə'laɪt]

UNIT 10

СТАНДАРТНЫЕ РАБОЧИЕ ОПЕРАЦИИ И ОБСЛУЖИВАНИЕ / STANDARD OPERATION PROCEDURES AND MAINTENANCE



STANDARD OPERATIONS

MAIN ENGINE

- Each type of engine is designed to operate at maximum pressure and maximum speed.
- It is important to get almost equal power output from each cylinder.
- The fuel injection equipment must be maintained in perfect condition and the fuel valves should be checked regularly. Spare fuel valves must be kept for a possible immediate change without big loss of time.
- All parts of the scavenging air system and spaces should be regularly inspected for cleanliness.
- Crankcase and running gear inspections should be made regularly to check all is in good condition.
- Cylinder oil consumption rate must be monitored and controlled by the Chief Engineer.
- Crankcase oil must be maintained in clear condition and free of water. The oil should be centrifuged continuously at 90°C.
- Fuel oil should be properly cleaned by centrifuging.

AUXILIARY ENGINES

- These engines must be maintained to a high standard as they are necessary for the efficient and proper operation of all other machinery and equipment onboard.
- In order to reduce maintenance and fuel costs, running auxiliaries should be kept to the minimum enough to maintain the electrical requirements.
- All non-running engines should be kept in a "Ready to Run" condition for a quick start in case of emergency.
- Lube oil should be changed after each overhaul (approximately 6000 hours).
- The lube oil should also be changed if it is not clean or of bad quality.

BOILERS AND PUMPS

- The Chief Engineer must always know the general condition of any boiler in his charge.
- The heating surfaces must be kept clean.
- All boiler gauge glasses, drain valves, and soot blowers must be kept in proper operational condition.
- All safety devices, alarms, and automatic controls must be kept in working condition. All alarms and safety systems should be tested every month.
- All pumps must be maintained in proper operational condition. Glands should be tightened to prevent leakages to bilges and possible loss of suction. Necessary gauges must be maintained in order to monitor the pump efficiency.

AIR COMPRESSORS

- Air compressors must be maintained in good working condition for a quick start of vessels and safe engine manoeuvring.
- A spare set of suction and delivery valves must be kept.
- The use of synthetic oil improves general condition and cleanliness of the valves.

VALVES / PIPES

- It is very important that all valves and pipelines on a vessel are kept in good condition.
- Pipelines should be completely tightened and valves must be kept completely functional all the time. This is very important when it is necessary to isolate tanks and equipment especially when repairs are required.
- All pipelines and valves should be checked on a regular basis.

WINDLASS AND DECK MACHINERY

- The lubrication is the Chief Officer's responsibility but the Chief Engineer is responsible for all mechanical and electrical equipment.
- Correct condition of the brakes, clutches, gearing must be checked by the Chief Engineer every voyage.

DECK CRANES

- This equipment requires close attention and must be tested at least once a voyage but especially when it will be used in the near future.
- All safety devices must be kept in good operational condition.
- It is very important that the hydraulic oil is maintained clean without water or other substances.
- Filters and magnetic plugs must be checked and cleaned every time before the cranes are required.
- The hydraulic oil should be renewed every 6 months.

ELECTRICAL EQUIPMENT

- The electrical equipment on the vessel must be maintained in safe condition. The Chief Engineer should check this by regular personal inspections and supervision of the Electrical Engineer.
- Voltages in excess of 55 volts AC are lethal. Circuits must be isolated before start of work.
- Moisture, heat, overloading, and mechanical damage can have serious effects on the electrical insulation. Wiring especially in cargo spaces on dry cargo ships and on open deck should be regularly inspected. If the fault is serious and repairs cannot be immediately carried out, the circuit must be isolated.
- The insulation resistance of electric motors, equipment, and circuits should be checked once every year.
- Emergency batteries must be maintained in perfect condition and the specific gravity of the acid or alkali liquids should be checked every week when batteries must be topped up by distilled water if required.

**EXTREME WEATHER CONDITIONS****GENERAL**

During periods when the ship is in cold weather conditions precautions must be taken to prevent damage to the ship and systems. There is a risk that equipment will freeze. Pay attention to relief valves and cooling water systems. Use heating systems if they are fitted.

The gas condensers and heat exchangers should be drained when they are not in use. Water collected on the discharge side of relief valves should be drained off.

ROTATING EQUIPMENT

Cold weather may cause cargo condensation in rotating equipment that may enter the crankcase, mix with the lubricating oil and cause damage to the bearings with the possibility of overheating resulting in an explosion. Crankcase heaters must be used to reduce the possibility of cargo condensing.

CARGO COMPRESSORS

During periods of freezing weather the following precautions must be taken to prevent damage to the cylinder blocks of cargo compressors. Pay more attention to compressors if they are located on the open deck:

- 1) There must be a sufficient level of anti-freeze in the cooling system to prevent freezing at the temperature of minus 20°C.
- 2) The density of the anti-freeze mixture must be checked by a hydrometer or another density measuring device.

PNEUMATIC VALVES AND CONTROL SYSTEMS

During periods of cold weather pneumatic valves and control systems may work slowly or don't operate. It is very important that the drier on the control air compressor operates correctly.

PIPELINES

All pipelines that have water and may be frozen must be drained when they are not in use. This includes freshwater lines, compressed air lines, ballast and cooling water lines. The drain valves on these lines should be in the open position. If any water system was drained this fact should be recorded.

UNIT 11

НЕИСПРАВНОСТИ / TROUBLESHOOTING



CYLINDER WEAR

It is normal for most engines to have some wear, but there are sometimes incidents of much higher wear that can cause the need for an expensive overhaul and renewal of liners and pistons.

There are three types of wear: corrosive; abrasive (caused by hard foreign particles between sliding surfaces); and frictional (caused by temporary breakdown of oil supply and resulting in metal-to-metal contact). In a normally running engine all three types of wear can present together.

Corrosive wear is caused by the formation of sulphuric acid inside the cylinder which forms on the cylinder surfaces. Only a small proportion (about 0.1%) of the sulphur in the fuel transforms into sulphuric acid, the rest of the sulphur oxides pass out the cylinder with the exhaust gases.

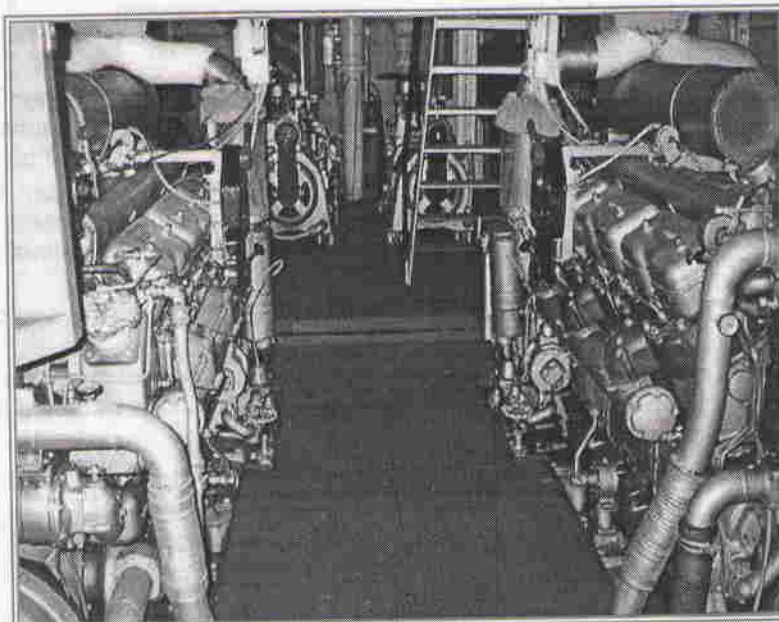
Abrasive wear is caused by hard particles in the inlet air or by the products of wear which are abrasive, or by hard carbon (caused by poor combustion) and other material which breaks away from the piston or cylinder surfaces. Effective air filtration is, of course, important though abrasive material in the inlet air is not often in a marine environment.

Frictional wear is a normal process in the cylinder that takes place on different parts of the cylinder. If the formation of the frictional wear is in normal limits, it is OK but in more serious cases it may cause a serious damage of the cylinder and piston rings.

CAUSES OF EXCESSIVE WEAR

When there is excessive wear of piston rings and cylinders the cause is usually one or more of the following factors:

- inadequate oil supply or bad lubrication;
- lubricating oil is too low in viscosity;
- incorrect piston ring clearances;
- bad cylinder liner material;
- cylinder wall temperatures are too high or too low;
- overloading of the engine;
- scavenge air temperature is too low especially in humid climates, resulting in excessive quantities of condensed water entering the cylinder;
- inefficient combustion.



most	большинство	[məʊst]
some	некоторое количество	[sʌm]
higher	более высокий	['haɪə]
to cause	послужить причиной, привести к	[kɔ:z]
need	нужда, необходимость	[ni:d]
expensive	дорогой	[iks'pensɪv]
renewal	обновление	[ri'nju:əl]

hard	жесткий, твердый	[hɑ:d]
foreign	иностранный, инородный	['fɔ:rn]
particle	частица	['pɑ:tɪkl]
sliding	скользящий	['slaɪdɪŋ]
surface	поверхность	['sə:fɪs]
temporary	временный	['tempərərɪ]
present	присутствовать	['preznt]
acid	кислота	['æsɪd]
inside	внутри	['ɪn'saɪd]
only	только	['əʊnli]
sulphur	сера	['sʌlfə]
oxide	окись	['ɒksaɪd]
to pass out	покидать	[pɑ:s aʊt]
to break away	отпадать	[breɪk ə'weɪ]
marine	морской	[mə'ri:n]
environment	окружающая среда	[ɪn'vaɪərənmənt]
excessive	чрезмерный	[ɪk'sesɪv]
following	следующий	['fɒləʊɪŋ]
inadequate	недостаточный	[ɪn'ædɪkwɪt]
supply	поставка	[sə'plaɪ]
viscosity	вязкость	[vɪs'kɒsɪti]
clearance	зазор	['klɪərəns]
humid	влажный, мокрый	['hju:mɪd]



EXPLOSIONS IN CRANKCASE

There were some cases of explosions in the crankcase caused by hot spots in thrust bearings after the supply of oil failed.

The crankcase explosions were sometimes very serious with loss of life. They were ignited due to hot spots in the thrust bearing or the white metal melted out of the bearing so the crankshaft was displaced in the longitudinal direction and hot spots arose between a crank web and a main bearing end surface.

One of the cases happened in 1995 and was caused by a piece of packing rubber which was sucked up from the oil pan, passed through the oil pump and through the filter in which the filter wire mesh was corroded and burst.

The filter was of the air-cleaned type which should not be separated for cleaning and it was not inspected for many years.

Precautionary measures:

- keep the lubricating oil filter in order, clean it before the pressure loss becomes high and inspect the filter wire mesh once a year;
- inspect and if necessary clean "dead ends" in the lubricating system (places where the oil speed is zero or low) for impurities and sludge.



WATER-WASHING

We introduced the water-washing by means of an air-operated spray gun for the turbine side of the turbocharger and compressor side, too.

Our experiences with the water-washing of the turbine side have been satisfactory as the water-washing has been able to reduce deposits on the turbine blades so that the gas flow condition and

efficiency of the turbine side can be maintained. Also the possibility of unbalance and risk of bearing damage will be decreased.

Our experiences with the water-washing of the compressor side has also been satisfactory but in some cases greasy sludge from the compressors stuck between the fins in the air coolers so extra cleaning was necessary.



ROLLER BEARINGS

In the engines equipped with roller bearings in roller guides for fuel pumps and exhaust valves, the roller bearings show a shorter lifetime than it was expected.

Examinations show that wear may occur within 10000 hours, so we recommend to check these bearings with regular intervals. The mistake in replacement of worn roller bearings involves the risk of damage to cams, camshafts, roller guides, and housings.



TURBOCHARGER CLEANING

Cleaning of the turbocharger during running was investigated and especially water-washing and dry-cleaning were examined.

For a long time we chose water-washing as standard on both the turbine and the compressor side, but there is a risk that deposits from the compressor will stuck in the air cooler.

In general we have very good experience with water-washing of the turbine, but a reduction of the engine load is necessary while carrying out the process. Now we also have good results with dry-cleaning of the turbine side and we introduce this procedure as a standard for new engines.

As the dry-cleaning procedure does not require the load reduction, we recommend the instruction of dry-cleaning also for engines already in service.

You can get the information about installation and instruction in the dry-cleaning procedure if you contact the engine builder.



PISTON ROD AND STUFFING BOX

INTRODUCTION

For this engine type we worked out a dismantling and mounting procedure to lift a piston with the piston rod and stuffing box without the use of threaded holes in the piston crown.

The reason why we changed the lifting method was to eliminate the risk of crack formation at the lifting holes and also to facilitate maintenance work and reduce the time used for taking out of pistons. In some cases much time is used for cleaning of the lifting holes in the piston crown before fitting of the tool. With this method the lifting tool engages the upper ring groove.

The piston is supported through the scavenging port and the crosshead is turned to its bottom dead position. A special nut is screwed to the piston rod end and the piston is turned up to its top dead position by means of the crosshead.

The lifting tool is fitted in the upper ring groove, after that the piston is lifted out of the engine. When fitting the piston again with the stuffing box, the tool guides the piston rod and the stuffing box so that the guide pin between the piston rod and the crosshead and the guide pin between the stuffing box and the stuffing box flange in the scavenging box are correctly fitted.

Tests show that the new piston overhaul procedure can reduce the working time. Besides, the engine-room crane will be available to some extent for other work due to the fact that the crosshead is used for turning the piston out of the cylinder liner.

DISMANTLING OF PISTON WITH ROD AND STUFFING BOX

- Open the inspection covers and vent the engine. Turn the piston to the top dead center.
- Remove the cylinder cover.
- Remove the locking device for the piston rod nut.
- Remove the piston rod nut.
- Remove the inspection cover of the scavenging air box in the way of the scavenging air ports of the cylinder liner and fit the support for the piston in the scavenging air box, so that the tool

projects through one of the scavenging air ports. The spring will pull the tool backwards in the scavenging air port.

- Remove the screws between the stuffing box and the flange.
- Carefully turn the piston towards the bottom dead center while pressing the tool in the scavenging air port inwards against its stop on the outside of the cylinder liner. Check that the tool is fully depressed when the piston lower part lands on the tool.
- Complete the turning to the bottom dead center where the piston will be left suspended on the tool in the scavenging air port.
- Mount the guide for the stuffing box on the piston rod. Fit and retighten the nut a few turns at the piston rod end. Mount the two guide tubes halves and tighten them against the guide by means of the nut.
- Turn carefully to the top dead center while making sure that the stuffing box guide does not hitch at the flange for the stuffing box.
- Remove the upper piston ring and clean the ring groove or if the piston is provided with a special lifting recess, clean this and then mount the lifting tool on the piston.
- Lift the piston with the rod and the stuffing box out of the engine and lower it on the support.

MOUNTING OF PISTON WITH ROD AND STUFFING BOX

- Fit the guide so that the piston rod guide pin is in the hole of the guide and hold it by means of the guide tube and the nut. The guide pin in the guide tube needs to be guided in the corresponding hole in the crosshead and is indicated towards the camshaft side.
- Attach the stuffing box to the guide with the screws, making sure that the guide pin at the bottom of the stuffing box housing faces the same side as that in the guide tube.
- Turn the crosshead to the top dead center.
- Carefully lower the piston into the cylinder until the piston rod end rests on the crosshead. Check that the guide pin in the tool hits the guide pin hole in the crosshead.
- Remove the lifting tool and fit the upper piston ring if it was removed.
- Fit the support for the piston in the scavenging air port, dismantling of piston. Then turn the crosshead carefully towards the bottom dead center.
- When the red line on the guide appears under the flange for the stuffing box, stop turning and remove the screws for the stuffing box tool.
- Continue turning carefully towards the bottom dead center until the piston lands on the support fitted in the scavenging air port, dismantling of piston.
- Turn the crosshead to the bottom dead center and remove the tool on the piston rod end.
- Turn the crosshead upwards, so that the piston is lifted free of the support in the scavenging air port. Make sure that the guide pin between the piston rod and the crosshead is guided correctly in the hole.
- If the guide pin does not enter the hole in the crosshead, the piston should again be landed on the support in the scavenging port. Turn the crosshead to the bottom dead center and place the guide ring on the crosshead with the flattened edge at the guide pin hole so that the hole is free.
- Turn the crosshead upwards until the piston is clear of the support in the scavenging air port. Fit the strap on the piston rod and turn the piston to its correct position.
- Remove the strap and turn the crosshead until the piston rests on the support.
- Remove the guide ring and turn the crosshead upwards so that the piston goes clear of the support.
- Remove the support and fit the cover of the scavenging air box.
- Tighten the stuffing box to the flange under the scavenging air box and secure it.
- Mount the piston rod nut with great care. The nuts and crosshead must be in good condition, plane, smooth, and free from scratches.
- Carry out tightening by means of the hydraulic tool and in accordance with the tightening instructions.





QUESTIONS AND ANSWERS

?? What is the effect of early and late fuel injection?

Early fuel injection causes oil to ignite too soon causing back pressure on the piston and, as a result, loss of power. Pre-ignition may cause damage to the cylinder and the cylinder heads. Late ignition causes smoky exhaust, losses of power, and incomplete combustion. Incomplete combustion results in carbon accumulation which affects piston rings and valve stems.

?? What is the cause of "detonation" or "fuel knock" in a diesel engine cylinder?

During the ignition delay period injection of the fuel is contained so that there is great quantity of fuel in the cylinder prior to ignition. When ignition takes place the whole accumulation burns violently. This rapid burning results in extremely high pressure in the cylinder accompanied by pressure waves. This rapid increase of pressure and vibrating pressure waves results in a noise known as fuel knock.

?? The engine shows a very black and smoky exhaust, what to do?

Find out if the engine is overloaded, check the exhaust pyrometer and see that the cylinders carry an equal amount of the load and adjust fuel valves and spray valves. Check fuel oil for cleanliness and water. Check scavenging air on a two-cycle engine. A poor grade of fuel oil may also cause smoky exhaust.

?? Do you need to shut off the cooling water immediately after stopping a diesel engine?

No. The reason to keep the cooling water circulating after the engine is stopped is to prevent the lubricating oil from being evaporated from the cylinder walls and the piston rings. In case the engine is cooled directly by sea water, there would be formation of scale because of excessive heat after the engine is stopped.

?? Why is oil used instead of water for cooling pistons of diesel engines?

If water is used and there is a leak, it may leak into the crankcase, emulsify the oil, and spoil its lubricating properties and so burn out bearings and cause a great damage to the engine.

?? What are the preparations for starting up engines after installation, long standstill, or major overhaul?

Crankcase should be cleaned well and all internal parts wiped off if necessary. Use rags. Adjust and secure all internal bolts. Be aware that any loose bolt, screw, or nut may have serious consequences, especially when they cannot be adjusted during operation.

?? How can you learn that the lube oil has not been properly filtered?

The lube oil has not been filtered if you find dirt and scratches on the surface of the main bearings on a diesel engine while inspecting them.

?? What is a possible cause for an individual piston to knock when at TDC on a slow speed, two-stroke main propulsion diesel engine?

Early fuel injection, excessive bearing play within the running gear, or overloading of the cylinder.



TROUBLESHOOTING OF DIESEL ENGINE

What's the problem	Cause	Where to look	What to do
Engine refuses to start	No fuel	Supply tank Supply tank valve	Fill tank Open valve
	Starting air pressure too low	Starting air pressure gauge	Start air compressor Recharge reservoir
	Air in fuel line or pump	Fuel pump	Prime fuel pump Check line for leaks
	Injection nozzles not working	Nozzles	Remove injectors and clean Examine spring

Engine refuses to start	Compression low	Valves Pistons	Examine to see if seating properly; Examine piston rings, if supercharged, inlet filter could be dirty
	Viscosity of oil too high	Fuel tank	Put on heating steam Circulate fuel lines
	Cylinder too cold	Cylinder cooling water pump	Cooling water may need heating
	Injection timing wrong	Fuel pump	Adjust
Engine starts on air but refuses to pick up firing	Valve open	Inlet exhaust valve	Free if stuck
	Fuel system air locked	Fuel pipes	Prime fuel pumps and test
	Filter choked	Fuel filter	Turn on #2 filter Clean #1 filter
	Fuel injector filter choked	Fuel injector	Remove filter Fit spare filter
	Fuel pump set incorrectly	Fuel pump timing gear	Reset fuel pump
	Level of oil in service tank too low	Service tank gauge	Refill service tank and prime fuel pumps
Engine slows down or stops	Governor gear defective	Governor and linkage	Check setting of governor
	Fuel injector delivering too little fuel	Fuel pump Injector	Adjust Put in new injector
	Water in fuel oil	Filter	Turn on #2 filter Clean #1 filter
	Overloading	Gauges	Look at all gauges Reduce load
	Unequal load being developed in one cylinder	Exhaust temperatures	Adjust fuel supply to low cylinder Check injector nozzle and fuel pump delivery valve
	Stoppage of cooling water	Circulating pump	Regrind pump gland Reset heat exchanger thermostat
Engine runs fast	Governor gear out of order	Governor and governor links	Clean oil and reset Check connections
	Fuel pump not responding to governor	Fuel pump	Examine fuel pump to governor joint
Engine works irregularly	Governor gear out of order	Governor and linkage	Examine, clean, and oil
	Water in fuel	Fuel filter	Replace filter
	Overloading	All gauges	Adjust where necessary
	Fuel pump valve leaking	Fuel pump	Delivery valve may be stuck open
	Fuel pump sticking	Fuel pump	Check spring Clean pump plunger
Fuel delivery differs	Injectors	Adjust until all inject at same pressure	

UNIT 12

БУНКЕРОВКА / BUNKERING OPERATION



BUNKERING OF SHIPS

The bunkering starts a few days before when the Chief Engineer contacts the operators and discusses the conditions of bunkering operation with them. Before that the shipmanager arranges the delivery of fuel oil, its quantity, grade, and cost.

After the vessel is securely moored to the bunkering tanker (if fuel oil is supplied from the bunkering tanker) the fuel oil certificate is checked. The Bunker Delivery Note is necessary to check the compliance of the delivered oil. It is kept onboard for three years after the fuel delivery. The fuel sample is attached. A supplier is responsible to provide this sample but it can be taken onboard as well. The sample is kept onboard for one year.

The Bunker Delivery Note has:

- name and IMO (International Maritime Organization) number of the ship;
- port;
- date of delivery;
- name, address, and telephone number of fuel oil supplier;
- product name;
- quantity (metric tones);
- density;
- sulphur content;
- flash point.

Bunkering is a dangerous operation that must be carried out very carefully. Before it begins the watchkeeping officer informs the crew about the start of bunkering operation and gives an order not to smoke on the deck. He also checks that red light/flag Bravo is displayed and there are no hot works that can produce a spark.

Each vessel has a schedule of bunkering operations where crewmembers can learn when they participate in bunkering and what their duties are. They will also have a meeting with the 3rd or the 2nd Engineer to discuss actions during bunkering in more detail.

At the same time the crew prepares the bunkering station. They supply it with sawdust, rags, buckets with sand, fire extinguishers, and other oil spill absorbent materials in case of accidental spillage, pollution, or fire. Drip trays are placed under the flanges. All drain pipes and scuppers on the deck must be

plugged. Flanges of the fuel hoses or pipes are connected and firmly tightened with the help of nuts and bolts.

The service staff is supplied with a portable radio to communicate with the engine-room, bridge, bunkering barge, or coast bunkering personnel. And there must always be a visual watch during the whole operation.

The Third Engineer takes readings in all fuel tanks and writes them down in the log-book. He opens the valves on the tanks that will be filled with fuel. When fuel oil system is prepared the Third Engineer reports to the Chief Engineer that everything is ready for bunkering.

The Chief Engineer orders to start bunkering but first he tests the pressure of flowing liquid. A motorman examines the connection of the hose with the bunkering station flange. If there are no leakages the Chief Engineer orders to continue bunkering with full pressure.

When a tank is filled to 70% capacity the engineer will give an order to reduce pumping rate to half capacity. When a tank is filled to 80% capacity the engineer will order the barge to stop pumping for five minutes to avoid air pockets. Then they will continue at minimum rate until sounding shows 90%.

After all tanks are full they are checked and readings are taken again. If everything is all right the Chief Engineer signs all documents. Motormen unscrew the connecting nuts of the flanges and remove all fire-fighting equipment. The time when the bunkering was finished and the amount of taken fuel are recorded in the log-book.

Before disconnecting the engineer will ask the barge to blow the hose with air to empty the system. Depending on the contract, the hose will be disconnected by the supplier or by the ship's personnel. In any case the Chief Engineer must make sure that the hose is empty. A driptray must be placed under the manifold for draining during disconnection. Flanges must be immediately secured on the bunkering hose and the ship's manifold and fully bolted.

It is necessary to be very careful during the bunkering. In case some fuel oil leaks into the sea, the Port State Control fines the vessel's officers who were responsible for the leakage. Plus the staff will be punished or fined by the shipowner as well because the fuel oil is very expensive and even the loss of the smallest part of fuel is a big fault of the staff.

Bunkering can cause many problems so the Chief Engineer must be in charge of bunkering. He must prepare written instructions:

- pipeline diagram including location of all valves, pumps, controls, vents, and overflow systems;
- number of persons required to be on duty;
- procedures for emergency shut down;
- valve closing procedures;
- pollution reporting procedures;
- scupper plugging reminder;
- ship/shore communication procedures;
- a reminder to check the condition of all bunker hoses and pressure test lines as required.



TANK OVERFLOW DURING BUNKERING

In case of tanks overflow, immediately take such measures as:

- Stop all transfer of cargo and bunkering operations, and close manifold valves.
- Sound the General Alarm, and start emergency procedures.
- Inform the bunkering personnel about the incident.
- Begin clean up procedures.
- Prepare portable pumps if it is possible to transfer the overflowed oil into the empty tank.

After the spill it may be necessary to get permission from the local authorities or terminal to continue normal operations.



UNIT 13**ІНСТРУКЦІЇ / INSTRUCTIONS****EXHAUST GAS
ECONOMIZER CLEANING**

Regular water-washing of exhaust gas economizer is an important part of routine maintenance. Most ships do this but a week ago the motor vessel London Tower during washing of the economizer allowed water and soot to run back through the exhaust pipe to the turbocharger and so on departure from the port the turbocharger couldn't reach normal RPM (revolutions per minute).

The ship had to proceed at slow speed to an anchorage for cleaning of the turbocharger and lost 8 hours.

The Chief Engineer was a company man and may be thought that such a job did not need his attention. The 2nd Engineer was new to the company and so needed to be carefully supervised until it was certain that he was competent in that position.

It was a simple and basic maintenance procedure but necessary care wasn't taken.

**WELDING OPERATIONS**

There was one more fatal accident during welding operation on the deck. A full investigation will be carried out when the ship gets to the port but it is reported that the weather conditions were bad and there was water on the deck but the welding operation was carried out anyway. The fitter fell off a pipe on the wet deck holding his welding electrode holder. Though other crewmembers did everything for rescue he died at once.

Please pay attention that welding is a hot work and has much risk. Welding and water do not mix. Welders must have a safe and stable platform to work on. There should be supervision of all welding operations and safety measures.

**OIL RECORD BOOKS /
OILY WATER SEPARATOR**

Royal Caribbean Cruise Lines operate several very large modern cruise vessels from Miami and cruise all over world.

We received the report that RCCL were fined US \$54 million by the US Coast Guard for the discharge of oil overboard, incorrect Oil Record Book, and Oily Water Separators not working correctly.

RCCL were able to reduce their fine to US \$19 million after they agreed to use a program of corrective actions including the use of American pollution consultants, training, and technical changes.

Company requirements are absolutely clear and must be followed. If technical defects happen they must be reported and corrected ASAP.

All movements of oil on the ship and full details of all discharges for any reason must be recorded in the Oil Record Book.

The Oil Record Book must be kept accurate at all times.

**EFFECTIVE RESPONSE
TO EMERGENCY**

Asian Glory, which is a car carrier, loaded 2938 new and used vehicles in Ulsan for discharge in Sultan Qaboos.

At 06:55 in the morning the fire alarm sounded indicating a fire on the deck #4. The fire party mustered immediately and in 3 minutes two crewmembers (A/B and 2/E) extinguished the fire with portable dry powder extinguishers. Other crewmembers brought more extinguishers which were also used. The cause of the fire was an electrical short at the battery in one of the used cars.

It is important that all crewmembers know the equipment they must use in emergency situations and know what actions they must take. Training and drills are the most effective way to have good and effective results. Everyone onboard should understand that what they learn and experience may one day save lives – maybe their own life.



MAIN ENGINE SCAVENGE SYSTEMS

Several vessels experienced serious operating difficulties and in some cases great engine damage simply due to bad maintenance of the scavenge air system.

Cleanliness is the most important and air filters, air coolers, scavenge spaces, and scavenge valves must be regularly cleaned and all drains from chambers and pipes must be blown through and checked each watch.

Chief Engineer will be responsible if a vessel cannot operate at full speed because of problems within the scavenge system, poor maintenance, and poor watchkeeping procedures. So you are required to begin a program of maintenance and teaching immediately to improve engine-room operation and watchkeeping standards.



SHUT DOWN OF DIESEL GENERATOR AND MAIN ENGINE

We had several incidents when diesel generators and/or main engines were shut down due to water collecting in the service tanks and passing over to the engines.

It is a simple watchkeeping duty to operate the drain valve each watch to ensure such water is removed.

Another problem with service and settling tanks is sludge in the bottom of such tanks. In periods of bad weather the sludge in the channel causes problems with purifiers and blocks main engine filters.

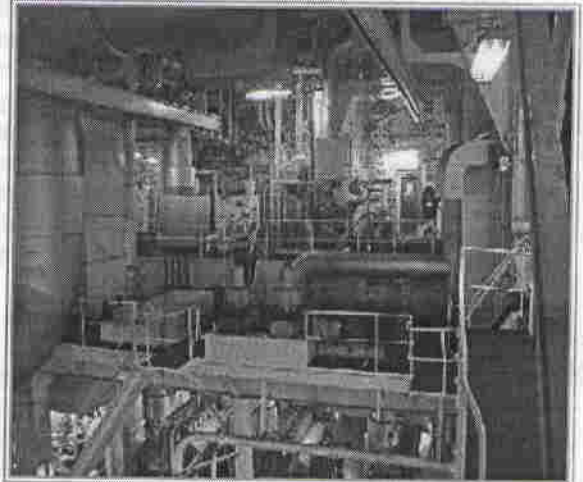
Of course, bad fuel is one of the reasons but mainly it is a simple matter of housekeeping.

Tanks should be drained, opened, and cleaned at least in every dry dock.

Other problems are connected with control or start of air systems. Dirt, water, or oil passing over with air will cause problems within pneumatic systems. It is necessary to ensure air dryers operate properly and air collectors with reservoirs are drained each watch.

It is the responsibility of watchkeepers to carry out these procedures but it is the responsibility of the Chief and Second Engineers to explain carefully watchkeeping duties and make sure that they are carried out correctly.

Prepare watchkeeping duties for each watch that must be signed by the responsible person and personally check that all duties are carried out properly.



PERSONAL PROTECTIVE EQUIPMENT

All our vessels are now supplied with Company overalls, safety shoes, hard hats, and other personal protective equipment that was provided to improve the safety standards onboard vessels and to help to reduce the number of accidents. But after number of ship's visits it was reported that not all staff are wearing this equipment. This situation is totally unacceptable. All staff members must wear overalls and safety shoes during working hours and hard hats when they work on the deck.

Chief Engineers and Chief Officers must ensure that everyone in their departments wears correct equipment, and if they do not they must be removed from their place of work until they wear correct equipment. In such case this person will pay a fine that is one day salary. Captain will be responsible for this. It is very important that all officers show a good example by wearing the overalls and shoes themselves to encourage ship's staff to wear the correct equipment. Captain and Chief Engineer must wear all safety equipment every time when they are going around the deck or engine-room, etc.

UNIT 14

ЖУРНАЛ / LOG-BOOK



ENGINE-ROOM REPORT

- The main engine #1 had a fault that could be caused by rotor misbalance. It was stopped, opened, and checked for external damage. The parts that were out of order were replaced with new parts. After this the turbine and blower parts were installed into their position and checked under the load.
- The main engine running was turned over to central control station.
- Add hydraulic oil into the winch.
- Steam injectors housing cracked. The watchkeeping motorman disconnected it from the steam system. The welder will weld the crack and after that the motorman will fit it into the position.
- On the lifeboat #1 portside the rudder is out of order.
- Tomorrow at 12:45 a watch motorman will install the shower tap in the Chief Engineer's cabin.
- In the cabin #16 on the lower deck the water tap is not working. The motorman should be sent to check, repair, or replace it for the new one.
- The threaded joint between the working sea-water pump housing and manometer broke down and extreme leakage occurred. As a result, all pumps were covered by sea water and required cleaning by the electrician. The pump was stopped and the leakage was plugged.
- The lifeboat engine exhaust manifold was broken. It was caused by acid corrosion. There was no water out and the exhaust manifold was replaced.
- The double action centrifugal pump got stuck. It was caused by the moving of impeller along the shaft. It was refitted.
- Blind flange should be installed into the branch which is connected with the suction pipe of the fire pump #2 portside.
- The new circulating pump didn't work. It was dismantled and mounted again after checking for inner faults. When the electric motor will be ready the pump should be connected.
- The new protectors were ordered from the turner – the full set for all four fresh-water generators.
- The drain valve in the toilet of the 2nd Officer's cabin should be disconnected, repaired, and fitted back.
- The water storage reached the sufficient quantity and so the first fresh-water generator stopped.
- The hot fresh-water system was cleaned so the pressure reached the normal quantity in the cabins and in the galley. But in the laboratory the water pressure is not in good condition. It can be caused by insufficient water pump rate. In this case a new water line must be made from the next cabin. But on the other hand the old water line should be checked for water presence.

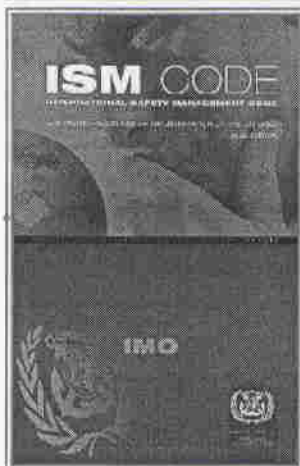


UNIT 15

КОНВЕНЦІИ / CONVENTIONS



ISM CODE



Statistics say that about 80% of all shipping accidents are caused by people. The International Safety Management Code (chapter IX of SOLAS) 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 injury or loss of life, and avoidance of damage to the environment, especially to the marine environment and to property.

The ISM Code establishes an international standard for the safe management and operation of ships - Safety Management System (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 emergency situations.

All companies must have Safety and Environmental Policy. It should describe the aim of the SMS and also have a strategy and a plan of action to achieve and maintain the aim.

A fundamental component of the SMS is the Designated Person (DP). This person supervises the operations of the SMS. If safety or pollution procedures are not carried out onboard, any crewmember can contact the DP. The DP will then try to correct this situation.

An audit is a "check" to ensure compliance with the ISM Code. When passing the audit for the first time, the officers get a DOC (Document of Compliance) and the vessels get a SMC (Safety Management Certificate). At regular intervals both the vessels and officers will be audited to "check" that everybody is following the SMS.

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, when involving risks such as 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 navigation 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 before taking over the watch. All watchkeepers must receive no less than 10 hours of rest in each 24 hour period.

PERSONAL PROTECTIVE EQUIPMENT

When you sign on your vessel you will get the necessary personal protective equipment required for your job. Depending on your position onboard, it can be: Safety Shoes, Boiler Suits, Hard Hats, Ear Protection, Safety Goggles, Gloves, etc. It's your responsibility always to wear the correct personal protective equipment and to keep it in good condition.



SAFETY OFFICER

The Safety Officer should be an experienced navigating or engineering officer whose duties are:

- to ensure that the provisions of the SOLAS and the company's Safety Management System are complied with;
- to investigate every shipboard accident or incident in a proper time;
- to investigate all potential hazards to health and safety and to make recommendations to the Master to prevent future accidents and remove the hazards;
- to keep detailed records of all accidents/incidents;
- to investigate all serious complaints by crewmembers concerning health and safety;
- to stop any work or procedure which he feels is unsafe and then immediately bring the matter to the attention of the responsible officer. This does not include emergency procedures;
- to ensure all new crewmembers and officers are thoroughly familiar with the company's safety policy;
- to implement the safety recommendations of the Safety, Quality and Environmental Management Committee;
- with the approval of the Master arrange the distribution of safety posters and safety notices which should include a notice stating the number of days since the last shipboard accident;
- to show safety films and/or videos;
- ask crewmembers to bring any ideas and suggestions for improving safety.



TRAINING DRILLS

In order to maintain an efficient response to emergency it is essential to have effective onboard training programmes. It is a requirement under the ISM Code for the company to have appropriate procedures for training in support of the SMS. The company should also establish programmes for drills and exercises to prepare for emergency situations.

The type of drills should be different and all safety equipment should be used at regular intervals. The crewmembers should be able to use all equipment including breathing apparatus, but individual duties at each type of incident must be carefully explained. All crewmembers should be trained in lifeboat and life raft operations.

The time of drills should be announced in advance but not the type of incident until the alarm has sounded; this way the drill will be more realistic. Upon completion of the drill it is vital to have a post-drill meeting.

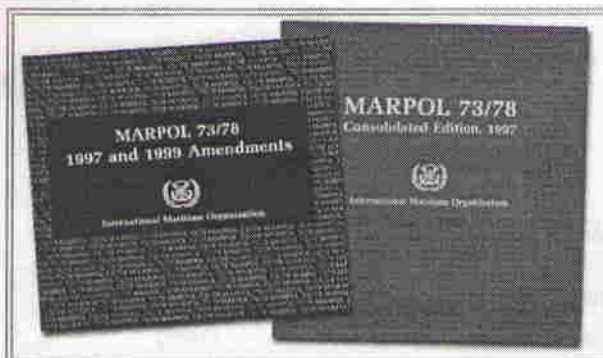
The following is a brief list of suggested types of emergency drills: accommodation fire, oil fire, galley fire, hold fire, ventilation control, machinery space fire, rescue from confined space, oil pollution, use of breathing apparatus, use of emergency fire pump, CO₂ system, foam system, pyrotechnics, emergency diesel, helicopter crash landing, helicopter evacuation via hoist/landing, collision, grounding, fire extinguishers, etc.

All drills and training will be recorded in the log-book with the exact events of the drill and details of the drills. Errors made during the drill must be entered. In the future these errors should be corrected.



MARPOL 73/78

MARPOL 73/78 – 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.



MARPOL has six Annexes:

Annex I	Regulations for the Prevention of Pollution by Oil
Annex II	Regulations for the Control of Pollution by Noxious Liquid Substances in Bulk
Annex III	Prevention of Pollution by Harmful Substances Carried by Sea in Packaged Form
Annex IV	Prevention of Pollution by Sewage from Ships
Annex V	Prevention of Pollution by Garbage from Ships
Annex VI	Prevention of Air Pollution from Ships



The Chief Engineer and his Officers must carefully learn MARPOL 73/78 regulations and pay special attention to oil pollution and waste disposal controls. The Chief Engineer must be responsible for proper and constant pollution controls and must instruct his staff.

The oily water separator should be utilized in accordance with the requirements and all entries made in the Oil Record Book. The oily water separator must be in full operation and ready for Port State inspection.

Any sludge discharged ashore should be recorded in the Oil Record Book and shore receipts kept. The sewage plant must be kept in good working order all the time.



SOLAS / STCW / IMO

INTERNATIONAL CONVENTION FOR THE SAFETY OF LIFE AT SEA (SOLAS), 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.

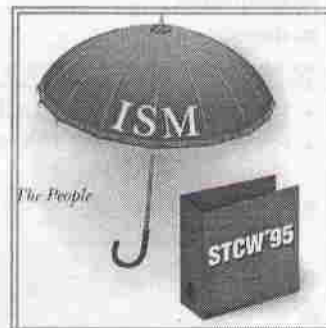
INTERNATIONAL CONVENTION ON STANDARDS OF TRAINING, CERTIFICATION AND WATCHKEEPING FOR SEAFARERS (STCW)

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.



INTERNATIONAL MARITIME ORGANIZATION (IMO)

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.



UNIT 16

ГЛАГОЛЫ РЕМОНТА / REPAIR VERBS



REPAIR

repair	[ri'peə]	ремонт
to repair	[ri'peə]	ремонтировать, чинить
✳ to repair - to fix something that is damaged, broken, or not working properly		
<ul style="list-style-type: none"> We have done the necessary repairs. I will repair the damaged pump. I have to repair this pipeline. 		<ul style="list-style-type: none"> Мы выполнили необходимые ремонтные работы. Я отремонтирую поврежденный насос. Я должен отремонтировать этот трубопровод.



FIX

to fix	[fiks]	1. приводить в порядок, налаживать, регулировать, ремонтировать, чинить 2. устанавливать, прикреплять, укреплять, закреплять
✳ to fix - to repair something that is broken or not working properly; to fasten, secure, or attach		
<ul style="list-style-type: none"> The Second Engineer is fixing the high pressure fuel pump. Motormen fixed the motor to the main deck. We fixed the shelves to the wall using screws. 		<ul style="list-style-type: none"> 2-ой механик чинит ТНВД. Мотористы установили мотор на главной палубе. Мы закрепили полки на стене при помощи винтов.




DISASSEMBLE DISMANTLE DISJOINT


to disassemble	['disə'sembəl]	разбирать, демонтировать разбирать на составные части
to dismantle	[dis'mæntl]	
to disjoint	[dis'dʒɔɪnt]	
✳ to dismantle - to take a machine or piece of equipment apart so that it is in separate pieces		
<ul style="list-style-type: none"> You have to dismantle the engine in two days. Please bring all the disassembled parts. These valves need to be disjointed. 		<ul style="list-style-type: none"> Вы должны разобрать двигатель за два дня. Пожалуйста, принесите все разобранные части. Эти клапаны необходимо демонтировать.





ASSEMBLE

to assemble	[ə'sembəl]	собирать, монтировать
✳ to assemble - to put all the parts of something together ✳ to assemble an engine - собирать двигатель		
<ul style="list-style-type: none"> We need to assemble this motor as soon as possible. 		<ul style="list-style-type: none"> Нам нужно собрать этот мотор как можно скорее.

 OVERHAUL		
overhaul	[ˈəʊvəhɔ:l]	ремонт, переборка
to overhaul	[əʊvə'hɔ:l]	капитально ремонтировать, перестраивать, реконструировать
<p>✘ overhaul - necessary changes or repairs made to a machine or system</p> <p>✘ to overhaul - to repair or change all the parts that need it in a machine, system, etc. that is not working correctly</p> <p>✘ complete overhaul - капитальный ремонт</p> <p>✘ major overhaul - капитальный ремонт</p> <p>✘ thorough overhaul - капитальный ремонт</p>		
<ul style="list-style-type: none"> • The Main Engine needs a complete overhaul. • We plan to overhaul the auxiliary engine. 		<ul style="list-style-type: none"> • Главный двигатель требует капитального ремонта. • Мы планируем перебрать вспомогательный двигатель.

 BOLT UNBOLT		
to bolt	[bɔ:lt]	скреплять, скручивать болтами
to unbolt	[ˈʌn'bɔ:lt]	выкручивать болты, разъединять (откручивая болты)
bolt	[bɔ:lt]	болт
<p>✘ to bolt - to fasten two things together using a bolt</p>		
<ul style="list-style-type: none"> • We bolted the cover to the cylinder. • You can use these bolts. • Unbolt the top cover. 		<ul style="list-style-type: none"> • Мы прикрутили крышку к цилиндру. • Ты можешь воспользоваться этими болтами. • Открутите верхнюю крышку.

 SCREW UNSCREW		
to screw	[skru:]	завинчивать, привинчивать, навинчивать
to unscrew	[ˈʌn'skru:]	отвинчивать, развинчивать, вывинчивать
screw	[skru:]	винт
<p>✘ to screw - to fasten one object to another using a screw</p> <p>✘ to unscrew - to loosen or remove a screw</p> <p>✘ to tighten a screw - заворачивать винт</p> <p>✘ loose screw - ослабленный винт</p>		
<ul style="list-style-type: none"> • Loose screws caused the fuel leakage. • I couldn't unscrew that nut. • Don't forget to screw the cap back on the oil container. 		<ul style="list-style-type: none"> • Ослабленные винты вызвали утечку топлива. • Я не смог открутить ту гайку. • Не забудьте закрутить крышку канистры для масла.

 ALIGN		
to align	[ə'lain]	центрировать
<p>✘ to align - arrange things so that they form a line or are parallel to each other</p>		
<ul style="list-style-type: none"> • The Chief Engineer ordered to align the crankshaft. 		<ul style="list-style-type: none"> • Старший механик приказал отцентрировать коленчатый вал.



CLEAN

to clean	[kli:n]	чистить, очищать от загрязнения
clean	[kli:n]	чистый, очищенный
✘ to clean - to remove dirt from something by rubbing or washing		
<ul style="list-style-type: none"> • This place needs cleaning. • Clean the air filter. • This surface is already clean. 	<ul style="list-style-type: none"> • Это место нужно очистить. • Очистите воздушный фильтр. • Поверхность уже чистая. 	



CLOSE

to close	[kləuz]	закрывать
close	[kləus]	близко, близкий
✘ to close - shut something so that there is no longer a space or hole		
<ul style="list-style-type: none"> • Should I close this valve? • Close the door tightly. • The explosion was very close. 	<ul style="list-style-type: none"> • Мне следует закрыть этот клапан? • Закрой плотно дверь. • Взрыв был очень близко. 	



CONNECT

to connect	[kə'nekt]	соединять (to/with - с чем-либо/кем-либо)
connection	[kə'nekʃən]	связь, соединение
✘ to connect - to join two or more things together		
<ul style="list-style-type: none"> • Connect the fire hose to the flange. • The connection is very bad. 	<ul style="list-style-type: none"> • Присоедините пожарный шланг к фланцу. • Связь очень плохая. 	



DRAIN

to drain	[dreɪn]	осушать, отводить воду, осуществлять дренаж
✘ to drain - to make the water or liquid flow away from something		
<ul style="list-style-type: none"> • The motorman drained all water from the scavenge manifold. • This pipeline should be drained. 	<ul style="list-style-type: none"> • Моторист слил воду из продувочного коллектора. • Этот трубопровод должен быть осушен. 	

TURN ON
TURN OFF

to turn on	[tɜ:n ɒn]	включать (газ, радио, рубильник), зажигать, включать (свет), открывать (кран)
to turn off	[tɜ:n ɒf]	выключать (радио, газ), гасить (свет), закрывать (кран, воду), заглушать (мотор)
✘ to turn on - to make the supply of water, gas, etc. start flowing from something by turning a handle or tap; to make a machine or piece of electrical equipment such as a car, television, light, etc. start operating by pushing a button, turning a key		
✘ to turn off - to make a machine or piece of electrical equipment such as a television, car, light, etc. stop operating by pushing a button, turning a key; to stop the supply of water, gas, etc. from flowing by turning a handle or tap as far as it will go		

- Turn the TV **off** now.
- When I **turned** the motor **on** it made a strange noise.
- Don't forget to **turn** the lights **off** when you leave.

- Выключите сейчас же телевизор.
- Когда я включил мотор, он издал странный звук.
- Не забудьте выключить свет, когда будете уходить.



SWITCH ON SWITCH OFF

to switch on	[switʃ ɒn]	включать (свет, радио и т. п.)
--------------	------------	--------------------------------

to switch off	[switʃ ɔf]	выключать
---------------	------------	-----------

✂ **to switch on** - to turn on a machine, electric light, radio, etc. by using a switch

✂ **to switch off** - to turn off a machine, electric light, radio, etc. by using a switch

- | | |
|---|--|
| <ul style="list-style-type: none"> • Please switch the light on! • Don't forget to switch off the motor. | <ul style="list-style-type: none"> • Пожалуйста, включите свет! • Не забудь выключить мотор. |
|---|--|



DRY

to dry	[drai]	сушить, сохнуть, вытирать, промакивать
--------	--------	--

dry	[drai]	сухой
-----	--------	-------

✂ **to dry** - to make something dry or become dry

- | | |
|--|--|
| <ul style="list-style-type: none"> • The air is very dry here. • Fresh paint hasn't dried yet. | <ul style="list-style-type: none"> • Воздух здесь очень сухой. • Свежая краска еще не высохла. |
|--|--|



FILL

to fill	[fil]	наполнять
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✂ **to fill** - to put the right amount of liquid, substance, or material into a container, or put in enough to make it full

- | | |
|---|--|
| <ul style="list-style-type: none"> • Have you filled this tank? | <ul style="list-style-type: none"> • Вы уже наполнили эту цистерну? |
|---|--|



COOL

to cool	[ku:l]	охлаждать
---------	--------	-----------

cool	[ku:l]	прохладный
------	--------	------------

✂ **to cool** - also cool down to become cool or cooler, or make something do this

- | | |
|--|---|
| <ul style="list-style-type: none"> • Let the engine cool down. • The system is cooled by sea water. • The weather is quite cool today. | <ul style="list-style-type: none"> • Дайте двигателю остыть. • Система остужается морской водой. • Погода сегодня достаточно прохладная. |
|--|---|



GRIND

to grind	[graɪnd]	шлифовать, точить, затачивать
----------	----------	-------------------------------

✂ **to grind** - to make something smooth or sharp by rubbing it on a hard surface or by using a machine

- | | |
|---|---|
| <ul style="list-style-type: none"> • You will need to grind the surface with a grinder before painting. | <ul style="list-style-type: none"> • Тебе надо будет зашлифовать поверхность шлифовальным станком до покраски. |
|---|---|



HEAT

to heat	[hi:t]	нагревать, разогревать, подогревать, согревать
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heat	[hi:t]	жара, тепло, отопление
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✘ **to heat** - to make something become warm or hot

✘ **excessive heat** – чрезмерный нагрев

- | | |
|--|---|
| <ul style="list-style-type: none"> • The boiler needs heating. • The engine was preheated before the start. • Scale is caused by excessive heat. | <ul style="list-style-type: none"> • Котел необходимо нагреть. • Двигатель был прогрет до запуска. • Накипь вызвана чрезмерным нагревом. |
|--|---|



CHECK

to check	[tʃek]	проверять, сверять
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check	[tʃek]	обследование, исследование, проверка
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✘ **to check** - to do something in order to find out whether something that you think is correct, true, or safe really is correct, true, or safe

- | | |
|---|--|
| <ul style="list-style-type: none"> • Have these cables been checked for faults? • Double check all piston rings. • The blower requires a careful check. | <ul style="list-style-type: none"> • Эти кабели проверили на повреждения? • Дважды проверьте все поршневые кольца. • Воздухозаборнику необходима тщательная проверка. |
|---|--|



EXAMINE

to examine	[ɪg'zæmɪn]	рассматривать, осматривать, тщательно исследовать, изучать
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✘ **to examine** - look at something carefully in order to make a decision, find something, check something

- | | |
|---|--|
| <ul style="list-style-type: none"> • There are oil drops on the floor. Examine all pipes for cracks. • Carefully examine the quality of the fuel oil. | <ul style="list-style-type: none"> • На полу масляные капли. Осмотрите все трубы на наличие трещин. • Тщательно исследуйте качество топлива. |
|---|--|



INSPECT

to inspect	[ɪn'spekt]	внимательно осматривать, изучать, пристально рассматривать
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inspection	[ɪn'spekʃən]	обследование, осмотр
------------	--------------	----------------------

✘ **to inspect** - to examine something carefully in order to find out more about it or that it is not satisfactory

- | | |
|--|--|
| <ul style="list-style-type: none"> • He is going to inspect our work. • The new electronic equipment needs inspection. | <ul style="list-style-type: none"> • Он собирается изучить нашу работу. • Новому электронному оборудованию требуется осмотр. |
|--|--|



LOWER

to lower	['ləʊə]	спускать, опускать
----------	---------	--------------------

✘ **to lower** - to reduce something in amount, degree, strength, etc., or to become less; to move something down from higher up

- | | |
|---|--|
| <ul style="list-style-type: none"> • Lower the piston to support. | <ul style="list-style-type: none"> • Опустите поршень на опору. |
|---|--|



LIFT

to lift	[lɪft]	поднимать
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✂ **to lift** - to take something in your hands and raise it, move it, or carry it somewhere; lift up to move something upwards into the air

- | | |
|--|---|
| <ul style="list-style-type: none"> • The cylinder liner was lifted with the special lifting gear. | <ul style="list-style-type: none"> • Гильза цилиндра была поднята специальным подъемным устройством. |
|--|---|



LUBRICATE

to lubricate	['lu:bri:keɪt]	смазывать
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lubrication	['lu:bri:'keɪʃən]	смазка
-------------	-------------------	--------

✂ **to lubricate** - to put a lubricant on something in order to make it move more smoothly

- | | |
|---|--|
| <ul style="list-style-type: none"> • Lubricate all moving parts of mechanism. • This oil is used for bearing lubrication. | <ul style="list-style-type: none"> • Смажьте все движущиеся части механизма. • Это масло используется для смазки подшипника. |
|---|--|



MEASURE

to measure	['meɪzə]	измерять, мерить
------------	----------	------------------

✂ **to measure** - to find the size, length, or amount of something using standard units

- | | |
|---|---|
| <ul style="list-style-type: none"> • Can you measure the cylinder pressure? | <ul style="list-style-type: none"> • Ты можешь измерить давление цилиндра? |
|---|---|



MOVE

to move	['mu:v]	двигать, передвигать, перемещать
---------	---------	----------------------------------

✂ **to move** - to change your place or position, or to make something do this

- | | |
|--|---|
| <ul style="list-style-type: none"> • The camshaft was moved to the right. • We need your help in moving of this machinery. | <ul style="list-style-type: none"> • Распредвал переместили вправо. • Нам нужна твоя помощь, чтобы передвинуть этот механизм. |
|--|---|



REFILL

to refill	['ri:fil]	наполнять снова
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✂ **to refill** - to fill something again

- | | |
|---|--|
| <ul style="list-style-type: none"> • We need to refill these tanks because we don't have water. | <ul style="list-style-type: none"> • Мы должны снова наполнить эти баки, потому что у нас нет воды. |
|---|--|



OPERATE

to operate	['ɒpəreɪt]	эксплуатировать, действовать, функционировать
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operation	['ɒpə'reɪʃən]	действие, операция, работа
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✂ **to operate** - to use and control a machine or equipment

- | | |
|--|-------------------------------------|
| The motor operates at high revolutions. | Мотор работает на больших оборотах. |
|--|-------------------------------------|

**PRESS**

to press

[pres]

жать, нажимать, прижимать, сжимать

✘ **to press** - to push something with your finger or hand to make a machine start• What happens if I **press** this button?

• Что произойдет, если я нажму эту кнопку?

**PUSH**

to push

[puʃ]

продвигать, проталкивать, нажимать

✘ **to push** - to make someone or something move by using your hands, arms, shoulders, etc. to put pressure on them; to press a button, switch, etc., especially in order to make a piece of equipment start working

- The box stuck so it was hard to **push** through.
- You just **push** that red button and the alarm will sound.

- Коробка так застряла, что ее было тяжело протолкнуть.
- Просто нажмите на ту красную кнопку, и сигнал заработает.

**REMOVE**

to remove

[ri'mu:v]

убирать, уносить, передвигать, перемещать, удалять

✘ **to remove** - to take something away from the place where it is

- **Remove** that faulty fuel valve.
- **Remove** mud and rust from the pipes.
- The upper piston ring was **removed**.

- Снимите тот неисправный топливный клапан.
- Удалите грязь и ржавчину из труб.
- Верхнее поршневое кольцо было удалено.

**RENEW**

to renew

[ri'nju:]

заменять что-либо старое чем-либо новым, обновлять

✘ **to renew** - to replace something that is old or broken with something new

- The worn out piston rings have to be **renewed**.

- Изношенные поршневые кольца должны быть заменены на новые.

**ENGAGE
DISENGAGE**

to engage

[in'geɪdʒ]

включать (о механизме), приводить в действие (какое-либо устройство)

to disengage







['dɪsɪn'geɪdʒ]

разъединять, расцеплять, выводить из зацепления

✘ **to engage** - to make one part fit into another part of a machine✘ **to disengage** - separate something from something else that is fastened to it or holding it

- He **engaged** the turning gear to turn the engine.
- The wheels were **disengaged**.

- Он включил валоповоротный механизм, чтобы повернуть двигатель.
- Шестеренки были разъединены.

	REPLACE	
to replace	[rɪˈpleɪs]	заменять, замещать (by, with – чем/кем-либо)
✂ to replace - to get something new to put in the place of something that has been broken, etc.		
• Please replace the damaged bearing with the new one.		• Пожалуйста, замените поврежденный подшипник новым.
	SHUT	
to shut	[ʃʌt]	закрывать, запирать, затворять
✂ to shut - to close something or to become closed		
• Please shut the door.		• Пожалуйста, закройте дверь.
• Don't shut off the cooling water immediately after stopping a diesel engine.		• Не перекрывайте охлаждающую воду сразу же после остановки дизельного двигателя.
	TEST	
to test	[test]	подвергать испытанию, проверке, тестировать, проверять
✂ to test - to examine something in order to find out something about it		
• Test the injector to see if it's OK.		• Проверьте, все ли в порядке с форсункой.
• He is testing fuel samples for quality.		• Он проверяет образцы топлива на качество.
	TIGHTEN	
to tighten	['taɪn]	натягивать(ся), затягивать(ся), уплотнять
✂ to tighten - to close or fasten something firmly by turning it		
• Tighten up the screws.		• Подожмите потуже винты.
	WELD	
to weld	[weld]	сваривать
welding	['weldɪŋ]	сварка
✂ to weld - to join metals by melting them and pressing them together when they are hot		
• He welded the pipe.		• Он заварил трубу.
• We require fusion welding .		• Нам нужна сварка плавлением.
	WIPE	
to wipe	[waɪp]	вытирать, протирать
✂ to wipe - to rub a surface with a cloth in order to remove dirt, liquid; to clean something by rubbing it against a surface; remove dirt		
• Wipe off all internal parts if necessary.		• Протрите все внутренние части, если необходимо.



PLUG

to plug (in)	[plʌg]	заглушать, затыкать; включать (в розетку)
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✂ **to plug** – to block something with a plug

✂ **to plug in** – to connect a piece of electrical equipment to the main supply of electricity, or to another piece of electrical equipment

- | | |
|--|---|
| <ul style="list-style-type: none"> • I don't think the portable lamp is plugged in. • We plugged the scuppers on the deck. | <ul style="list-style-type: none"> • Не думаю, что переносная лампа включена в розетку. • Мы заглушили шпигаты на палубе. |
|--|---|

MAINTAIN

to maintain	[meɪn'teɪn]	обслуживать, содержать в исправности
-------------	-------------	--------------------------------------

maintenance	['meɪntənəns]	техническое обслуживание
-------------	---------------	--------------------------

✂ **to maintain** – to keep in good condition

✂ **maintenance** – keeping something in good condition such as by cleaning, painting, and fixing it

- | | |
|---|--|
| <ul style="list-style-type: none"> • The 4th Engineer must maintain all deck machinery. • Cleanliness is an important part of maintenance. | <ul style="list-style-type: none"> • 4-ый механик должен обслуживать палубное оборудование. • Чистота – важная часть тех.обслуживания. |
|---|--|

INSTALL

install	[ɪn'stɔ:l]	устанавливать, монтировать
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✂ **to install** – to put something (such as a piece of machinery) in place and make it work

- | | |
|--|---|
| <ul style="list-style-type: none"> • They are going to install a new computer on the bridge. | <ul style="list-style-type: none"> • Они собираются установить новый компьютер на мостике. |
|--|---|

PROTECT

protect	[prə'tekt]	защищать, предохранять
---------	------------	------------------------

protection	[prə'tekʃən]	защита
------------	--------------	--------

✂ **to protect** – to defend against harm or loss

✂ **protection** – action against harm or loss; a defense

- | | |
|---|---|
| <ul style="list-style-type: none"> • You can protect your hands with gloves. • Always remember about your safety and personal protection. | <ul style="list-style-type: none"> • Вы можете защитить руки с помощью перчаток. • Всегда помните о Вашей безопасности и личной защите. |
|---|---|

CUT



cut	[kʌt]	резать, разрезать
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✂ **to cut** – to divide into pieces or parts with a knife

- | | |
|---|---|
| <ul style="list-style-type: none"> • He cut the pipe into two pieces. | <ul style="list-style-type: none"> • Он разрезал трубу на две части. |
|---|---|

UNIT 17

СИМВОЛЫ СИСТЕМЫ ТРУБОПРОВОДОВ / BASIC SYMBOLS FOR PIPING

No.	Symbol	Symbol designation	No.	Symbol	Symbol designation
1 General conventional symbols			2.17		Pipe going upwards
1.1		Pipe	2.18		Pipe going downwards
1.2		Pipe with indication of direction of flow	2.19		Orifice
1.3		Valves, gate valves, cocks and flaps	3 Valves, gate valves, cocks and flaps		
1.4		Appliances	3.1		Valve, straight through
1.5		Indicating and measuring instruments	3.2		Valves, angle
2 Pipes and pipe joints			3.3		Valves, three way
2.1		Crossing pipes, not connected	3.4		Non-return valve (flap), straight
2.2		Crossing pipes, connected	3.5		Non-return valve (flap), angle
2.3		Tee pipe	3.6		Non-return valve (flap), straight, screw down
2.4		Flexible pipe	3.7		Non-return valve (flap), angle, screw down
2.5		Expansion pipe (corrugated) general	3.8		Flap, straight through
2.6		Joint, screwed	3.9		Flap, angle
2.7		Joint, flanged	3.10		Reduction valve
2.8		Joint, sleeve	3.11		Safety valve
2.9		Joint, quick-releasing	3.12		Angle safety valve
2.10		Expansion joint with gland	3.13		Self-closing valve
2.11		Expansion pipe	3.14		Quick-opening valve
2.12		Cap nut	3.15		Quick-closing valve
2.13		Blank flange	3.16		Regulating valve
2.14		Spectacle flange	3.17		Kingston valve
2.15		Bulkhead fitting water tight, flange	3.18		Ball valve (cock)
2.16		Bulkhead crossing, non-watertight			

No.	Symbol	Symbol designation	No.	Symbol	Symbol designation
3.19		Butterfly valve	4.6		Piston
3.20		Gate valve	4.7		Membrane
3.21		Double-seated changeover valve	4.8		Electric motor
3.22		Suction valve chest	4.9		Electro-magnetic
3.23		Suction valve chest with non-return valves	5 Appliances		
3.24		Double-seated changeover valve, straight	5.1		Mudbox
3.25		Double-seated changeover valve, angle	5.2		Filter or strainer
3.26		Cock, straight through	5.3		Magnetic filter
3.27		Cock, angle	5.4		Separator
2.28		Cock, three-way, L-port in plug	5.5		Steam trap
3.29		Cock, three-way, T-port in plug	5.6		Centrifugal pump
3.30		Cock, four-way, straight through in plug	5.7		Gear or screw pump
3.31		Cock with bottom connection	5.8		Hand pump (bucket)
3.32		Cock, straight through, with bottom conn.	5.9		Ejector
3.33		Cock, angle, with bottom connection	5.10		Various accessories (text to be added)
3.34		Cock, three-way, with bottom connection	5.11		Piston pump
4 Control and regulation parts			6 Fittings		
4.1		Hand-operated	6.1		Funnel
4.2		Remote control	6.2		Bell-mounted pipe end
4.3		Spring	6.3		Air pipe
4.4		Mass	6.4		Air pipe with net
4.5		Float	6.5		Air pipe with cover

PART 3. GRAMMAR

UNIT 1

ТРАНСКРИПЦИЯ, АЛФАВИТ / TRANSCRIPTION, ALPHABET

СОГЛАСНЫЕ ЗВУКИ

- [b] - произносится примерно как русский [Б]
be, bad, brush, box
- [p] - произносится примерно как русский звук [П] *open, pump, plug*
- [m] - произносится примерно как русский [М] *man, many, my, swim*
- [f] - произносится примерно как русский [Ф] *far, safe, fender*
- [v] - произносится примерно как русский [В] *very, seven, never*
- [t] - произносится примерно как русский [Т]. Однако, кончик языка упирается не в верхние зубы, как в русском языке, а в альвеолы, то есть находится на деснах *ten, table, tug, stop*
- [d] - произносится примерно как русский [Д], но как и в предыдущем случае, кончик языка находится на деснах *door, day, deck*
- [n] - произносится примерно как русский [Н], но кончик языка - на деснах *name, not, finish*
- [s] - произносится примерно как русский [С] *place, sea, side*
- [z] - произносится примерно как русский [З] *zero, comes, has*
- [θ] - произносится примерно, как [t] и русское [Ф], но кончик языка - между зубами *think, thrust, birthday*
- [ð] - произносится как [d] и русское [З], но кончик языка - между зубами *this, father, mother*
- [ʃ] - произносится как смягченный русский звук [Ш] *she, brush, ship, Russian*
- [ʒ] - произносится как смягченный [Ж] *usually, explosion*
- [tʃ] - сочетание [t] с [ʃ], похоже на русский [Ч] *children, chair, watch*
- [dʒ] - сочетание [d] с [ʒ], похоже на [ДЖ] *jump, jacket, journal*
- [l] - произносится примерно как русский [Л] *lead, light, launch*
- [r] - произносится примерно как русский [Р], но более кратко, кончик языка закатывается назад *roll, ro-ro, rope*
- [j] - произносится как [Й] *year, you, your, few, new*
- [g] - произносится примерно как русский [Г] *gear, gain, galley*
- [k] - произносится примерно как русский [К] *key, kilogram, keep*

- [ŋ] - носовой звук. Чтобы научиться произносить этот звук, произнесите [nnnnn], сначала не отрывая кончик языка от десен. Затем воспроизведите этот звук, отодвинув язык назад, и вы получите звук [ŋ] *doing, going, painting*
- [h] - В русском языке этого звука нет. Он похож на звук, который мы слышим, когда дышим на зеркало или на очки, чтобы протереть их. Не произносите этот звук похожим на русский звук [Х] *he, her, have, who*
- [w] - В русском языке этого звука нет. Чтобы произнести его, надо сблизить губы и быстро их разомкнуть, произнеся звук [В] *we, when, where, water*

ГЛАСНЫЕ ЗВУКИ

В английском языке одни гласные долгие, другие - краткие. В фонетической транскрипции долгота гласных обозначается двумя точками.

- [i] - произносится примерно как русский [И], только более открыто *it, is, sit, city*
- [i:] - долгий звук [И] *me, sea, need, free*
- [ɔ] - произносится примерно как русский [О], но с более широко открытым ртом и без значительного округления губ *got, clock, not*
- [ɔ:] - произносится как более долгий звук [О] *small, port, salt*
- [u] - произносится примерно как [У], но с более слабым округлением губ *look, put, full*
- [u:] - произносится примерно как долгий русский звук [У], но с меньшим округлением губ и без выпячивания их *too, food, pool*
- [ə] - произносится примерно, как звук [Э] *ago, a, father, mother*
- [ɜ:] - произносится как долгий звук [Э] и русский звук [Ё] *first, heard, girl, work*
- [e] - произносится как краткий [Э] *set, bed, said*
- [æ] - произносится как звук [Э] только с более открытым ртом *captain, can, back*
- [ʌ] - произносится примерно как русский [А] *must, cut, but, front*
- [ɑ:] - похож на удлиненное [А], произносится с более открытым ртом *part, large, mark*

ДИФТОНГИ

Дифтонг - это сочетание двух гласных звуков, которые произносятся слитно, как единый звук.

- [eɪ] - произносится примерно как русское [ЭЙ]
day, play, make, place
- [aɪ] - произносится примерно как русское [АЙ]
my, buy, side, five
- [ɔɪ] - произносится примерно как русское [ОЙ]
boy, boil, coil
- [aʊ] - произносится примерно как русское [АУ]
now, brown, town
- [əʊ] – похож на русское среднее между [ОУ] и [ЭУ]
no, go, home
- [iə] – напоминает сочетание русских гласных [ИА] с ударением на первый звук
near, here, theater
- [eə] - напоминает сочетание русских гласных [ЭА] с ударением на первый звук
where, there, careful
- [ʊə] - напоминает сочетание русских гласных [УА] с ударением на первый звук
sure, during, pure

АЛФАВИТ / ALPHABET

A a	[eɪ]	Alfa	['alfa]
B b	[bi:]	Bravo	['brɑ:vəʊ]
C c	[si:]	Charlie	['tʃɑ:li]
D d	[di:]	Delta	['delta]
E e	[i:]	Echo	['ekəʊ]
F f	[ef]	Foxtrot	['fɒkstrɒt]
G g	[dʒi:]	Golf	[gɔ:lf]
H h	[eitʃ]	Hotel	[həʊ'tel]
I i	[aɪ]	India	['ɪndjə]
J j	[dʒeɪ]	Juliet	['dʒu:ljət]
K k	[keɪ]	Kilo	['ki:ləʊ]
L l	[el]	Lima	['li:mə]
M m	[em]	Mike	[maɪk]
N n	[en]	November	[nəʊ'vembə]
O o	[əʊ]	Oscar	['ɒskə]
P p	[pi:]	Papa	[pə'pɑ:]
Q q	[kju:]	Quebec	[kwɪ'bek]
R r	[ɑ:]	Romeo	['rəʊmiəʊ]
S s	[es]	Sierra	['siərə]
T t	[ti:]	Tango	['tæŋgəʊ]
U u	[ju:]	Uniform	['ju:nɪfɔ:m]
V v	[vi:]	Victor	['vɪktə]
W w	['dʌbl̩'ju:]	Whisky	['wɪski]
X x	[eks]	X-ray	['eks'reɪ]
Y y	[waɪ]	Yankee	['jæŋki]
Z z	[zed]	Zulu	['zu:lʊ:]

UNIT 2

ЧИСЛИТЕЛЬНЫЕ / NUMERALS

КОЛИЧЕСТВЕННЫЕ ЧИСЛИТЕЛЬНЫЕ

0	zero	ноль	['zi:əʊ]
1	one	один	[wʌn]
2	two	два	[tu:]
3	three	три	[θri:]
4	four	четыре	[fɔ:]
5	five	пять	[faiv]
6	six	шесть	[siks]
7	seven	семь	['sevən]
8	eight	восемь	[eit]
9	nine	девять	[nain]
10	ten	десять	[ten]
11	eleven	одиннадцать	['levən]
12	twelve	двенадцать	[twelv]

Количественные числительные от 13 до 19 включительно образуются добавлением суффикса **-teen** к соответствующим названиям единиц первого десятка.

13	thirteen	тринадцать	['θe:'ti:n]
14	fourteen	четырнадцать	['fɔ:'ti:n]
15	fifteen	пятнадцать	['fifti:n]
16	sixteen	шестнадцать	['siks'ti:n]
17	seventeen	семнадцать	['sevn'ti:n]
18	eighteen	восемнадцать	['eiti:n]
19	nineteen	девятнадцать	['nain'ti:n]

Названия количественных числительных, обозначающих десятки, образуются добавлением суффикса **-ty** к названиям единиц.

20	twenty	двадцать	['twenti]
30	thirty	тридцать	['θa:ti]
40	forty	сорок	['fɔ:ti]
50	fifty	пятьдесят	['fifti]
60	sixty	шестьдесят	['siks'ti]
70	seventy	семьдесят	['sevnti]
80	eighty	восемьдесят	['eiti]
90	ninety	девяносто	['nainti]

100	one hundred	сто	[wʌn 'hʌndrəd]
200	two hundred	двести	[tu: 'hʌndrəd]
1000	one thousand	тысяча	[wʌn 'θaʊzənd]
1000000	one million	миллион	[wʌn 'miljən]

ПОРЯДКОВЫЕ ЧИСЛИТЕЛЬНЫЕ обозначают порядок предметов при счете и образуются от количественных путём добавления суффикса **-th**.

+ -th [θ]

four + th = fourth – четвертый

five + th = fifth – пятый

fifty six + th = fifty sixth – пятьдесят шестой

ИСКЛЮЧЕНИЯ:

1-ый	first	первый	[fɜ:st]
2-ой	second	второй	['sekənd]
3-ий	third	третий	[θə:d]

Если у количественного числительного окончание **-y**, то при образовании порядкового числительного окончание меняется на **-i** и прибавляется суффикс **-eth**.

НАПРИМЕР:

twenty	twentieth	двадцатый
seventy	seventieth	семидесятый
ninety	ninetieth	девяностый

ДАТЫ

- on the 25th April, 1998
on the twenty-fifth of April, nineteen ninety-eight или
on April the twenty-fifth, nineteen ninety-eight
- on the 27th September, 2002
on the twenty-seventh of September,
two thousand two или
on September the twenty-seventh, two thousand two

ВРЕМЯ

- 7:30 seven thirty / half past seven
- 3:45 three forty-five / quarter to four
- 8:15 eight fifteen / quarter past eight
- 1:20 one twenty / twenty past one
- 6:40 six forty / twenty to seven
- 2:00 two o'clock / 2 a.m.
- 14:00 fourteen hundred hours / 2 p.m.

НАПРИМЕР:

- *There are seven days in a week, twelve months in a year, and three hundred sixty five days in a year.*
- *My watch starts at 4 o'clock. It is 4 hours – from 4 a.m. till 8 a.m.*
- *This is the first class cabin.*
- *My phone number is 23-46-87.*
- *There are twenty five crewmembers onboard our ship.*
- *The DWT of my ship is 8298.*
- *I was born in 1954.*



EXERCISE #1

Напишите английский вариант и число, стоящее перед ним

56	fifty six, fifty five
101	one hundred one
12	twelve
31	thirty one
64	sixty four
1013	one hundred thirteen
99	ninety nine
234	two hundred thirty four
750	seven hundred fifty
1100	eleven hundred
25987	twenty five thousand and nine hundred eighty seven
144250	fourteen forty two and fifty
3800	thirty eight hundred



EXERCISE #2

Переведите числительные

первый	first
десятый	tenth
второй	second
четвертый	fourth
восьмой	eighth
третий	third
пятнадцатый	fifteenth
сто двадцать шестой	one hundred twenty sixth
пятьдесят седьмой	fifty seventh
двадцатый	twentieth
тысячный	one thousandth
шестидесятый	sixtieth
три тысячи первый	three thousand first
двести тридцатый	two hundred thirtieth
сотый	hundredth
девяносто третий	ninety thirtieth
восемидесятый	eighth



EXERCISE #3

Напишите следующие выражения на английском языке

08:45	eight forty five
15:00	fifteen hundred
17:20	seventeen twenty
09:10	nine ten
10:30	ten thirties
01:00	one hundred
21:15	twenty one fifteen
18:00	eighteen hundred
07:30	seven thirty
04.12.1950	four twelve nineteen fifty
01.03.2007	one three twenty hundred seven
25.02.1999	twenty five two nineteen ninety nine
26.08.2004	twenty six eight twenty hundred four
с 14:00 до 15:30	from fourteenth - fifteenth thirty
с 05:15 до 05:25	from five fifteenth - five twenty fifth
с 0:00 до 04:00	from zero hundredth - four hundredth
+380-692-546-146	+three hundred eighty-six hundred two
+447-52-390-8765	-

UNIT 3

МНОЖЕСТВЕННОЕ ЧИСЛО / PLURALS

Форма множественного числа большинства существительных образуется посредством прибавления окончания **-s** или **-es** к форме единственного числа.

НАПРИМЕР:

ед. число	мн. число	перевод	транскрипция
spanner	spanners	ключ - ключи	[ˈspænə] - [ˈspænəz]
cabin	cabins	каюта - каюты	[ˈkæbɪn] - [ˈkæbɪnz]
glove	gloves	перчатка - перчатки	[glʌv] - [glʌvz]
watch	watches	вахта - вахты	[wɒtʃ] - [ˈwɒtʃɪz]

* Имена существительные, оканчивающиеся на **-y** с предшествующей согласной, образуют множественное число путём прибавления окончания **-es**, причём **-y** меняется на **-i**.

Некоторые имена существительные, оканчивающиеся на **-f**, **-fe**, образуют множественное число путём изменения **-f** на **-v** и прибавлением окончания **-es**.

НАПРИМЕР:

ед. число	мн. число	перевод	транскрипция
body	bodies	корпус - корпуса	[ˈbɒdi] - [ˈbɒdiz]
battery	batteries	батарея - батареи	[ˈbætəri] - [ˈbætəriːz]
half	halves	половина - половины	[hɑːf] - [hɑːvz]
wife	wives	жена - жены	[waɪf] - [waɪvz]

ИСКЛЮЧЕНИЯ:

ед. число	мн. число	перевод	транскрипция
man	men	мужчина - мужчины	[mæn] - [men]
woman	women	женщина - женщины	[ˈwʊmən] - [ˈwɪmɪn]
child	children	ребенок - дети	[tʃaɪld] - [ˈtʃɪldrən]

- Субстанции и вещества всегда в единственном числе:
bread, milk, grass, steel, fuel, glass
- Абстрактные существительные всегда в единственном числе:
love, happiness, information, electricity
- Эти слова всегда в единственном числе:
equipment, advice, work, progress, machinery, money



EXERCISE #1

Переведите эти слова и поставьте их во множественное число

клапан	valve - valves
кран	crane - cranes
топливо	fuel - fuels
система	system - systems
моторист	motor man - motor men
насос	pump - pumps
якорь	anchor - anchors
люк	
оборудование	equipment
механик	mechanic - mechanics

UNIT 4

МЕСТОИМЕНИЯ / PRONOUNS

Личные местоимения				Притяжательные местоимения (Чей?)		
	Им. падеж (Кто?)	Косвенные падежи				
ед. число	I	я	me	меня, мне, мною	my	мой, моя, мое, мои
	you	ты	you	тебя, тебе	your	твой, твоя, твое, твои
	he	он	him	ему, его, ним	his	его
	she	она	her	ее, ей	her	ее
	it	ОНО <small>ведущ.</small>	it	его, ее, ему	its	его, ее
мн. число	we	мы	us	нас, нам, нами	our	наш, наша, наше, наши
	you	вы	you	вам, вас, вами	your	ваш, ваша, ваше, ваши
	they	они	them	им, их, ними	their	их



EXERCISE #1

Вставьте местоимения в вопросительные предложения по образцу

I don't know these words. Do you know them ?

- I don't know his name. Do you know him ?
- I don't know our Chief Engineer. Do you know his ?
- I don't know this woman. Do you know her ?
- I don't know those motormen. Do you know them ?
- I don't know these seamen. Do you know them ?
- I don't know his wife. Do you know her ?
- I don't know the Master. Do you know him ?
- I don't know the engine type. Do you know it ?
- I don't know the cook. Do you know him ?
- I don't know this person. Do you know it ?
- I don't know your rank. Do you know it ?
- I don't know this vessel. Do you know it ?



EXERCISE #2

Заполните пропуски по образцу, используя местоимения

I want to see her but she doesn't want to see me .

- We want to see our Master but he doesn't want to see us .
- Engineers want to see me but they don't want to see me .
- I want to see the cook but he doesn't want to see me .
- You want to see the motormen but they don't want to see you .
- They want to see the Chief Officer but he doesn't want to see them .
- We want to see our friends but they don't want to see us .
- He wants to see the pumpman but he doesn't want to see him .
- She wants to see the manager but he doesn't want to see her .
- They want to see us but we don't want to see them .



EXERCISE #3

Заполните пропуски по смыслу,
используя притяжательные местоимения

- I like this job.
- Do you like our job?
- My husband works on a ship. this ship is a container ship. it hull is grey.
- Put on your helmet when you work on a crane.
- Peter is the Second Officer and his brother is the Chief Engineer.
- Thank you for your help. It was very nice of you.
- He is very experienced and we often use your help.
- Please repeat your question.
- These tools belong to me. Don't touch my tools.
- She has two children. her children are young.
- Our vessel is old. Its age is 25 years.
- We have 5 hatches on the deck. they covers are closed now.
- We work with a small number of crewmembers. Our crew has 8 people.



EXERCISE #4

Переведите и вставьте
местоимения в пропуски

- I am looking at them (них).
- This is a nice table. Look at (него) it.
- Give (мне) me (твои) your gloves.
- The Chief Engineer is in the engine-room. The Second Engineer is standing near (с ним) with him.
- (Его) his friend is on that ship.
- (Наше) our vessel is large. Look at (него) it.
- Bring (мне) me an adjustable spanner. I need (он) he.
- Don't talk to them (с ними). (Они) they cannot help (вам) you.
- Explain to (ему) him what to do in (этой) this situation.
- I don't understand (его) his because (мой) my English is not very good.
- (Их) their career is not as interesting as (наша) our career.
- (Ее) her words don't mean much.



EXERCISE #5

Переведите эти словосочетания

1. его судно	
2. их работа	
3. твоя обязанность	
4. Ваша должность	
5. их каюты	
6. мое машинное отделение	
7. наш сварщик	
8. ее семья	
9. моя вахта	

UNIT 5

ПРИТЯЖАТЕЛЬНЫЙ ПАДЕЖ / POSSESSIVE CASE

Существительное в притяжательном падеже обозначает принадлежность предмета лицу или другому предмету и служит определением к другому существительному.

Притяжательный падеж образуется путем прибавления *'s* к форме единственного числа существительного и *-s'* к форме множественного числа.

НАПРИМЕР

- *Master's cabin* - каюта капитана
- *fitter's work* - работа слесаря
- *cadets' duties* - обязанности кадетов
- *engineers' tools* - инструменты механиков

Форма *'s* употребляется только с одушевленными существительными, а не с предметами. В случае обозначения принадлежности одного предмета или вещи к другому используется предлог *of*.

В случае обозначения принадлежности одного предмета к другому два слова также могут просто соединяться без каких-либо предлогов.

НАПРИМЕР:

- *port hole of cabin* - иллюминатор каюты
- *liner of cylinder* - втулка цилиндра
- *delivery of water* - подача воды
- *stop of engine* - остановка двигателя

НАПРИМЕР:

- *cabin port hole* - иллюминатор каюты
- *cylinder liner* - втулка цилиндра
- *water delivery* - подача воды
- *engine stop* - остановка двигателя



EXERCISE #1

Составьте предложения по образцу и переведите их устно на русский язык

I need <u>boatswain's hammer</u>	boatswain / hammer
1. _____ is on the deck.	cover / hatch
2. Go to the <u>cook's table</u>	table / cook
3. <u>Peter's job</u> is very interesting.	job / Peter
4. Where is the broken <u>ship's rudder</u> ?	rudder / ship
5. He is in the <u>control room</u>	control / room
6. <u>Engineers' tools</u> are in the store-room.	tools / engineer
7. <u>Time of departure of your</u> → _____ of your ship is 6 o'clock p.m.	time / departure
8. I respect <u>Chief's experience</u>	Chief / experience
9. We are going to remove <u>head of cylinder</u> tomorrow.	head / cylinder
10. Where is <u>your sister's family</u> today?	your sister / family
11. <u>Master's cabin</u> is the best cabin onboard.	cabin / Master
12. What is the <u>condition of engine-room</u> on your vessel?	engine-room / condition
13. <u>Equipment of deck</u> is not in good condition because it is very old.	equipment / deck

UNIT 6

ГЛАГОЛ TO BE, ОБОРОТЫ THERE IS / THERE ARE

В английском языке фиксированный порядок слов - **подлежащее + сказуемое**, поэтому присутствие такого глагола, как **to be** (быть, являться, находиться) обязательно, если в русском предложении сказуемое отсутствует. Как правило, этот глагол на русский язык не переводится и служит исключительно для замены сказуемого в предложении.

ФОРМЫ ГЛАГОЛА to be: am, is, are

am	is	are
I	he, she, it	we, you, they

НАПРИМЕР:

	Утвердительная форма	Вопросительная форма	Отрицательная форма
Я механик.	I am an engineer.	Am I an engineer?	I am not an engineer.
Он механик.	He is an engineer.	Is he an engineer?	He is not an engineer.
Она механик.	She is an engineer.	Is she an engineer?	She is not an engineer.
Это двигатель.	It is an engine.	Is it an engine?	It is not an engine.
Это двигатель.	This is an engine.	Is this an engine?	This is not an engine.
То двигатель.	That is an engine.	Is that an engine?	That is not an engine.
Мы механики.	We are engineers.	Are we engineers?	We are not engineers.
Ты механик.	You are an engineer.	Are you an engineer?	You are not an engineer.
Они механики.	They are engineers.	Are they engineers?	They are not engineers.
Это двигатели.	These are engines.	Are these engines?	These are not engines.
То двигатели.	Those are engines.	Are those engines?	Those are not engines.

ОБОРОТЫ There is / There are (имеется, существует, есть)

Оборот **there is / there are** употребляется только в тех случаях, когда говорящий хочет подчеркнуть факт наличия или отсутствия какого-либо предмета или явления, а не место, в котором последний находится.

НАПРИМЕР:

Утвердительная форма	<ul style="list-style-type: none"> • There is a separator on our ship. • There is a new vessel in the port. • There are many cabins onboard. • There are 2 welders in the crew. 	<ul style="list-style-type: none"> • На нашем судне есть сепаратор. • В порту (есть) новое судно. • На борту (имеется) много кают. • В экипаже два сварщика.
Вопросительная форма	<ul style="list-style-type: none"> • Is there a separator on our ship? • Is there a new vessel in the port? • Are there many cabins onboard? • Are there 2 welders in the crew? 	<ul style="list-style-type: none"> • На нашем судне есть сепаратор? • В порту (есть) новое судно? • На борту (имеется) много кают? • В экипаже два сварщика?
Отрицательная форма	<ul style="list-style-type: none"> • There is not a separator on our ship. • There is not a new vessel in the port. • There are not many cabins onboard. • There are not 2 welders in the crew. 	<ul style="list-style-type: none"> • На нашем судне нет сепаратора. • В порту нет нового судна. • На борту не много кают. • В экипаже нет двух сварщиков.

ОСНОВНЫЕ ВОПРОСИТЕЛЬНЫЕ СЛОВА

How?	Как?	[hau]
How much? (нчисл.) / How many? (нчисл.)	Сколько?	[hau mʌt] [hau 'meni]
How often?	Как часто?	[hau 'ɔfən]
What?	Что?	[wɒt]
What for?	Для чего?	[wɒt fɔ:]
What (kind of)?	Какой (Какого вида)?	[wɒt kaɪnd əv]
When?	Когда?	[wen]
Where?	Где? Куда?	[weə]
Which?	Который? Какой?	[wɪtʃ]
Who else? / What else?	Кто еще? / Что еще?	[hu: els] [wɒt els]
Who? / Whom?	Кто? / Кого/Кому?	[hu:] [hu:m]
Whose?	Чей?	[hu:z]
Why?	Почему? Зачем?	[wai]



THE CREW

My ship is not very large and not very new. It is 20 years old. It is a tanker. Our cargo is petroleum. There are 6 tanks onboard. The ship's DWT is 92802, length overall is 243, beam is 42, draft is 13, gross tonnage is 53297. The port of registry is Panama, and the shipmanager is Tanker Pacific Management Company, Singapore.

There are six decks on my ship. The engine-room is under the first deck. There is a pump-room near the engine-room. On the first deck there are three rooms: laundry, galley, and mess-room. Above the laundry there is the hospital. It is on the second deck next to the store-room. There are no cabins on this deck but there are cabins on the third deck. The Master's cabin is on the fourth deck. The bridge is on the fifth deck. Above the bridge there is the upper deck.

Our crew is not very busy now. It's evening. Our Master is in his cabin. The Chief Officer is on the bridge. The Second Officer is on the bridge, too. The Second Engineer is in the engine-room, the Chief Engineer is in the boiler-room. There are no seamen on the deck, they are all in the mess-room because it is dinner time. The cook is in the galley. The motormen are busy with the emergency repair of the fuel pump.



EXERCISE #1

Ответьте на вопросы о Вашем судне

1. What type is your ship?

My ship is cargo type of petroleum

2. What kind of cargo is there on your ship?

My cargo is petroleum

3. How many tanks or holds are there on your vessel?

There are six tanks on my vessel

4. What is the DWT and the length overall?

There is 92802 of DWT and overall of length is 243 m

5. Where is the Master's cabin?

The cabin of Master's is on the fourth deck.

6. Where is the bridge?

The bridge is on the fifth deck

7. What deck is the Chief Engineer's cabin on?

The Chief Engineer's cabin is on the third deck

8. Is the pump-room near the engine-room?
Yes it is. The pump-room is near the engine-room
9. How many decks are there on your ship?
There are six decks on my ship
10. Where is your cabin?
My cabin is on the third deck
11. Where is the Master?
The Master is in his cabin
12. Are there seamen on the deck?
No. There are no seamen on the deck, they are all in the mess-room
13. Where is the cook?
Our cook is in the galley
14. What are the motormen busy with?
The motormen are very busy now, they are the emergency repair of the fuel pump.



EXERCISE #2

Вставьте в предложения глагол to be в соответствующей форме

1. He is a sailor.
2. Are you a welder?
3. They are in the boiler-room.
4. Is she a cook?
5. They are in the cabin.
6. We are engineers.
7. Is he on the bridge?
8. I am a motorman.
9. You are late for the vessel.
10. A heavy-lift ship is a small vessel.
11. We are very tired after work.
12. I am angry with you.
13. What is this?
14. Where is the superstructure?
15. What is his name?
16. What is your rank?



EXERCISE #3

Напишите полные предложения, используя глагол to be

my overall / very dirty	My overall is very dirty.
1. this paint / green	this paint is green
2. their vessel / old	their vessel is old
3. I / not / very happy today	I am not very happy today
4. that ocean liner / beautiful	that ocean liner is beautiful
5. their duties / not / easy	their duties are not very easy
6. bunkering / a long process	bunkering is a long process
7. their English / very good	their English is very good
8. fuel oil / of bad quality	fuel oil is of bad quality
9. overhaul / not / finished	overhaul is not finished
10. safety valves / closed now	safety valves are closed now
11. fuel tanks / full	full tanks are full
12. The 4 th Engineer / responsible for auxiliary machinery	The fourth Engineer is responsible for auxiliary machinery
13. combustion process / mixture of fuel and air	combustion process is mixture of fuel and air



EXERCISE #4

Переведите эти предложения

1. Я второй механик. *I am second Engineer*

2. Что это? Это балкер. Это большое судно? Нет.

What is this. This is a bulker. Is this a big vessel? No it is

3. Это твои инструменты? Нет, это инструменты нашего слесаря.

Is it your tools. No, it's not tools of our fitter/it's not our fitter's tools

4. Они мотористы, а мы матросы.

They are motormen, and we are a seamen

5. Мой сын - старший помощник на сухогрузе.

My sun is the Chief Officer in the dry cargo ship.

6. Это груз для нашего судна.

It is cargo for our vessel/this cargo for

7. В нашей котельной три котла.

There are three boilers in our boiler-room

8. Сколько вспомогательных двигателей в Вашем машинном отделении?

How many engines are in your engine-room

9. В нашем экипаже 22 человека.

There are twenty two crew members in our crew

10. На судне два якоря.

There are two anchors on the vessel

11. В цилиндре коррозийный износ.

12. Мои инструменты сегодня - это краска и кисть.

13. Стармех в машинном отделении.

The Chief Engineer is in the engine-room

14. Где мои перчатки?

15. На каждом насосе есть предохранительный клапан.

16. Кто находится в котельной?

Who is there in the boiler-room

17. Какие у тебя сегодня планы?

18. В картере есть трещины. Они большие?

19. На нашем судне нет сварщика.

There is not welder in our vessel

20. В машинном отделении сильный шум.

21. Мой отец - моторист первого класса, а его брат - механик.

My father is wiper, and his brother is an engineer.

22. Давление в цилиндре очень низкое.

23. Эти показания неправильные.

24. Вентилирование в машинном отделении не очень хорошее.

25. Качество этого топлива хорошее?

26. Эти повреждения серьезные?

**EXERCISE #5****Прочитайте и переведите эти предложения**

1. There are many cabins on the ship.

2. There is some water in the fuel oil.

3. There is a winch on the deck.

4. There is a brush on the table.

5. There are two motormen in the pump-room.

6. There is the piston in the engine.

7. How many decks are there on the ship?

8. There are two separators in our engine-room.

9. There are many good and inexpensive lubricating oils.

10. There are four types of marine engines.

11. How many pumps are there?

12. What is there in the superstructure?

13. There is a small leakage in the pipe.

14. There are manuals in the Chief Engineer's cabin.

15. There is new equipment in containers.

16. There is too much cargo on the stern.

17. How many containers are there on the deck?

UNIT 7

НАСТОЯЩЕЕ НЕОПРЕДЕЛЕННОЕ ВРЕМЯ / PRESENT INDEFINITE TENSE

Настоящее неопределенное/простое время (Present Indefinite/Simple tense) используется при рассказе о событиях, которые происходят регулярно, а также при описании ситуаций, которые имеют место вообще, а не только в настоящий период времени. Чаще всего данное время употребляется со словами:

- usually (обычно)
- often (часто)
- sometimes (иногда)
- every day (каждый день)
- once a year (раз в год)
- in the morning (по утрам)
- seldom (редко)
- always (всегда)
- never (никогда)

Также время Present Indefinite употребляется для выражения:

- общеизвестных истин:
The sun rises in the East. — Солнце встает на востоке.
The Neva flows into the Baltic Sea. — Нева впадает в Балтийское море.
- будущего действия с глаголами движения come, go, leave, start, arrive, depart (когда это действие осуществляется согласно расписания)
The plane leaves in 30 minutes. — Самолет отправляется через 30 минут.
Our ship comes to this port at 7 o'clock. — Наше судно прибывает в этот порт в 7 часов.

ОБРАЗОВАНИЕ ФОРМ PRESENT SIMPLE

УТВЕРДИТЕЛЬНАЯ ФОРМА

<p>При образовании утвердительной формы предложения в Present Simple используется основная форма глагола (Infinitive) за единственным исключением: в 3-ем лице единственного числа к основной форме глагола прибавляется окончание -s или -es.</p>	I	work
	We	
	You	
	They	works
	He	
	She	
	It	

ВОПРОСИТЕЛЬНАЯ ФОРМА

<p>При построении общего вопроса используется вспомогательный глагол do (does) в настоящем времени, который ставится перед подлежащим предложения.</p>	Do	I	work?
		we	
		you	
	Does	they	work?
		he	
		she	
		it	

ОТРИЦАТЕЛЬНАЯ ФОРМА

<p>Отрицательное предложение образуется при помощи вспомогательного глагола do (does) в настоящем времени, за которым следует отрицательная частица not.</p>	do not don't	work	
			I
			We
	does not doesn't	work	
			You
			They
			He
She			
It			

НАПРИМЕР:

Утвердительная форма	<ul style="list-style-type: none"> • I work on a tug. • Pumps deliver water and fuel. • He keeps watch every day. 	<ul style="list-style-type: none"> • Я работаю на буксире. • Насосы подают воду и топливо. • Он несет вахту каждый день.
Вопросительная форма	<ul style="list-style-type: none"> • Do you work on a tug? • Do pumps deliver water and fuel? • Does he keep watch every day? 	<ul style="list-style-type: none"> • Ты работаешь на буксире? • Насосы подают воду и топливо? • Он несет вахту каждый день?
Отрицательная форма	<ul style="list-style-type: none"> • I do not work on a tug. • Pumps don't deliver water and fuel. • He does not keep watch every day. 	<ul style="list-style-type: none"> • Я не работаю на буксире. • Насосы не подают воду и топливо. • Он не несет вахту каждый день.

ИСКЛЮЧЕНИЕ: ГЛАГОЛ to have, который в 3-ем лице единственного числа имеет форму **has**.

I We You They	<ul style="list-style-type: none"> • I have a certificate. • We have a job. • You have experience. • They have problems with the HPFP. 	<ul style="list-style-type: none"> • У меня есть сертификат. • У нас есть работа. • У тебя есть опыт. • У них проблемы с ТНВД.
He She It	<ul style="list-style-type: none"> • He has instructions. • She has a family. • The port has three tugs. 	<ul style="list-style-type: none"> • У него есть инструкции. • У нее есть семья. • У порта (в порту) три буксира.

ПОВЕЛИТЕЛЬНОЕ НАКЛОНЕНИЕ / IMPERATIVE MOOD

Повелительное наклонение употребляется для выражения повеления к действию, для выражения приказа или совета.

Глагол используется в основной (инфинитивной) форме; для отрицания употребляется вспомогательный глагол **do not (don't)**.

НАПРИМЕР:

- *Go there! Don't stay here.* - *Идите туда! Не стойте здесь.*
- *Give it to me!* - *Дайте мне это!*
- *Stop smoking!* - *Прекратите курить!*
- *Adjust that pump!* - *Отрегулируйте тот насос!*
- *Don't clean the filter!* - *Не чистите фильтр!*

МЕСЯЦЫ

January	январь	['dʒænjʊəri]
February	февраль	['februəri]
March	март	[ma:ti]
April	апрель	['eɪprəl]
May	май	[meɪ]
June	июнь	[dʒu:n]
July	июль	[dʒu:'laɪ]
August	август	['ɔ:gəst]
September	сентябрь	[sep'tembə]
October	октябрь	['ɒktəʊbə]
November	ноябрь	['nəʊvembə]
December	декабрь	[di'sembə]

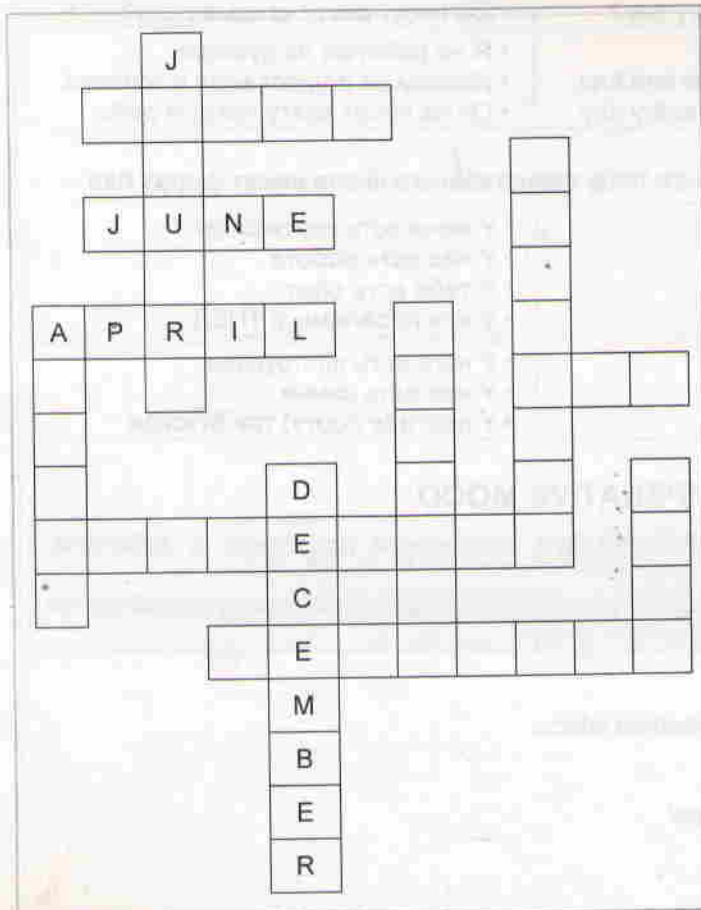
ДНИ НЕДЕЛИ

Monday	понедельник	['mʌndeɪ]
Tuesday	вторник	['tju:zdeɪ]
Wednesday	среда	['wenzdeɪ]
Thursday	четверг	['θə:zdeɪ]
Friday	пятница	['fraɪdeɪ]
Saturday	суббота	['sætədeɪ]
Sunday	воскресенье	['sʌndeɪ]



EXERCISE #1

Проверьте себя на знание названий
месяцев на английском языке



EXERCISE #2

Вставьте в предложения
указанные в скобках глаголы

1. My friend _____ on a ro-ro (**work**)
2. The Rules of the Sea _____ that safety at sea is very important (**say**)
3. I usually _____ a file and a hammer at my work (**use**)
4. The inlet valve _____ (**open**) before the exhaust valve _____ (**close**)
5. I _____ to finish this work in 20 minutes (**hope**)
6. The fuel injection valve _____ during the compression stroke (**open**)
7. They _____ to stop the engine as soon as possible (**need**)
8. I always _____ officer's commands (**follow**)
9. People _____ in the boiler-room (**not, smoke**)
10. A tanker _____ oil in tanks (**carry**)
11. Lubricating system _____ main and auxiliary engines (**lubricate**)
12. The pump _____ water (**not, deliver**)
13. Gas _____ during the exhaust stroke (**exhaust**)
14. We _____ the engine (**not, start**) if we _____ all systems before (**not, check**)
15. The piston _____ down (**go**)
16. We _____ the electrical motor (**dismantle**)
17. The ship's engine-room _____ in good condition (**not, be**)
18. We _____ to extinguish the fire (**try**)



EXERCISE #3

Составьте вопросительное предложение
и ответ к нему по образцу

Например: (he) grind exhaust / inlet valves

*Does he grind exhaust or inlet valves?
He grinds inlet valves.*

1. (you) work on a container / bulk carrier
2. (pumping system) provide sea water / fresh water for domestic use
3. (we) drain all water / some water from the engine
4. (I) inspect indicator cocks / fuel valves
5. (this ship) go fast / slow
6. (our vessel) arrive at a new port soon / not very soon
7. (they) close / open safety valves
8. (lubricating system) work well / badly
9. (engineer) fill / drain fuel tanks



EXERCISE #4

Составьте вопросы к предложениям,
используя слова в скобках

Например: I control bunkering operation (How often?) *How often do you control bunkering operation?*

1. I finish this hot work (When?)
2. We need to wipe the pipes (Why?)
3. You often visit your friend in the city (Where?)
4. He comes into my cabin without permission (Who?)
5. Main turbines use steam from boilers (What?)
6. You keep watch every day (How often?)
7. We sail in the Pacific Ocean (Where?)
8. We have one main engine and two auxiliary engines in our engine-room (What else?)
9. My rank is the 3 rd Engineer (What?)



EXERCISE #5

Обратитесь к товарищу с просьбой

1. не наполнять баки	
2. запустить воздушный компрессор	
3. закрыть клапан	
4. не открывать клапан	
5. не чистить инжектор	
6. идти к двери	
7. заменить фильтр	
8. проверить показания измерительных приборов и записать их	
9. нажать на кнопку	
10. поддерживать оборудование в хорошем состоянии	
11. снять цилиндрические крышки	
12. вынуть поршень	
13. разобрать турбонагнетатель	
14. измерить давление топлива	
15. опустить поршень на опору	
16. снять перчатки	
17. подогреть топливо перед запуском двигателя	
18. проверить их работу	
19. не забыть выключить газ	
20. проверить уровень масла и, если необходимо, наполнить баки	



EXERCISE #6

Составьте предложения по образцу и устно их переведите

Например: I like Russian crew / my friend / international crew
*I like Russian crew. But my friend **does not** like Russian crew. He **likes** international crew.*

1. I usually work on a tanker / my friend / a ro-ro ship	
2. I take blue paint / my friend / red paint	
3. I see well / my friend / only with glasses	
4. I call home every week / my friend / every month	
5. I tighten screws / my friend / nuts	
6. I plug pipes / my friend / scuppers	
7. I measure fuel oil / my friend / lube oil	



EXERCISE #7

Вставьте **have** или **has**
в предложения и переведите

- | | |
|---|--|
| 1. I _____ experience. | 8. This engine _____ slow speed. |
| 2. My ship _____ lifeboats. | 9. These pipes _____ leakages. |
| 3. You _____ a visa. | 10. Their crew _____ many people. |
| 4. The Third Engineer _____ a job. | 11. Nuts _____ scratches. |
| 5. I _____ coffee time. | 12. The repair _____ a good result. |
| 6. Our ship _____ two mess-rooms. | 13. We _____ three purifiers in the engine-room. |
| 7. We _____ all welding equipment ready for work. | 14. Our ship _____ auxiliary machinery. |



EXERCISE #8

Переведите эти предложения

1. Чтобы подготовить дизель к пуску после непродолжительной стоянки (не более 12 часов), необходимо:
2. проверить, что нет никаких посторонних предметов вблизи крышек цилиндров и других движущихся деталей;
3. проверить краны забортной воды;
4. осмотреть топливную систему;
5. проверить, достаточно ли топлива в расходном баке;
6. проверить наличие смазочного масла в расходном баке, картере, маслосборнике;
7. определить давление воздуха в баллонах;
8. повернуть коленчатый вал дизеля на 2-3 оборота;
9. если отсутствуют неполадки, дизель готов к работе.



EXERCISE #9

Вставьте необходимое вопросительное слово
и устно переведите эти предложения

- | | |
|--|--|
| <u>How</u> many holds do you have onboard? | 5. _____ long is your usual voyage? |
| 1. _____ is your name? | 6. _____ is responsible for mooring? |
| 2. _____ do you live? | 7. _____ much do you earn per month? |
| 3. _____ is the cargo on their tanker? | 8. _____ are my tools? |
| 4. _____ do you depart? | 9. Today I work on the deck.
_____ about you? |



EXERCISE #10

Прочитайте и переведите эти предложения

1. How often do you use a capstan and a windlass?
2. What do you think about the engine-room condition?
3. The Third Engineer inspects the operation of the auxiliary boiler.
4. I want to dismantle that gauge.
5. This bearing needs lubrication.
6. A cargo crane lowers cargo into the hold #3.
7. Regularly drain dirt off separating tanks.
8. The Third Engineer renews the broken non-return valve.
9. Replace the damaged impeller in the centrifugal pump.
10. I want you to grind this exhaust valve.
11. Old equipment needs inspection.
12. The 2nd boiler operates badly because of its old age.
13. Prepare the air coolers and the turbocharger for work.
14. The motorman refills the expansion tank.
15. Disassemble the turbochargers and dismantle the rotor.
16. Drain oil off the oil pan.
17. What kind of cargo is there in the cargo holds?



EXERCISE #11

Переведите эти предложения

1. У капитана большая каюта.
2. Не закрывайте дверь.
3. Им нужно сделать небольшой ремонт.

4. Охлаждающая система работает хорошо? Да, она готова.

5. Не бросайте мусор за борт.

6. Пойдите и найдите инструменты.

7. После обеда мы обычно возвращаемся на работу в 14 часов.

8. Я звоню домой каждую неделю.

9. Как часто ты разговариваешь с другими членами экипажа?

10. Рядовые обычно спят после ужина?

11. Проверьте баки и трубы.

12. Когда я на вахте, я обычно контролирую работу машин.

13. Почините трап машинного отделения.

14. Мы ремонтируем ТНВД.

15. Соедините эти два шланга перед бункеровкой.

**EXERCISE #12****Переведите эти предложения**

1. Перед демонтажем форсунки я перекрываю подачу топлива.

2. Затем отсоединяю трубку высокого давления и демонтирую крепления форсунки.

3. С помощью специального приспособления я демонтирую форсунку из цилиндровой крышки.

4. Я чищу демонтированную форсунку и ставлю на стенд для определения распыла.

5. С помощью гидравлического пресса я определяю давление распыла.

6. Если давление ниже нормы, я производжу регулировку.

7. После регулировки и достижения рабочего давления монтирую форсунку на место.

8. Если не удастся достичь рабочего давления, я разбираю форсунку и заменяю распылитель.

9. После чего снова устанавливаю ее на стенд и регулирую рабочее давление.

10. Затем монтирую форсунку на место.



ENGINE-ROOM DEPARTMENT

The man in charge of a vessel is the Master. He is responsible for the vessel, her cargo, and safety of all crew. He is an experienced and well-qualified navigator. His correct name is Master but often it is Captain. The ship's crew consists of Deck, Engine, and Catering departments. Each department has officers and ratings. The most experienced officer is in charge of a department.

Engine department operates, maintains, and repairs internal combustion engines, boilers, steam turbines, refrigeration and air conditioning systems, and also takes part in emergency repairs.

THE CHIEF ENGINEER is in command of the engine department and personnel. He is responsible for all ship's machinery, equipment, and control systems; for their operation, maintenance, and repair. The Chief Engineer is also responsible for administration, supervision, and economical operation of the engine department. He is responsible for engine department correspondence, records, and reports. He keeps the engine department files, manuals, and instructions for machinery and equipment.

THE SECOND ENGINEER OFFICER is the officer next in rank to the Chief Engineer. He is responsible for daily activities of the engine-room personnel. He supervises maintenance and repair works. He is also a watchkeeping Engineer who keeps two 4-hour watches. His duties include responsibility for the main engine, fire main system, water ballast system, bilge drainage system, and refrigeration system.

THE THIRD ENGINEER OFFICER's duties include responsibility for auxiliary engines, fuel storage and transfer system, air compressors, and air conditioner. The Third Engineer is usually in charge of bunkering operation.

THE FOURTH ENGINEER OFFICER usually has auxiliary boilers and waste-heat boilers in his responsibility. He is also in charge of sea-water sanitary system, galley and laundry mechanical equipment, and some other items.

Each MOTORMAN is responsible to:

- follow instructions;
- know the vessel's layout especially engine-room and machinery spaces;
- do everything for Quality, Safety and Environmental protection;
- report unsafe conditions to the safety officer;
- report damage to vessel's equipment and machinery;
- clean and paint as required;
- help with maintenance as instructed;
- monitor machinery parameters;
- keep an engine-room watch;
- help in training of engine trainees and engine cadets.



WATCHKEEPING PROCEDURES

During his watch an engineer checks:

- pressures and temperatures on gauges;
- all pipelines for leakages;
- alarms and automatic control devices for proper functioning;
- availability and good condition of fire-fighting and safety equipment;
- liquid levels and flows;
- running machinery bearings for overheating;
- unusual (excessive) noise or vibration.

UNIT 8

НАСТОЯЩЕЕ ПРОДОЛЖЕННОЕ ВРЕМЯ / PRESENT CONTINUOUS TENSE

Настоящее продолженное время используется при описании действия или события, которое разворачивается в момент речи или в настоящий период времени.

Present Continuous часто используется с такими наречиями и обстоятельственными выражениями, как:

- today (сегодня)
- at the moment (в данный момент)
- now (сейчас)

Present Continuous также используется при:

- обозначении событий, которые происходят часто и вызывают раздражение или удивление говорящего:

He is always shouting at me. — Он всегда кричит на меня.

She is always complaining. — Она всегда жалуется.

- описании изменений:

The Universe is expanding. — Вселенная увеличивается в размерах.

The population of the Earth is increasing. — Население Земли увеличивается.

ОБРАЗОВАНИЕ ФОРМ PRESENT CONTINUOUS

УТВЕРДИТЕЛЬНАЯ ФОРМА

Утвердительная форма предложения в Present Continuous образуется путем прибавления к вспомогательному глаголу to be (am, is, are) в настоящем времени причастия (-ing) смыслового глагола.	I	am	working
	He	is	
	She		
	It		
	We	are	
	You		
They			

ВОПРОСИТЕЛЬНАЯ ФОРМА

При построении общего вопроса вспомогательный глагол to be (am, is, are) ставится перед подлежащим предложения.	Am	I	working?
	Is	he	
		she	
		it	
	Are	we	
		you	
they			

ОТРИЦАТЕЛЬНАЯ ФОРМА

Отрицательное предложение образуется путем прибавления к вспомогательному глаголу to be (am, is, are) отрицательной частицы not .	I	am not	working
	He	is not	
	She		
	It		
	We	are not	
	You		
They			

!!! Present Continuous практически не используется с глаголами состояния и чувствования:
like, love, hate, know, need, want, mean, believe, suppose, remember, depend, etc.

НАПРИМЕР: *I don't know him. — Я его не знаю. (Нельзя сказать: I'm not knowing him).*

НАПРИМЕР:

Утвердительная форма	<ul style="list-style-type: none"> • I am keeping watch now. • He is reading manuals. • They are repairing a generator. 	<ul style="list-style-type: none"> • Сейчас я несую вахту. • Он читает инструкции. • Они ремонтируют генератор.
Вопросительная форма	<ul style="list-style-type: none"> • Am I keeping watch now? • Is he reading manuals? • Are they repairing a generator? 	<ul style="list-style-type: none"> • Сейчас я несую вахту? • Он читает инструкции? • Они ремонтируют генератор?
Отрицательная форма	<ul style="list-style-type: none"> • I am not keeping watch now. • He is not reading manuals. • They are not repairing a generator. 	<ul style="list-style-type: none"> • Сейчас я не несую вахту. • Он не читает инструкции. • Они не ремонтируют генератор.



ENGINE-ROOM

I am a motorman. Our vessel is at sea now. We are coming to a new port. I am in the engine-room. I usually work 8 hours a day but sometimes I work overtime. My watch is usually from 8 till 12 o'clock. Today I am keeping watch with the Third Engineer. I am helping him and following his commands. The Third Engineer is responsible for all auxiliary machinery onboard but during his watch he supervises operation of all equipment in the engine-room. If there are some problems with fuel supply he checks fuel tanks and fills them if necessary. If there are leakages in pipes the watchkeeping engineer asks a welder to weld them. It is motormen's duty to disassemble damaged valves, filters, or pumps. They check, clean, repair, or renew them. When we receive new equipment Chief Engineer always tests it before installation in the engine-room, on the bridge, or on the deck. Sometimes we have serious problems when we even need to stop the engine. Before we stop the engine we always inform the bridge about this. But today there are no problems and all machinery is running well at the moment. We are controlling the work of the main engine and auxiliary engines. We are checking pressure and liquid level on the gauges, listening to the noise in the engine, checking the pipes for leakages, and inspecting work of all other equipment.



EXERCISE #1

Ответьте на вопросы к тексту

1. What is your position?
2. Where is the vessel going now?
3. How long is your usual watch?
4. Whom are you keeping watch with today?
5. What do you usually do during your watch?
6. What are you doing on watch today?
7. Are there any problems with machinery?
8. What does the Chief Engineer do when he receives new equipment?
9. What do you always do before you stop the engine?
10. Are you stopping the main engine now?



EXERCISE #2

Напишите, что происходит в настоящий момент, обращая внимание на образец

I / work / on this ship

I am working on this ship.

1. I / sit / in the control-room

2. He / weld / a pipe

3. You / keep / watch

4. They / dismantle / the motor

5. I / learn / new English words

6. I / try to connect / these two cables

7. We / overhaul / the main engine

8. He / tighten / the cover with screws

9. Motormen / disjoint / the fuel injection valves

10. AB seaman / grind / the surface before painting



EXERCISE #3

Вставьте в предложения глаголы, указанные в скобках, в правильной форме

1. What's the matter? Why is this motorman not working (not, work) ?
2. Our ship seldom calls at this port (call)
3. Go and help them. They are finishing the cylinder cleaning (finish)
4. Where is the Second Engineer? He is repairing the boiler (repair)
5. It's night and we are sleeping (sleep)
6. Water is circulating around the system (circulate)
7. What is wrong with you is there? (do) We are repairing the motor (repair)
8. During every watch a motorman checks the operation of all equipment (check).
At the moment he is checking it again (check)
9. Move the cargo from here (move)
10. Lubricating oil lubricates all moving parts of mechanism to avoid friction (lubricate)
11. The engine personnel are getting ready for the overhaul (get ready)
12. Do not leave your watch without my permission (not, leave)
13. The bosun always explains to new seamen their work (explain)
14. When there is fire (be), at first we use a fire extinguisher (use) and if it does not help we start CO₂ system (start)



EXERCISE #4

Переведите ситуации,
происходящие в данный момент

1. Он возвращается домой.	
2. Они зовут нас.	
3. Он ремонтирует.	
4. Я работаю в машинном отделении.	
5. Они протирают пол.	
6. Она готовит обед.	
7. Он изучает механизм.	
8. Они отдыхают.	
9. Он курит.	
10. Мы вытираем масляные капли с пола.	
11. Они закрывают дверь.	
12. Он не нажимает кнопку.	
13. Я пишу письмо.	
14. Стармех дает указания.	
15. Я заканчиваю работу.	
16. Мы заходим в порт.	
17. Мы ждем приказа.	
18. Я руковожу бункеровкой.	
19. Электромотор не работает.	



EXERCISE #5

Прочитайте и переведите эти предложения

1. I usually keep watch from 4 till 8 a.m.	
2. At the moment the 3 rd Engineer is talking to the man on the bunkering barge.	
3. What tools are you using now to replace the exhaust valve?	
4. We are not having any problems with the equipment.	
5. I am phoning to the bridge to tell the watchkeeping officer about the increased temperature of exhaust gases.	
6. A wiper cleans the engine-room every day.	
7. We are lifting the piston.	



EXERCISE #6

Составьте предложения по образцу

It's 7 a.m.	I	<u>am getting up</u>	. I always	<u>get up</u>	at this time.
It's 8 a.m.	I		. I always		at this time.
It's 10 a.m.	I		. I always		at this time.
It's 6 p.m.	I		. I always		at this time.
It's 8 p.m.	I		. I always		at this time.
It's 11 p.m.	I		. I always		at this time.



EXERCISE #7

Вставьте указанные глаголы в предложения и устно переведите

lift use plan need clean stop take out drain
 be prepare fix push work go want lubricate

1. AB seamen are cleaning the deck at the moment.
2. It's cargo loading operation and one of the cranes is lifting cargo onboard.
3. The Chief Engineer is planning to overhaul the main engine next month.
4. The mooring winch is working badly and our Master is very angry.
5. The motorman is stopping (fixing) the reciprocating pump right now.
6. They are preparing lifeboats for launching to save the man overboard.
7. I am to assemble the centrifugal separator now.
8. The piston pushes exhaust gases out of the cylinder.
9. Stop the main engine immediately!
10. They are taking out the piston rings at the moment.
11. I often use a spanner.
12. The auxiliary engine needs overhaul.
13. The wiper is draining the manifold now.
14. Lube oil lubricates all rotating parts of the engine.
15. Where are you going?



EXERCISE #8

Переведите эти предложения

Сейчас 10 часов. Что делает моторист? Он снимает показания приборов.
 Он всегда снимает показания приборов в это время.

Сейчас 13 часов. Что делает моторист? Он красит в машинном отделении.
 Он всегда красит в машинном отделении в такое время.

Сейчас 19 часов. Что делает моторист? Он ужинает.
 Он всегда ужинает в такое время.

UNIT 9

СТРАДАТЕЛЬНЫЙ ЗАЛОГ / PASSIVE VOICE

В английском языке глагол имеет два залога: действительный залог (Active Voice) и страдательный залог (Passive Voice). Глагол в Active Voice (действительном залоге) показывает, что действие совершает лицо или предмет, выраженный подлежащим.

НАПРИМЕР:

- *An oiler often uses a screwdriver.* – Моторист 1-го класса часто использует отвертку.
- *The connecting rod rotates the crankshaft.* – Шатун вращает коленвал.

Глагол в Passive Voice (страдательном залоге) означает, что действие производится над предметом, выраженном подлежащим.

НАПРИМЕР:

- *A screwdriver is often used by an oiler.* – Отвертка часто используется мотористом 1-го класса.
- *The crankshaft is rotated by the connecting rod.* – Коленвал вращается шатуном.

Страдательный залог образуется при помощи вспомогательного глагола **to be** в соответствующей форме (**am, is, are, was, were, will be**) и инфинитива глагола с окончанием **-ed** для правильных глаголов (или 3-ей формой для неправильных глаголов).

НАПРИМЕР:

Present	I	am used	I am used.	Меня используют.
	he, she, it	is used	A hammer is used.	Молоток используется.
	we, you, they	are used	Hammers are used.	Молотки используются.
Past	I, he, she, it	was used	A hammer was used.	Молоток использовался.
	we, you, they	were used	Hammers were used.	Молотки использовали.
Future	I, he, she, it, we, you, they	will be used	A hammer will be used.	Молоток будет использоваться.



AUXILIARY MACHINERY

Auxiliary machinery is a mechanical equipment onboard that has many functions.

Auxiliary machinery includes:

- air compressors which supply compressed air for the engine start;
- coolers which are used to cool oil and water;
- diesel generators provide the vessel with electrical power and light;
- heaters and air conditioners are necessary for heating and ventilation;
- a sewage plant is responsible for sanitation;
- a distillation plant supplies fresh water;
- bilge and ballast pumping systems keep the vessel dry and in order. Bilge pumping system removes water from machinery, cargo, and other places. Ballast pumping system pumps water into and out of ballast tanks. On general cargo vessels these systems are interconnected and served by the same pumps. On tankers and bulk carriers these systems are separate because these vessels need larger pumps;
- a feed-water heater heats water before it is delivered to a boiler in order to increase the efficiency of the boiler work;
- a steering gear is necessary to operate a rudder for manoeuvring;
- fire-fighting equipment is used for safety or in case of fire onboard;
- deck machinery such as windlasses, capstans, winches, and cranes are used for mooring and cargo operations.



EXERCISE #1

Вставьте указанные глаголы
в предложения и устно переведите

damage stop fit make open start cool check use block

After the engine is stopped the service tanks are blocked for diesel oil and heavy oil.

1. The hull of our vessel _____ of good steel.
2. Gangway _____ to get from ashore onboard.
3. Bitts _____ on the starboard side.
4. Ladder on the port side _____.
5. All hatch covers _____ by AB seamen.
6. Engine pistons _____ by fresh water or oil.
7. Pistons of engine _____ through the holes in the cylinder liners.
8. Sea-water pumps _____ after checking of the system.



EXERCISE #2

Переведите эти предложения

1. Краску разводят растворителем.
2. Масло доставляется насосом.
3. Приказы отдаются офицерами.
4. Мне сказали, где сейчас стармех.
5. Все дизельные двигатели запускаются сжатым воздухом.
6. Два вида котлов используются на судне.
7. Стенка цилиндра охлаждается продувкой воздуха.
8. Это оборудование используется редко.
9. Я родился 25-го февраля.
10. Вибрация вызвана отсутствием балансировки вращающихся частей механизма.
11. Компрессор поврежден.
12. Моторист осматривает топливную систему перед тем, как запускают двигатель.



EXERCISE #3

Поставьте предложения из
Active Voice в Passive Voice

Например:

A bulk carrier carries such cargo as coal or grain.

Such cargo as coal or grain is carried by a bulk carrier.

1. The central cooling system uses fresh water.
2. They clean the lubricating oil system.
3. The manoeuvring air system takes compressed air.
4. Engineers supply instructions for operation and maintenance of machinery.
5. The Third Engineer examines the piston.
6. They carefully take out and inspect the fuel valves.
7. The engine-room staff tests a new cylinder liner.
8. This system supplies lubricating oil to the engine bearings.
9. A pump delivers sea water.
10. The engineer measures the clearance between the bearing and the shaft.
11. The Chief Engineer gives orders.
12. The wiper pushes a button to start the fire alarm.



UNIT 10

БУДУЩЕЕ НЕОПРЕДЕЛЕННОЕ ВРЕМЯ / FUTURE INDEFINITE TENSE

Время Future Indefinite употребляется для выражения действия или нескольких повторяющихся действий, которые будут совершаться в будущем.

Часто будущее неопределенное время употребляется со следующими словами:

- tomorrow - завтра
- next week - на следующей неделе
- in five days - через пять дней

Будущее действие в английском языке может также выражаться при помощи:

- оборота to be going to + инфинитив:

I am going to help him soon. – Я собираюсь помочь ему скоро.

We are going to finish this repair by tomorrow. – Мы собираемся закончить этот ремонт к завтрашнему дню.

- времени Present Indefinite (настоящего неопределенного времени), особенно с глаголами движения:

The train leaves in 15 minutes – Поезд отправляется через 15 минут.

- времени Present Continuous (настоящего продолженного времени) с глаголами движения (когда результат заранее известен):

The crew is coming back home in two weeks. – Экипаж возвращается домой через две недели. (Уже точно известно, что экипаж возвращается – билеты куплены, вещи упакованы и пр.)

ОБРАЗОВАНИЕ ФОРМ FUTURE INDEFINITE

УТВЕРДИТЕЛЬНАЯ ФОРМА

Утвердительная форма предложения образуется с помощью вспомогательного глагола will и инфинитива смыслового глагола без частицы to .	I	We	will	work
	You	You		
	He She It	They		

ВОПРОСИТЕЛЬНАЯ ФОРМА

При построении общего вопроса вспомогательный глагол will ставится перед подлежащим предложения.	Will	I	we	work?
		you	you	
		he she it	they	

ОТРИЦАТЕЛЬНАЯ ФОРМА

Отрицательное предложение образуется путем прибавления к вспомогательному глаголу will отрицательной частицы not . Форма will not может сокращаться до формы won't .	I	We	will not won't	work
	You	You		
	He She It	They		

НАПРИМЕР:

Утвердительная форма	<ul style="list-style-type: none"> • I will start work at 3 p.m. • He will come back in two days. • We will work tomorrow. 	<ul style="list-style-type: none"> • Я начну работу в 15:00. • Он вернется через два дня. • Завтра мы будем работать.
Вопросительная форма	<ul style="list-style-type: none"> • Will you start work at 3 p.m.? • Will he come back in two days? • Will we work tomorrow? 	<ul style="list-style-type: none"> • Ты начнешь работу в 15:00? • Он вернется через два дня? • Завтра мы будем работать?
Отрицательная форма	<ul style="list-style-type: none"> • I will not (won't) start work at 3 p.m. • He will not come back in two days. • We won't work tomorrow. 	<ul style="list-style-type: none"> • Я не начну работу в 15:00. • Он не вернется через два дня. • Завтра мы не будем работать.

ФОРМА TO BE GOING TO

Форма **to be going to** служит для выражения желания или намерения сделать что-либо в будущем, но при принятии решения об этом заранее, до момента речи.

To be going to + инфинитив часто употребляется для выражения фразы «собираться (что-то сделать)».

НАПРИМЕР:

- *He is going to work.* - Он собирается работать.
- *Are you going to work?* - Ты собираешься работать?
- *I am not going to work.* - Я не собираюсь работать.

I	am	going to	work
He She It	is		
You We They	are		



EXERCISE #1

Переведите эти предложения

1. Топливо попадет в цилиндр в конце такта сжатия.
2. Он расскажет мне об этой проблеме завтра.
3. Наше судно войдет в порт в 7 часов.
4. Я собираюсь закончить эту работу через два часа.
5. Я поищу его на камбузе.
6. Воздух охладит поршень и стенку цилиндра во время продувки.
7. Бункеровка закончится в пять часов вечера.
8. Сегодня мы не собираемся начинать капитальный ремонт котла.
9. Во сколько закончится твоя вахта?
10. В каком порту вы будете через месяц?
11. Команда машинного отделения собирается почистить фильтры сегодня вечером.
12. Я отнесу огнетушители на палубу.
13. Вы сообщите об этом инциденте на мостик?
14. Я не думаю, что они снимут поршневые кольца так быстро.
15. Отремонтируйте эту лебедку как можно скорее, она нам будет нужна во время швартовки.



EXERCISE #2

Что Вы собираетесь или не собираетесь
делать завтра?

(buy a car) I am not going to buy a car tomorrow

1. (get up before 7 o'clock) _____

2. (have breakfast) _____

3. (learn new English words) _____

4. (watch TV in the evening) _____



EXERCISE #3

Это Ваш план на следующие несколько недель.
Скажите, что Вы будете делать в эти даты

7 - be at home to get ready for departure

9-11 - go to Kiev to get a US visa

16 - go to Kiev airport to fly to France

17 - come to Paris to meet the company agent

17-18 - spend time in Paris

19 - arrive at my ship

On the 7th I will be at home to get ready for departure

On the 10th _____

On the 16th _____

On the 17th _____

On the 18th _____

On the 19th _____



ENGINEER'S DUTIES ON JOINING A SHIP

When an engineer joins a ship he reports to the Chief Engineer. He will consult with him about the machinery and equipment which he will be responsible for. He will inspect such machinery and equipment and will report any faults to the Chief Engineer if he finds them. His duties will be to assist with repair work and installation of ship's machinery and equipment. In his normal daily work he will require all his personnel to provide safety precautions under his supervision.

CHIEF ENGINEER

The Chief Engineer is responsible to the Master for maintenance and safe operation of all mechanical and electrical machinery and equipment.

The Chief Engineer is also responsible for:

- bunkering;
- fresh-water production;
- pollution control;
- overall supervision of engine-room ratings, engineering officers, electrical officers, and all fitters onboard.

If the Chief Engineer because of illness or other causes cannot be in charge of the engine department, the Second Engineer will take over. During the absence of the Chief Engineer from the ship the 2nd Engineer will follow all Chief Engineer's instructions and will be responsible for care and proper operation of all machinery and equipment.

When the Chief Engineer is relieved, he will make a careful inspection (at least 3 hours) of the whole ship including all:

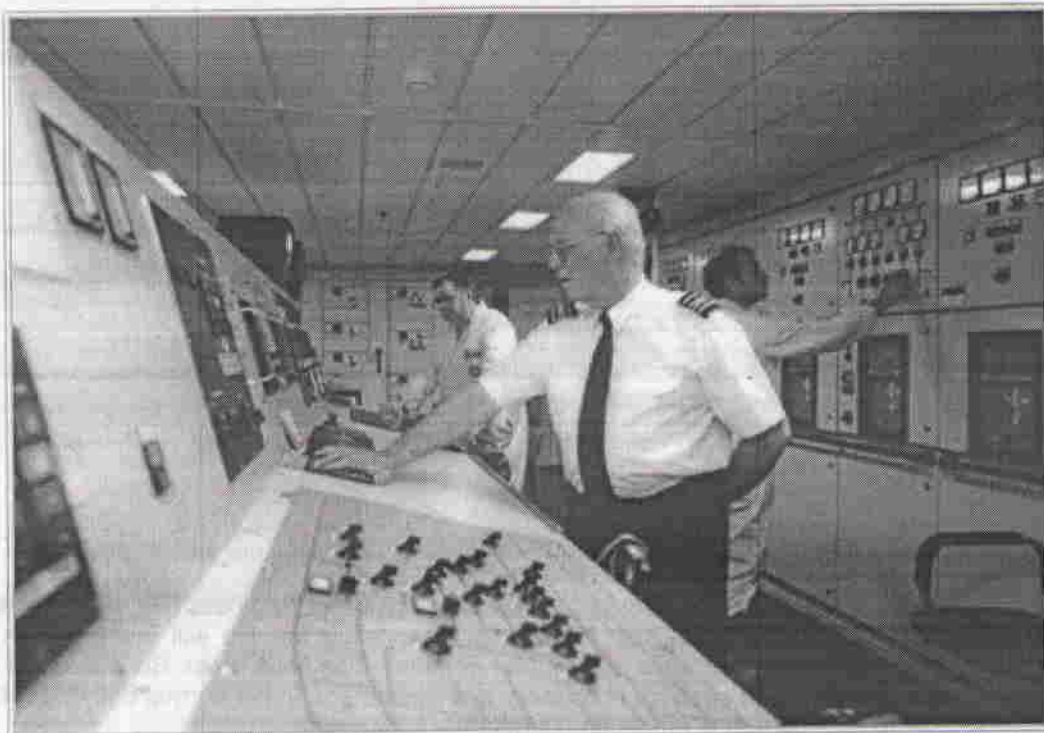
- | | | |
|---|---|--|
| <input checked="" type="checkbox"/> machinery spaces; | <input checked="" type="checkbox"/> bridge; | <input checked="" type="checkbox"/> CO ₂ room; |
| <input checked="" type="checkbox"/> boiler spaces; | <input checked="" type="checkbox"/> radio-room; | <input checked="" type="checkbox"/> mooring winches, windlass; |
| <input checked="" type="checkbox"/> store-rooms; | <input checked="" type="checkbox"/> lifeboats; | <input checked="" type="checkbox"/> pump-rooms; |
| <input checked="" type="checkbox"/> workshop; | <input checked="" type="checkbox"/> poop; | <input checked="" type="checkbox"/> hatches; |
| <input checked="" type="checkbox"/> steering gear; | <input checked="" type="checkbox"/> emergency generator and diesel fire pump; | <input checked="" type="checkbox"/> deck hydraulic systems; |
| <input checked="" type="checkbox"/> galley; | | <input checked="" type="checkbox"/> deck electrical systems. |

The departing Chief Engineer will list for the joining Chief Engineer:

- all machinery that is out of service;
- all planned work for the next month(s);
- list of all chemicals and gases;
- all inventory;
- a list of measuring instruments and special tools kept by the Chief Engineer in his cabin.

Both Chief Engineers will also make sounding of all fuel tanks and calculate the quantities of fuel oil, diesel oil, lube oils including oil in use in machinery and oil in storage tanks.

If the Chief Engineer receives an order from the Master that he believes will damage the machinery, boilers, etc., or cause unnecessary waste of fuel, it will be his duty to report to the Master about this. If the problem is not compromised and the Chief Engineer believes that the safety of life and the ship can be effected, he must report to the shipowner's office immediately.



2ND ENGINEER

The 2nd Engineer is the officer of the engine-room who assists the Chief Engineer in supervision of running of all machinery and plant. At sea with a manned engine-room he will normally take charge of the 0-4 o'clock watch.

The First Assistant Engineer will be responsible for:

- General maintenance and daily running of the main engine.
- General maintenance and overall condition of the steering gear.
- General painting and cleaning of the engine-room.
- General maintenance of the refrigeration plant with daily checks of temperatures and performance and weekly checks of alarms.
- Maintenance of air conditioning system.
- Lube oil quantities and analysis.
- Monitoring of cooling water efficiency and taking analysis every week.
- Correct and fast supply of information to the Chief Engineer about everything. He will report to the Chief Engineer at 08:00 and 20:00 each day.
- Supervision of all engine-room personnel.
- The 2nd Engineer will be also an environmental officer onboard reporting to the Master about all environmental issues. His duties as an environmental officer will include control of all environmental records.

3RD ENGINEER

- The Second Assistant Engineer will be responsible to the First Assistant Engineer for normal maintenance duties and to the Chief Engineer for watchkeeping duties.
- At sea with a manned engine-room he will normally take charge of the 4-8 o'clock watch. In a port he will work according to the 2nd Engineer's instructions.
- If there is no electrician onboard the 3rd Engineer will take responsibility, under the supervision of the Chief Engineer, for electrical equipment and installation.
- He will be responsible for general maintenance of diesel generators.
- The 3rd Engineer will be the engineer responsible to the Chief Engineer for bunkering.

4TH ENGINEER

- The 4th Engineer will be responsible to the 2nd Engineer for normal maintenance duties and to the Chief Engineer for watchkeeping duties.
- In addition to the general duties the 4th Engineer will normally take charge of the 8-12 o'clock watch at sea with a manned engine-room. In a port he will work according to the 2nd Engineer's instructions.
- The 4th Engineer will be responsible for general maintenance of pumps, compressors, and purifiers.

DUTIES AT SEA

- After main engines are in full power and watches are set (AMS or UMS), the Chief Engineer will give the 2nd Engineer a work schedule of maintenance.
- The watchkeeper will carry out all manoeuvring orders or emergency instructions from the bridge.
- If the watchkeeping engineer needs to change the main engine revolutions for any reason he will inform the bridge and the Chief Engineer.
- When tests/repairs are finished the duty deck officer will be informed and control will be transferred to the bridge. Tests must never be carried out in dangerous waters.
- Check exhaust temperatures and color of exhaust smoke from the funnel.
- Check pressures and temperatures of cooling water and lubricating oil.
- All working temperatures and pressures will be checked and logged every four hours.
- Watchkeepers will also pay attention to strange smells and sounds. Rounds will be made during a watch of all machinery spaces, boiler spaces, etc.
- Abnormal readings will be reported immediately to the Chief Engineer.
- If the situation is serious, cut off the fuel supply to the engine immediately. Only in an extreme emergency the main engines can be stopped or the revolutions can be changed without first informing the watchkeeper on the bridge and the Chief Engineer. If the duty engineer requires to stop the engine he will:
 - Call the bridge.
 - Slow or stop the engine.
 - Call the Chief Engineer.
 - Inform the bridge about the details of the emergency condition as soon as possible.

TAKING OVER THE WATCH

Before a watchkeeper enters the engine-room he will check the funnel exhausts. When he leaves the engine-room he will check all running machinery. He will follow all previous orders or instructions and will compare readings and operations with logged readings of previous watch.

Before taking over the watch he will also check:

- all temperatures are normal;
- all pressures are normal;
- revolutions are normal;
- control settings are normal;
- purified fuel oil tank readings are normal;
- mechanical lubricator operation is normal;
- crankcase glands are normal;
- cooling water is OK;
- crankcase oil is OK;
- sea temperature is OK;
- purifiers and sludge tank are OK;
- fuel tank status;
- starting air status.

UNIT 11

ПРОШЕДШЕЕ НЕОПРЕДЕЛЕННОЕ ВРЕМЯ / PAST INDEFINITE TENSE

Прошедшее неопределенное время употребляется при описании действия или положения дел, имевшего место в некоторый определенный момент или некоторый период времени в прошлом. При этом обычно не является важным, как долго разворачивалось действие или событие. Существенно, что событие произошло в прошлом и не имеет связи с настоящим. В принципе, указание на определенный момент или отрезок времени не является обязательным, если из предшествующего контекста ясно, когда имело место событие.

Past Simple часто используется в сочетании с такими обозначениями времени как:

- yesterday (вчера)
- last summer (прошлым летом)
- last year (в прошлом году)
- two days ago (два дня назад)
- in 1956 (в 1956 году)
- last week (на прошлой неделе)

ОБРАЗОВАНИЕ ФОРМ PAST INDEFINITE

УТВЕРДИТЕЛЬНАЯ ФОРМА

Утвердительная форма предложения образуется путем прибавления к инфинитиву глагола окончания -ed (или используется II форма неправильных глаголов).	I	We	worked
	You	You	
	He	They	
	She It		

ВОПРОСИТЕЛЬНАЯ ФОРМА

При построении общего вопроса используется вспомогательный глагол do в прошедшем времени - did , который ставится перед подлежащим предложения. Смысловой глагол при этом употребляется в своей основной форме.	Did	I	we	work?
		you	you	
		he	they	
		she it		

ОТРИЦАТЕЛЬНАЯ ФОРМА

Отрицательное предложение образуется при помощи вспомогательного глагола do в прошедшем времени - did , за которым следует отрицательная частица not . Смысловой глагол при этом употребляется в своей основной форме.	I	We	did not didn't	work
	You	You		
	He	They		
	She It			

НАПРИМЕР:

Утвердительная форма	<ul style="list-style-type: none"> • I had breakfast in the morning. • He went to Paris in 1990. • They arrived at the airport at 5. 	<ul style="list-style-type: none"> • Я позавтракал утром. • Он ездил в Париж в 1990. • Они прибыли в аэропорт в 5.
Вопросительная форма	<ul style="list-style-type: none"> • Did I have breakfast in the morning? • Did he go to Paris in 1990? • Did they arrive at the airport at 5? 	<ul style="list-style-type: none"> • Я позавтракал утром? • Он ездил в Париж в 1990? • Они прибыли в аэропорт в 5?
Отрицательная форма	<ul style="list-style-type: none"> • I didn't have breakfast in the morning. • He did not go to Paris in 1990. • They didn't arrive at the airport at 5. 	<ul style="list-style-type: none"> • Я не позавтракал утром. • Он не ездил в Париж в 1990 году. • Они не прибыли в аэропорт в 5.

!!! Глагол **to be** в прошедшем времени имеет форму **was / were**. На него не распространяется общее правило построения отрицательных и вопросительных предложений, то есть при употреблении глагола **to be** в простом прошедшем времени вспомогательный глагол **did** не используется !!!

НАПРИМЕР:

	Утвердительная форма	Вопросительная форма	Отрицательная форма
На том балкере он был вторым механиком.	He was the Second Engineer on that bulker.	Was he the Second Engineer on that bulker?	He was not the Second Engineer on that bulker.

!!! Исключение также составляют неправильные глаголы, которые не подчиняются общему правилу добавления окончания **-ed**. Их формы нужно заучивать. Например:

I форма		II форма		III форма		перевод
be	[bi:]	was/were	[wɒz] [wə:]	been	[bin]	быть, являться, находиться
become	[bi'kʌm]	became	[bi'keim]	become	[bi'kʌm]	становиться
begin	[bi'gin]	began	[bi'gæŋ]	begun	[bi'gʌn]	начинать
break	[breik]	broke	[brəʊk]	broken	['brəʊken]	ломать
bring	[brɪŋ]	brought	[brɔ:t]	brought	[brɔ:t]	приносить
buy	[baɪ]	bought	[bɔ:t]	bought	[bɔ:t]	покупать
choose	[tʃu:z]	chose	[tʃəʊz]	chosen	['tʃəʊzən]	выбирать
come	[kʌm]	came	[keɪm]	come	[kʌm]	приходить
cut	[kʌt]	cut	[kʌt]	cut	[kʌt]	резать
do	[du:]	did	[dɪd]	done	[dʌn]	делать
drink	[drɪŋk]	drank	[dræŋk]	drunk	[drʌŋk]	пить
eat	[i:t]	ate	[eɪt]	eaten	['i:tən]	есть
fall	[fɔ:l]	fell	[fel]	fallen	['fɔ:lən]	падать
feel	[fi:l]	felt	[felt]	felt	[felt]	чувствовать
find	[faɪnd]	found	[faʊnd]	found	[faʊnd]	находить
forget	[fə'gət]	forgot	[fə'gɔ:t]	forgotten	[fə'gɔ:tən]	забывать
forgive	[fə'gɪv]	forgave	[fə'geɪv]	forgiven	[fə'gɪvən]	прощать
go	[gəʊ]	went	[went]	gone	[gɒn]	ходить
get	[get]	got	[gɔ:t]	got	[gɔ:t]	получать
give	[gɪv]	gave	[geɪv]	given	['gɪvən]	давать
have	[hæv]	had	[hæd]	had	[hæd]	иметь
hear	[hiə]	heard	[hɜ:d]	heard	[hɜ:d]	слышать
hide	[haɪd]	hid	[hɪd]	hidden	['hɪdən]	прятать
hold	[həʊld]	held	[held]	held	[held]	держат
hurt	[hɜ:t]	hurt	[hɜ:t]	hurt	[hɜ:t]	ранить
keep	[ki:p]	kept	[kept]	kept	[kept]	хранить, держать
know	[nəʊ]	knew	[nju:]	known	[nəʊn]	знать
leave	[li:v]	left	[left]	left	[left]	оставлять, покидать
lose	[lu:z]	lost	[lɒst]	lost	[lɒst]	терять
make	[meɪk]	made	[meɪd]	made	[meɪd]	делать, создавать
put	[put]	put	[put]	put	[put]	класть
say	[seɪ]	said	[sed]	said	[sed]	сказать
see	[si:]	saw	[sɔ:]	seen	[si:n]	видеть
shut	[ʃʌt]	shut	[ʃʌt]	shut	[ʃʌt]	закрывать

speak	[spi:k]	spoke	[spəuk]	spoken	['spəukən]	говорить
spend	[spend]	spent	[spent]	spent	[spent]	проводить
stand	[stænd]	stood	[stu:d]	stood	[stu:d]	стоять
stick	[stik]	stuck	[stʌk]	stuck	[stʌk]	приклеивать, застревать
sweep	[swi:p]	swept	[swept]	swept	[swept]	подметать
take	[teik]	took	[tuk]	taken	['teikən]	брать
teach	[ti:tʃ]	taught	[tɔ:t]	taught	[tɔ:t]	обучать
tell	[tel]	told	[tɒld]	told	[tɒld]	рассказывать
think	[θɪŋk]	thought	[θɔ:t]	thought	[θɔ:t]	думать
throw	[θrəu]	threw	[θru:]	thrown	['θrəun]	бросать
understand	[ˈʌndə'stænd]	understood	[ˈʌndə'stu:d]	understood	[ˈʌndə'stu:d]	понимать
write	[raɪt]	wrote	[raʊt]	written	['rɪtn]	писать



INCIDENT REPORTS

Aug. 30, 2008 - Last week we had 5 cases of officers and ratings drinking onboard. It didn't happen for the first time with these crewmembers on the vessel, though the incidents were not reported to our office by the Master before.

This is totally unacceptable. If a crewmember drinks above the average and it effects his work, Master should report to our head office immediately. No warning will be given to this person. There will be an immediate repatriation with all costs paid by him.

Nov. 24, 2008 - We had two serious incidents on a chemical tanker. All circumstances are not clear yet. One crewmember ignored company procedures and onboard safety warnings. He entered a cargo tank during cleaning procedure. Another crewmember warned him not to enter because there was insufficient oxygen and he didn't have a breathing apparatus. But he went in anyway. One of crewmembers put on a breathing apparatus and went in to get him out. But his mask was removed for some reason. The alarm was started and proper rescue operation was carried out but two seamen died.

As you all know, this is the most common cause of death at sea but some people don't get their lessons. Bring this to the attention of all onboard and explain what can happen if they don't follow basic safety procedures.



EXERCISE #1

Вставьте указанные глаголы
в предложения и переведите

go watch eat visit start keep lubricate close finish explain measure be

Yesterday evening I watched TV.

- I went to the bridge to bring the message to the Chief Officer.
- We started washing at 10 o'clock and finished at 12 o'clock.
- I already measured holds.
- Last Saturday we visited Hong Kong.
- I kept watch three times last week.
- The Chief Engineer called to me my duties very well.
- I explained home a week ago.
- The fuel oil service tanks were full.
- We lubricated the bearings in the manoeuvring mechanism.
- He closed fuel oil pressure in the engine.



EXERCISE #2

Переведите эти предложения

1. Матросы вошли в кают-компанию с разрешения капитана.

The seamen

2. Мы посетили Испанию и Италию.

3. Танкер взял 40 тонн воды.

4. Мы отремонтировали ту крышку вчера.

5. Я поговорил со стармехом.

6. Капитан повторил свой приказ.

7. Мы проверили давление топлива.

8. Компания обеспечила нас инструкциями по обслуживанию двигателей.

9. Они нашли несколько трещин в поршне.

10. Трение уменьшилось.

11. Давление в трубе повысилось до опасного уровня.

12. Он закончил сварочные работы на палубе.

13. Вы закрыли клапана?

14. Мы осмотрели новое оборудование и не нашли никаких повреждений.

15. Он забыл измерить температуру в цилиндре.

16. Груз был загружен в трюмы.

17. Охладительная система не работала час назад; теперь все в порядке.

18. Вчера на море был сильный шторм.

19. У нас были проблемы с ресивером пускового воздуха, из-за чего не запускался главный двигатель.

20. Морская вода залила электромотор, теперь он не работает. Его необходимо разобрать и высушить.

21. На прошлом контракте у нас было автоматизированное машинное отделение класса А-1.



EXERCISE #3

Напишите эти предложения в прошедшем времени

- | | | |
|--|-------------------|--|
| 1. I often work in a helmet. | Last week | <i>I often worked in a helmet</i> |
| 2. We always do our work fast. | Yesterday morning | <i>we always did our work fast</i> |
| 3. They work every day. | Last month | <i>they worked every day</i> |
| 4. Hot gases pass through smoke tubes. | One hour ago | <i>hot gases passed through smoke tubes</i> |
| 5. We often mix two different paints. | Yesterday | <i>we often mixed two different paints</i> |
| 6. Sometimes the cooler is out of order. | Yesterday | <i>sometimes the cooler was out of order</i> |
| 7. Our shipowner doesn't buy new equipment for the engine-room very often. | Last year | <i>our shipowner didn't buy new equipment for the engine room very often</i> |
| 8. Motormen always screw all bolts very tightly. | During repair | <i>motormen always screwed all bolts very tightly</i> |



EXERCISE #4

Проверьте себя на знание второй формы неправильных глаголов

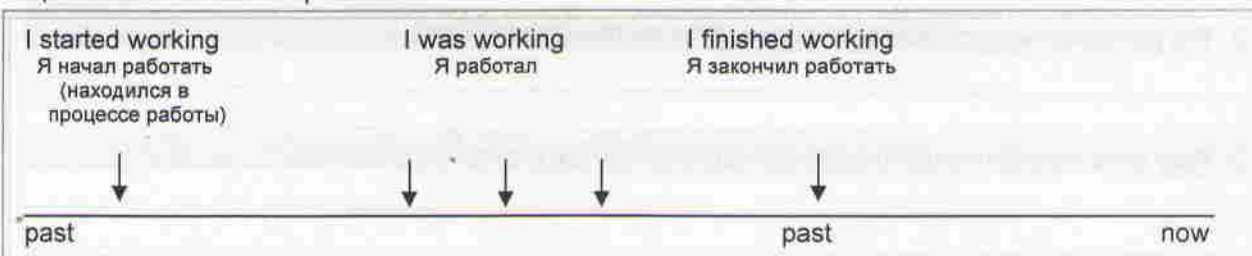
C	A	M	E	F	O	U	N	D	B	W	T
A	T	A	U	G	H	T	R	P	U	T	O
H	A	D	T	W	U	K	N	G	H	K	O
B	S	E	A	H	E	R	T	S	O	S	K
R	G	S	D	U	M	N	G	O	W	T	V
O	B	L	I	T	D	A	T	F	D	W	S
K	O	K	D	P	D	R	A	N	K	R	S
E	U	O	S	P	E	F	X	P	N	O	P
F	G	F	E	L	T	F	L	J	E	T	O
L	H	G	P	D	I	Y	E	C	W	E	K
O	T	E	Z	O	N	D	F	U	I	T	E
Z	A	Q	S	P	E	N	T	B	S	A	W

come go get find do put feel break speak leave write
drink have know buy teach spend make see take

UNIT 12

ПРОШЕДШЕЕ ПРОДОЛЖЕННОЕ ВРЕМЯ / PAST CONTINUOUS TENSE

Прошедшее продолженное время используется для выражения действия или события, происходящего в определенный момент в прошлом. Это действие или событие уже началось, но еще не закончилось в прошлом.



ОБРАЗОВАНИЕ ФОРМ PAST CONTINUOUS

УТВЕРДИТЕЛЬНАЯ ФОРМА

Утвердительная форма предложения образуется при помощи вспомогательного глагола to be в прошедшем времени – was/were и причастия настоящего времени -ing смыслового глагола (Infinitive).	I	was	working
	He, She, It		
	We	were	
	You		
	They		

ВОПРОСИТЕЛЬНАЯ ФОРМА

При построении общего вопроса вспомогательный глагол to be в прошедшем времени – was/were ставится перед подлежащим.	Was	I	working?
		he, she, it	
	Were	we	
		you	
		they	

ОТРИЦАТЕЛЬНАЯ ФОРМА

Отрицательная форма образуется путем прибавления к вспомогательному глаголу to be в прошедшем времени – was/were отрицательной частицы not .	I	was not	working
	He, She, It		
	We	were not	
	You		
	They		

НАПРИМЕР:

Утвердительная форма	<ul style="list-style-type: none"> • He was starting the fire pump when the alarm sounded. • They were checking extinguishers from 2 till 2:30 p.m. 	<ul style="list-style-type: none"> • Когда прозвучала сирена, он запускал пожарный насос. • Они проверяли огнетушители с 14 до 14:30.
Вопросительная форма	<ul style="list-style-type: none"> • Was he starting the fire pump when the alarm sounded? • Were they checking extinguishers from 2 till 2:30 p.m.? 	<ul style="list-style-type: none"> • Когда прозвучала сирена, он запускал пожарный насос? • Они проверяли огнетушители с 14 до 14:30?
Отрицательная форма	<ul style="list-style-type: none"> • He was not starting the fire pump when the alarm sounded. • They were not checking extinguishers from 2 till 2:30 p.m. 	<ul style="list-style-type: none"> • Он не запускал пожарный насос, когда прозвучала сирена. • Они не проверяли огнетушители с 14 до 14:30.



EXERCISE #1

Прочитайте и переведите эти предложения

1. What were you doing at 10 o'clock last evening?
2. The pumpman was connecting the hose at the moment when I came in.
3. They were transferring old fuel into one tank to minimize mixing.
4. The bearing was being adjusted by the motorman from 6 till 8 o'clock two days ago.
5. We found out that high sulphur contents were causing the damage to the working parts of the engine.
6. I was making a spares list for the company in my cabin when the pirates attacked.
7. What were you doing at the end of June?
8. When I came into the Chief Engineer's cabin he was working on the computer.
9. I was cleaning the auxiliary boiler when the main engine was stopped.
10. He was still working when the clock showed 9 p.m.



EXERCISE #2

Вставьте в предложения глаголы в скобках в правильной форме и устно переведите

1. The Third Engineer _____ the bunkering plan (**prepare**) when he _____ the fire alarm (**hear**)
2. At 6 o'clock we _____ (**check**) the quantity of the fuel oil that _____ onboard (**deliver**)
3. They _____ the fuel filters (**clean**) when I _____ them (**see**)
4. He _____ the piston rings on the second cylinder (**renew**) and _____ to his cabin (**go**) because his work _____ (**finish**)
5. The engine _____ at slow speed whole yesterday evening (**work**)
6. I _____ (**not see**) how he _____ oil spills (**clean**)
7. Where _____ you (**be**) when the fitter _____ (**injure**)



EXERCISE #3

Переведите эти предложения

1. Он осматривал двигатель в течении получаса.
2. Мы вчера вечером обсуждали условия бункеровки.
3. Моторист устанавливал предохранительный клапан два дня назад.
4. В это время вчера двигатель не работал.
5. Воду откачивали из топливной системы позавчера весь вечер.
6. Пока я осматривал машинное отделение, моторист снимал показания температур.



LETTER OF INCIDENT #1

The electrical engineer and the 2nd Engineer were working on the Crane #4 in the port with the power turned off and notices posted "Do not put power on/work in progress".

The foreman on the deck approached the duty OS and asked for the power to be switched on for the Crane #4. The OS did not advise the 2nd Officer who was on duty and phoned directly to the engine-room requesting for the power. In the engine-room the duty motorman answered the call and without informing the engineer and in spite of the notice hanging on the switchboard, put the power back on.

At that time the electrical engineer was holding naked wires in his hands and received a considerable electric shock.



LETTER OF INCIDENT #2

During a sea passage bunkers were being transferred from an unheated double bottom tank to a heated double bottom tank. Due to mistakes being made with the soundings of the tank into which the bunkers were going to be transferred, the tank overflowed onto the main deck.

The weather was rough at the time, but the scuppers were plugged and most of the oil was recovered from the deck. Due to the strong head winds and the vessel's motion some of the oil escaped into the sea.



LETTER OF INCIDENT #3

A fitter onboard our vessel suffered a serious injury that later resulted in his death.

The fitter who was married with 2 children was very experienced at this sort of work having done 26 contracts since his first time on our managed vessels in 1986.

While the vessel was on a voyage to Southern India from the Gulf she was rolling in the southwest monsoon swell, 2 fitters were trying to re-stow a vertical stack of plates. Fitter B was at the side of the stow and moving some of the smaller pieces out of the way, while fitter A stood in front of the stack holding them in place.

For some reason Fitter A also bent down to assist moving a small plate and changed his hold on the plates. The vessel rolled and the plates collapsed crushing fitter A. He suffered a broken leg and abdominal injuries that were later to prove fatal. The vessel asked for help but despite all the very best efforts of the crew onboard he died before the helicopter with medical assistance arrived.

UNIT 13

НАСТОЯЩЕЕ СОВЕРШЕННОЕ ВРЕМЯ / PRESENT PERFECT TENSE

Настоящее совершенное время употребляется для обозначения действия или события, происшедшего в прошлом и имеющего связь с настоящим, то есть являющегося актуальным, существенным, значимым для момента речи.

НАПРИМЕР:

- *I've broken my screwdriver. Can you give me another one?* - Я сломал свою отвертку. Можешь ли ты дать мне другую?
- *I've completed my work so I can help you with the repair of this pump.* - Я завершил свою работу, поэтому я могу помочь тебе с ремонтом этого насоса.

Present Perfect употребляют, когда хотят объявить нечто или сообщить о чем-то, что произошло только что или совсем недавно.

НАПРИМЕР:

- *I've just dismantled this pump.* - Я только что разобрал этот насос.
- *The Chief Engineer hasn't received any telexes from the technical department lately.* - Последнее время старший механик не получал (не получает) телексов от технического департамента.

Настоящее совершенное время используется при обозначении события, которое рассматривается как факт жизни, из которого можно черпать жизненный опыт или делать умозаключения. То, когда именно произошло данное событие, неважно или неизвестно. Существенно, что событие вообще имело место.

НАПРИМЕР:

- *I've seen our superintendent.* - Я видел нашего суперинтенданта.
- *I've read this manual.* - Я читал эту инструкцию.
- *I have never been to America.* - Я никогда не был в Америке.
- *Have you had such problems with the main engine?* - У вас (вообще) были такие проблемы с главным двигателем?

Present Perfect употребляется с выражениями, обозначающими период времени, который к моменту речи еще не закончился, такими как:

- | | |
|------------------------------|------------------------------------|
| • today (сегодня) | • for 2 years (последние два года) |
| • this week (на этой неделе) | • this evening (этим вечером) |
| • this morning (этим утром) | • so far (до сих пор, пока) |

НАПРИМЕР:

- *I have unbolted ten nuts today.* - Я открутил сегодня десять гаек. (может быть, успею открутить еще пять, до того как закончится сегодняшний день)
- *I haven't seen him for ten years.* - Я не видел его десять лет.

Настоящее совершенное время также часто используется с наречиями:

- | | | |
|----------------------|---------------------|-----------------|
| • lately (недавно) | • just (только что) | • yet (уже) |
| • recently (недавно) | • never (никогда) | • already (уже) |

НАПРИМЕР:

- *I've recently been to the crewing company.* - Я недавно был в крьюинговой компании.

Present Perfect не употребляется, если есть указание на дату, точное время или период времени, закончившийся в прошлом. В этом случае используется прошедшее неопределенное время (Past Indefinite Tense).

НАПРИМЕР:

- *I changed the piston rings last week.* - Я заменил поршневые кольца на прошлой неделе.

ОБРАЗОВАНИЕ ФОРМ PRESENT PERFECT

УТВЕРДИТЕЛЬНАЯ ФОРМА

<p>Утвердительная форма Present Perfect образуется с помощью вспомогательного глагола have/has в настоящем времени и инфинитива смыслового глагола с окончанием прошедшего времени -ed или 3-ей формы неправильного глагола.</p>	I	have	worked
	We		
	You		
	They	has	
	He		
	She		
	It		

ВОПРОСИТЕЛЬНАЯ ФОРМА

<p>При построении вопроса вспомогательный глагол have/has в настоящем времени ставится перед подлежащим предложения.</p>	Have	I	worked?
		we	
		you	
	Has	they	
		he	
		she	
		it	

ОТРИЦАТЕЛЬНАЯ ФОРМА

<p>Отрицательное предложение образуется путем прибавления к вспомогательному глаголу have/has в настоящем времени отрицательной частицы not.</p>	I	have not haven't	worked
	We		
	You		
	They	has not hasn't	
	He		
	She		
	It		



EXERCISE #1

Прочитайте и переведите эти предложения

1. Have you checked the suction and exhaust valves yet?
2. I've just dismantled the motor because some sea water got into it.
3. We have just started the second auxiliary engine again because it was not working.
4. The Third Engineer has just stopped the pump because of its abnormal operation.
5. We have found the reason of corrosive wear in the cylinder.



EXERCISE #2

Переведите эти предложения

1. Новая смазка сократила износ вращающихся деталей.
2. Моторист уже проверил, как работает насос пресной воды после ремонта.

3. Я уже прочитал инструкцию и заменил поврежденные детали.

4. Я только что обсудил с механиком утечку топлива.

5. Двигатель только что был прогрет.

6. Мы уже закончили установку поршневых колец.



EXERCISE #3

Составьте предложения,
используя данные глаголы

buy fill lose repair stop weld

I have a new car. I have just bought it

1. The Chief Engineer is looking for the manual. He can not find it.

He _____

2. There was no fuel in the tank. Now it's full.

We _____

3. I don't hear the noise of the engine.

The engine _____

4. I don't see any cracks in the pipe any more.

The welder _____

5. The engineer told the motorman to repair the pump but it is still not working.

The pump _____ yet.



THRUST BEARINGS OVERHEATING

We have experienced some cases of the overheated turbocharger thrust bearings.

The reason for overheating has been traced to the sealing air pipe, where a blockage has reduced the pressure of the sealing air supplied from the scavenge air receiver. We recommend to check the sealing air pipes as soon as possible and remove any rust or dirt that have accumulated.



CRACKS IN CYLINDER COVERS

We have had reports about several cases of cracks in cylinder covers. These cracks have been caused by the inefficient venting of the cooling water system. We examined the conditions of covers on many ships with this type of engines. Some of these engines have now been in service with modified venting during the last 2 years, and with a good possibility of keeping the cooling water system under observation. Although these precautions reduced risk they have not completely eliminated the tendency of crack formation in the bottom of covers.



CRANKCASE EXPLOSION

In recent years there have been a few cases where a crankcase explosion has resulted in injury to personnel who has been burnt by flames in the engine-room.

To increase the safety of personnel in the engine-room we have, in cooperation with manufactures of relief valves, initiated a development program for improving the flame arrester function of the crankcase relief valves.

UNIT 14

МОДАЛЬНЫЕ ГЛАГОЛЫ / MODAL VERBS

Модальные глаголы - это глаголы, обозначающие не само действие, а отношение к нему говорящего. Они выражают вероятность, необходимость, возможность, желательность совершения действия, выраженного основным глаголом.

Модальные глаголы в английском языке не спрягаются и образуют вопросительную и отрицательную формы без вспомогательного глагола. Они не употребляются самостоятельно, а только в сочетании с инфинитивом без частицы **to**.

CAN - МОЧЬ, БЫТЬ В СОСТОЯНИИ, УМЕТЬ

Модальный глагол **can** употребляется для выражения возможности или способности совершения действия.

Can используется для обозначения настоящего времени; **could** — для обозначения прошедшего времени; **will be able to** – форма будущего времени.

НАПРИМЕР:

- *He can speak ten languages.* - Он умеет (может) говорить на десяти языках.
- *He could swim when he was small.* - Он мог (умел) плавать, когда был маленьким.
- *I will be able to finish this repair soon.* - Я смогу закончить этот ремонт вскоре.
- *How can I help you?* - Как я могу Вам помочь?
- *I could hear the noise in the engine.* - Я мог слышать шум в двигателе.
- *We could not (couldn't) unscrew it.* - Мы не смогли это открутить.
- *I won't be able to take part in the briefing tonight.* - Сегодня вечером я не смогу принять участие в брифинге.

MAY, MIGHT - ВОЗМОЖНОСТЬ, ВЕРОЯТНОСТЬ

Модальные глаголы **may** и **might** используются в предложениях для обозначения вероятности совершения действия и предположениях о том, что что-то может произойти в настоящем или будущем. Между **may** и **might** в этом случае практически нет разницы, однако, **might** выражает большую степень сомнения в возможности описываемого события.

НАПРИМЕР:

- *It may rain later.* - Позже может начаться дождь.
- *It might rain later.* - Позже может начаться дождь (хотя это и маловероятно).
- *You may not miss this flight.* - Возможно, Вы и не опоздаете на этот рейс.
- *The ship may not come into the port on the 24th.* - Судно может не войти в порт 24-го.

MUST, HAVE TO - ДОЛЖЕН, ОБЯЗАН, ВЫНУЖДЕН

Модальный глагол **must** употребляется для сообщения о том, что нечто обязательно должно быть сделано. Модальная конструкция **have to** используется для выражения необходимости совершить действие в силу определенных обстоятельств и соответствует русскому "вынужден, пришлось".

Глагол **must** в прошедшем времени заменяется конструкцией **had to**.

НАПРИМЕР:

- *You must report about the engine failure.* - Ты должен доложить о поломке двигателя.
- *We have to stay in the port longer because the main engine doesn't want to start.* - Мы вынуждены оставаться в порту дольше, потому что двигатель не хочет запуститься.
- *I had to leave the control-room.* - Я был вынужден покинуть ЦПУ.
- *Why must we all wait for you?* - Почему мы все должны тебя ждать?

SHOULD – СЛЕДУЕТ

Модальный глагол **should** употребляется при сообщении о том, что нечто следует делать, указывает на моральный долг или обязанность. Также часто используется в советах, рекомендациях и инструкциях.

НАПРИМЕР:

- You should do your work well. - Вам следует (Вы должны) делать работу хорошо.
- You shouldn't smoke here. - Не стоит здесь курить.
- Should I clean the filter now? - Мне следует почистить фильтр сейчас?



EXERCISE #1

Напишите, какие навыки у вас есть, используя I can (Я умею)



EXERCISE #2

Переведите эти предложения

- | | |
|---|--|
| 1. Вы сегодня можете быть свободным от вахты. | |
| 2. Я должен (вынужден) закончить эту работу до ужина. | |
| 3. Вам следует привести в порядок Вашу форму. | |
| 4. На данных работах Вы можете использовать райбер. | |
| 5. Вам следует проинформировать капитана об этом инциденте. | |
| 6. Вы должны остановить двигатель как можно скорее. | |
| 7. Когда Вы стоите там, я не могу Вас слышать. | |
| 8. При пожаре следует воспользоваться огнетушителем. | |
| 9. Вам не следует запускать двигатель в таком состоянии. | |

10. Они смогут применить английский в рейсе.

11. Вы должны попросить о помощи, если не можете сделать это сами.

12. Могу ли я задать Вам вопрос, Сэр?

13. Следует ли мне начинать ремонт сейчас или лучше подождать?

14. Вы должны проверить их работу.

15. Я не могу измерить температуру в коллекторе.

16. Подогретое топливо должно доставляться к ТНВД под давлением.



EXERCISE #3

Заполните пропуски, используя модальные глаголы **can, must, have to, should** или **may**

1. There is a leakage in the pipe. You _____ stop it.
2. I am only a cadet. There are many things that I _____ do.
3. Engineers _____ keep watch every day.
4. Before fuel oil gets into the engine, it _____ be heated and separated.
5. It _____ be dangerous for you to work alone in the enclosed space without the watchman.
6. I received the order from the bridge and _____ decrease the engine revolutions.



FROM THE CONTRACT

- Sailors must keep their places clean and in order.
- Sailors should not bring aboard any weapons, narcotics, or alcohol with the exception of those that are provided by the shipowner as a part of the vessel's provisions.
- Sailors should not go ashore in any foreign port except by permission of the Master.



REQUIREMENTS FOR ENGINEERS

1. Engineers must quickly learn the location of all manuals, drawings, technical books, tools, spare parts, etc. All manuals and technical books must be used very carefully. Damage to these books often happens when they are taken into the engine-room. So the Chief Engineer must control that they are only taken into the engine-room when it is absolutely necessary and only for short periods.
2. All watchkeeping officers must report directly to the Chief Engineer and execute his orders.
3. All engineering officers must know the layout and parameters of the vessel. It includes the function and operations of all machinery, boilers, pumping, pipeline systems, alarms, and emergency systems.
4. All engineers must read and learn the Quality System.
5. Pollution is very important. All national and international regulations must be followed. Each ship must have Shipboard Oil Pollution Emergency Plan.
6. The Company provides personal protective equipment which must be used.

UNIT 15

ВРЕМЕНА АНГЛИЙСКОГО ГЛАГОЛА / VERB TENSES

ВРЕМЕНА АНГЛИЙСКОГО ГЛАГОЛА. ДЕЙСТВИТЕЛЬНЫЙ ЗАЛОГ

Употребление		Образование
Indefinite показывает действие как факт (обычное, повторяемое).	Present Past Future	глагол в личной форме
Continuous показывает действие как процесс.	Present Past Future	to be + ing
Perfect показывает действие, законченное до определённого момента в настоящем, прошедшем и будущем.	Present Past Future	to have + причастие II
Perfect Continuous показывает действие, начатое некоторое время назад и все ещё продолжающееся или только что закончившееся.	Present Past Future	to have been + ing

ТАБЛИЦА ВРЕМЕН. ДЕЙСТВИТЕЛЬНЫЙ ЗАЛОГ

Время		Формы		Обстоятельство времени
Present	Indefinite	I, we you, they he, she, it	ask asks	usually, sometimes, every day, often, seldom
Past		+ed или II ф. неправ.гл.	asked wrote	yesterday, last year, 3 years ago
Future		I, we you, they he, she, it	will ask	tomorrow, next year, in 3 years
Present	Continuous	am is are	asking	now, at the moment
Past		was were	asking	yesterday from 5 till 6
Future		will be	asking	tomorrow from 5 till 6
Present	Perfect	have has	asked	just, ever, never, yet, already, today, this year, for, since
Past		had	asked	by 3 o'clock yesterday
Future		will have	asked	by 3 o'clock tomorrow
Present	Perfect Continuous	have been has been	asking	for, since
Past		had been	asking	for, since
Future		will have been	asking	for



EXERCISE #1

Вставьте глаголы в скобках в предложения, обращая внимание на их форму и время

1. AB seamen _____ the deck at the moment (clean)
2. A motorman _____ the expansion tank (fill) after it gets empty because it _____ his duty (be)
3. You _____ my work now (can / check)
4. They _____ lifeboats for launching to save the man overboard (prepare)
5. What _____ you _____ about the machinery condition? (think)
6. The 3rd Engineer _____ operation of the auxiliary boiler during his watch yesterday (inspect)
7. The Chief Engineer _____ to overhaul the main engine next month (plan)
8. This cruise liner _____ a very large vessel (be)
9. This bearing _____ lubrication (need)
10. He _____ those bolts very tightly two hours ago (bolt)
11. I _____ temperature in the manifold (can / not / measure)
12. This pump _____ tomorrow (dismantle)



EXERCISE #2

Вставьте данные глаголы в предложения, обращая внимание на их форму и время

start heat renew not keep repair inspect be

1. _____ the fuel oil for start of the main engine!
2. The 2nd Engineer and his motorman _____ the broken non-return valve tomorrow.
3. The superintendent _____ deck and machinery spaces equipment from 10:30 till 11:30.
4. Somebody _____ just _____ the fire alarm.
5. Why _____ you _____ watch yesterday?
6. _____ the engine-room ladder!
7. The liner temperature _____ too low.



EXERCISE #3

Переведите эти предложения

1. Замените поврежденный подшипник.
2. Нельзя находиться в машинном отделении без защитной одежды.
3. Моторист всегда тщательно осматривает топливную систему перед тем, как запустить двигатель.
4. Я решил наполнить расходные баки, так как уровень масла был низкий.

5. Вы уже подготовили воздухоохладитель и турбоагрегат к работе?

6. 4-му механику приказали починить лебедку как можно скорее.

7. Когда Вы притрете седло выхлопного клапана?

8. В каком порту вы можете использовать сепаратор льяльных вод?

9. Моторист чистит воздушный фильтр вспомогательного двигателя сейчас.

10. Мы не будем вынимать поршень из цилиндра во время ремонта.

11. Я должен был воспользоваться пожарным шлангом?

12. Где сейчас старший помощник? У него совещание с капитаном и офицерами.

13. Вы уже проверили записи в журнале? Да, все в порядке.

14. Чем ты вчера целый день занимался? Я писал кадетскую программу.

15. Капитан, когда я могу передать Вам список запасных деталей?

16. Мы проверили форсунку. Причина высокой температуры выхлопных газов в цилиндре не в ней.

17. Какой груз находится на борту Вашего судна? Это мороженая рыба.

18. Мой предыдущий рейс был 8 месяцев, и я вернулся домой 20-го сентября.

19. Я не помню, когда точно закончился мой последний контракт.

APPENDIX 1

ПОЛЕЗНЫЕ ГЛАГОЛЫ / USEFUL VERBS



Прслушайте и выучите слова

РАБОЧИЕ ОПЕРАЦИИ

1. Работать / Делать

работать	work	[wɜ:k]	You should work hard. I work as the 2 nd Engineer.
делать	do	[du:]	What do you do? It should be done.
готовить	prepare	[pri'peə]	Prepare the main engine for start.
ремонттировать	repair	[ri'peə]	We have to repair the cooling system.
настраивать	adjust	[ə'dʒʌst]	Adjust the first derrick.
испытывать	test	[test]	Test this winch. Test this new grinder.
заменять	replace	[ri'pleis]	Replace runners of that derrick.
собирать	assemble	[ə'sembəl]	Assemble this windlass.
разбирать	disassemble	[disə'sembəl]	Disassemble this windlass.
устанавливать	install	[in'stɔ:l]	Who knows how to install this new equipment on the deck?
использовать	use	[ju:z]	You should use a primer. Use a hammer.

2. Брать и другие операции рукой

брать	take	[teik]	Take it. Take this hammer.
держат	hold	[həʊld]	Hold it. Hold this rope.
касаться	touch	[tʌtʃ]	Do not touch it!
поднимать	pick up	[pik əp]	Pick it up. Pick this brush up.
тянуть	pull	[pʊl]	Pull it. Help me move it; you push and I'll pull.
толкать, нажимать	push	[puʃ]	Push it. Push the green push-button.
бросать	throw	[θrəʊ]	Throw it to me. Throw it to the trash can.

3. Соединять

соединять	connect	[ke'nekt]	We cannot connect it.
закреплять	fix	[fiks]	This box should be fixed.
присоединять	attach	[ə'tætʃ]	Attach a label to a package.
прикручивать	screw	[skru:]	He screwed the cover tightly.
приклеить	stick	[stik]	Stick this sheet of paper to the door.
приварить	weld	[weld]	Don't weld these pipes.
прибить гвоздем	nail	[neil]	Nail it to the deck.
отвязать	unfasten	[ʌn'fɑ:sn]	I can't unfasten that rope.

4. Закрывать / Открывать

закрывать	close	[klaʊz]	Close the hatch.
закрывать	shut	[ʃʌt]	Shut the door.
накрывать	cover	['kʌvə]	Cover this cargo with tarpaulin.
открывать	open	['əʊpən]	Open the door. Open a new paint can.
запирать	lock	[lɔ:k]	All doors should be locked.
завернуть	wrap	[ræp]	Wrap the pipe in a piece of tarpaulin.
прятать	hide	[haɪd]	What are you hiding there?
убрать	put away	[put ə'weɪ]	Put away your cigarette.

ГЛАГОЛЫ СТАДИИ

1. Начало

начинать	start	[sta:t]	We will start in two minutes.
начинать	begin	[bi'gɪn]	Let's begin our meeting.

готовиться	get ready	[get 'redi]	Get ready for anchoring.
готовиться	prepare	[pri'peə]	Prepare for departure.
опаздывать	be late	[bi: 'leit]	Never be late for your ship.
2. Продолжение			
продолжать	continue	[kən'tinju:]	You should continue your education.
продолжать(ся)	go on	[gəu ɔn]	Please go on your training.
повторить	repeat	[ri'pi:t]	Please repeat your question.
3. Завершение			
заканчивать	finish	['finiʃ]	Finish it as soon as possible.
оканчивать(ся)	end	[end]	The working day ends at 18:00.
завершать	complete	[kəm'pli:t]	You have to complete your contract.
прекращать	stop	[stɒp]	Stop smoking. Stop talking.
ГЛАГОЛЫ ДВИЖЕНИЯ			
1. Виды движений			
двигать(ся)	move	[mu:v]	We need to move this container from here.
останавливаться	stop	[stɒp]	Stop right here.
ходить	go	[gəu]	The ship goes to France. You shouldn't go there.
поворачивать	turn	[tɜ:n]	Turn your head to the right.
2. Движение вверх / вниз			
поднимать	lift	[lift]	Please lift this pack on the table. Lift your head up.
опускать	lower	['ləʊə]	Lower this cargo into the hold.
3. Цикл движения			
отправляться	start	[sta:t]	We started our voyage two weeks ago.
покидать	leave	[li:v]	Don't leave a vessel without permission.
отправляться	depart	[di'pa:t]	It's time to depart.
выходить	go out	[gəu aʊt]	Don't go out of your cabin.
заходить, приходить	come	[kʌm]	Please come in. May I come in? When will you come?
прибывать	arrive	[ə'raiv]	We arrive at the port at 6 o'clock.
возвращаться	return	[ri'tɜ:n]	I will return tomorrow.
ГЛАГОЛЫ НАЛИЧИЯ			
1. Нехватка			
нуждаться	need	[ni:d]	I need your help. I need spare parts.
требовать	require	[ri'kwaɪə]	I require attention and respect.
быть необходимым	be necessary	[bi: 'nesəsəri]	It's necessary to follow all commands. Your help was necessary for me.
отсутствовать	be absent	[bi: 'æbsənt]	I was absent from the meeting. Who is absent on the ship?
собирать	collect	[kə'lekt]	Go and collect all tools.
2. Сокращение / Недостаток			
тратить	spend	[spend]	Don't spend your money.
терять	lose	[lu:z]	I don't want to lose my job. I lost a lot of time with you.
повреждать	damage	['dæmɪdʒ]	The first derrick was damaged.
искать	search	[sɜ:tʃ]	I am searching for my hard hat.
находить	find	[faɪnd]	I cannot find my tools.
3. Сохранение			
сохранять	keep	[ki:p]	Keep it in a dry place.
поддерживать	maintain	[meɪn'teɪn]	All equipment should be maintained in good order.
хранить	store	[stɔ:]	You can store it in my cabin.
ГЛАГОЛЫ ПОЛОЖЕНИЯ			
помещать	place	[pleɪs]	Don't place tools over here. Place it on the deck.
класть	put	[put]	Put this box right here. I put a hammer on the table.
находиться (быть расположенным)	be situated	['sɪtʃueɪtɪd]	We are situated in the Pacific Ocean now.
находиться (быть расположенным)	be located	[ləu'keɪtɪd]	The engine-room is located on the lower deck.
стоять	stand	[stænd]	Don't stand under the crane.
сидеть	sit	[sɪt]	The container sits on the deck.

лежать	lie	[laɪ]	The injured man was lying on the deck.
БЫТОВЫЕ ГЛАГОЛЫ			
1. Работать			
работать	work	[wɜ:k]	I work on a ship.
принимать на работу	employ	[ɪm'plɔɪ]	I was employed by Zodiac Company.
зарабатывать	earn	[ɜ:n]	I earned 700 US dollars last month.
экономить	save	[seɪv]	You need to save your energy before this hard work.
отдыхать	rest	[rest]	Go and get some rest.
быть голодным	be hungry	['hʌŋɡri]	I am hungry.
есть	eat	[i:t]	Don't eat too much. What would you like to eat?
пить	drink	[drɪŋk]	Don't drink too much. Never get drunk.
готовить	cook	[kʊk]	I will cook dinner soon.
носить (одежду)	wear	[weə]	Don't wear your coat. You must wear a hard hat.
одевать	put on	[pʊt ɔn]	Put your goggles on.
снимать	take off	[teɪk ɔf]	Take off your overall.
мыть(ся)	wash	[wɒʃ]	Go and wash your hands.
2. Спать / Умываться			
спать	sleep	[sli:p]	Don't sleep on watch. You need to sleep.
ложиться спать	go to bed	[ɡəʊ tə bed]	Now you can go to bed.
вставать	get up	[get ʌp]	Everyone should get up at 6 o'clock tomorrow morning.
просыпаться, будить	wake up	[weɪk ʌp]	I will wake you up.
3. Болеть			
болеть (быть больным)	be sick	[sɪk]	I am sick and cannot work.
болеть (быть больным)	be ill	[ɪl]	Be careful and don't get ill.
причинять боль	hurt	[hɜ:t]	Don't hurt anyone with your words.
болеть, причинять боль	ache	[eɪk]	My arm is aching.
ГЛАГОЛЫ ЧУВСТВ			
1. Хорошее отношение			
нравиться	like	[laɪk]	I don't like working in tanks.
уважать	respect	[rɪs'pekt]	I respect my Chief Engineer for his huge experience.
2. Плохое отношение			
ненавидеть	hate	[heɪt]	I hate this man.
не нравится	dislike	[dɪs'laɪk]	I dislike this task.
обвинять	accuse	[ə'kju:z]	Never accuse anyone without a good reason.
3. Горе / Радость			
жаловаться	complain	[kəm'pleɪn]	Don't complain about bad conditions.
беспокоиться	worry	['wʌrɪ]	Don't worry. Everything will be fine.
улыбаться	smile	[smɑɪl]	Keep smiling.
смеяться	laugh	[lɑ:f]	Don't laugh at others. What are you laughing at?
наслаждаться	enjoy	[ɪn'dʒɔɪ]	I enjoy my time of rest.
4. Уверенность / Сомнение			
быть уверенным	be sure	[fʊə]	Are you sure? I am sure.
надеяться	hope	[həʊp]	I hope everything will be OK.
верить	believe	[bɪ'li:v]	I believe that we should do it today.
сомневаться	doubt	[daʊt]	I seriously doubt that.
5. Старание / Лень			
беспокоиться, заботиться	care	[keə]	I don't care.
пренебрегать	neglect	[nɪ'ɡlekt]	Don't neglect your duties.
делать все возможное	do best	[du: best]	I will do my best, Sir.
6. Оттенки эмоций			
обижать	offend	[ə'fend]	I did not mean to offend you.

злиться	be angry	[ˈæŋɡrɪ]	I am angry. Do not be angry.
ГЛАГОЛЫ МЫШЛЕНИЯ			
1. Восприятие мира			
видеть	see	[si:]	I cannot see another ship from such distance.
смотреть	look	[lʊk]	Look at this.
слышать	hear	[hiə]	Do you hear me? I heard the noise.
слушать	listen	[ˈlɪsən]	Listen to me carefully.
думать	think	[θɪŋk]	What do you think about it? I think we can do it.
чувствовать	feel	[fi:l]	I feel bad.
смотреть, наблюдать	watch	[wɒtʃ]	I will watch how he does everything. May I watch TV?
2. Обучение			
изучать	study	[ˈstʌdi]	I am studying English for my future voyage.
учить	learn	[lɜ:n]	I am going to learn new phrases today.
понимать	understand	[ˈʌndəˈstænd]	I don't understand you well.
обучать	train	[treɪn]	I was trained to be a good worker.
учить, преподавать	teach	[ti:tʃ]	Don't teach me how to do this.
объяснять	explain	[ɪksˈpleɪn]	Please explain to me what I should do.
помнить	remember	[rɪˈmembə]	I do not remember your name.
знать	know	[nəʊ]	I already know what should be done in this situation.
означать	mean	[mi:n]	It means that you have to leave right now.
забывать	forget	[fəˈɡet]	Don't forget what I told you.
ошибаться	mistake	[mɪsˈteɪk]	I was mistaken.
исправлять	correct	[kəˈrekt]	I will correct everything right now.
3. Учебные операции			
читать	read	[ri:d]	Please read this manual.
писать	write	[raɪt]	I cannot write in English.
описывать	describe	[dɪsˈkraɪb]	Please describe me your normal working day.
4. Логические операции			
решать	decide	[dɪˈsaɪd]	I cannot decide it now.
выяснять, узнавать	find out	[faɪnd aʊt]	Go and find out about working procedures.
5. Разрушать			
ломать	break	[breɪk]	Be careful and don't break the glass.
разрушать	destroy	[dɪsˈtrɔɪ]	Hatch cover of hold number 5 is destroyed.
резать	cut	[kʌt]	You can cut it with scissors. Cut this piece off.
шлифовать	grind	[graɪnd]	You need to grind before painting.
ГЛАГОЛЫ ОБЩЕНИЯ			
1. Говорить			
говорить	speak	[spi:k]	I don't speak English. You may speak.
говорить	talk	[tɔ:k]	We talked for hours.
сказать	say	[seɪ]	Please say "Thank you". What did you say? Say it again.
сказать, рассказать	tell	[tel]	Please tell the Master about the incident. Tell me about it.
2. Обращаться			
информировать	inform	[ɪnˈfɔ:m]	You should inform the 2 nd Engineer. Inform the bridge about the fire.
спрашивать	ask	[ɑ:sk]	You can ask an officer about this. If in doubt, ask.
просить, запрашивать	request	[rɪˈkwest]	Your recommendations were requested.
требовать	demand	[dɪˈma:nd]	The Captain demanded obedience from his men.
приказывать	order	[ˈɔ:də]	Master ordered to abandon the ship.
3. Отвечать			
отвечать	answer	[ˈɑ:nsə]	I will answer all your questions in time.
отвечать	reply	[rɪˈplai]	I didn't reply to him.
объяснять	explain	[ɪksˈpleɪn]	Please explain to me exactly what my duties are.
советовать	advise	[ədˈvaɪz]	Please advise me what I can do in such a situation.

показывать	show	[ʃəʊ]	I will show you the way to the bridge. Show it to me.
предупреждать	warn	[wɔ:n]	I warned him about the danger.
помогать	help	[help]	I am ready to help you in everything.
предлагать	propose	[prə'pəʊz]	I propose to discuss it.
4. Брать / Давать			
брать	take	[teɪk]	You can take the pliers from the table.
получать	get	[get]	You will get a vacation in a month. I got the letter.
получать	receive	[rɪ'si:v]	I received a bad report about his behavior.
покупать	buy	[baɪ]	We don't buy groceries in that port.
давать	give	[gɪv]	I will give you all what is necessary. Give me a hammer.
приносить	bring	[brɪŋ]	Bring me an adjustable spanner.
обеспечивать	provide	[prə'vaɪd]	The Chief Engineer can provide you with all manuals.
поставлять, снабжать	supply	[sə'plaɪ]	All medicine was already supplied aboard.
5. Визит и глаголы этикета			
звонить	call	[kɔ:l]	I am going to call home soon.
приглашать	invite	[ɪn'vaɪt]	I invite you to my city.
ждать	wait (for)	[weɪt]	I will wait until you finish. Wait a second. Don't wait for him.
благодарить	thank	[θæŋk]	I want to thank you for your help.
прощать	forgive	[fə'gɪv]	Please forgive me for my behavior.
извинять	excuse	[ɪks'kju:z]	We cannot excuse his drinking. Excuse me.

APPENDIX 2

ТЕХНИЧЕСКИЙ СЛОВАРЬ / TECHNICAL VOCABULARY

English-Russian

3-part liner	трехсекционная втулка	[θri: pa:t 'laɪnə]
abruption	обрыв, разрыв	[ə'brʌpʃən]
access	доступ	[ˈæksɛs]
• front access	с передней стороны (панели)	[frʌnt]
• on-load access	под нагрузкой	[ɔn laʊd]
• rear access	с задней стороны (панели)	[riə]
accessibility	доступность, досягаемость	[æk'sesi'bɪlɪti]
accessible	доступный, открытый (о проводке)	[æk'sesəbl]
accessory	арматура	[æk'sesəri]
• cable accessories	кабельная арматура	['keɪbəl æk'sesəriz]
• portable accessory	переносная арматура	['pɔ:tbəl æk'sesəri]
• wiring accessories	электроустановочные материалы (арматура)	['waɪərɪŋ æk'sesəriz]
accommodation ladder	заборный трап	[ækɔmə'deɪʃən 'lædə]
to accumulate	накапливать	[ə'kju:mjuleɪt]
accumulation	накопление	[ə'kju:mju'leɪʃən]
accumulator	аккумулятор	[ə'kju:mjuleɪtə]
• acid accumulator	кислотный	[ˈæsɪd]
• alkaline accumulator	щелочной	['ælkəleɪn]
to activate	ставить под напряжение, возбуждать	['æktɪveɪt]
adapter	переходник	[ə'dæptə]
to adjust	настраивать	[ə'dʒʌst]
adjusting link	регулирующее звено	[ə'dʒʌstɪŋ lɪŋk]
adjusting tumbuckle	регулирующая стяжка	[ə'dʒʌstɪŋ 'tʌnbʌkl]
adjustment	регулировка, настройка	[ə'dʒʌstmənt]
afterpeak	ахтерпик	['ɑ:ftə'pi:k]
air compressor	воздушный компрессор	[eə kəm'presə]
air conditioner	кондиционер	[eə kən'diʃənə]
air cooler	воздухоохладитель	[eə 'ku:lə]
• scavenging air cooler	охладитель продувочного воздуха	['skævɪndʒɪŋ eə 'ku:lə]
air distributor	распределитель воздуха	[eə dɪ'strɪbjətə]
air inlet	впускной воздушный клапан	[eə 'ɪnlet]
air manifold	воздушный коллектор	[eə 'mænfəʊld]
air tank	баллон для воздуха	[eə 'tæŋk]
alignment	регулировка	[ə'lɑɪnmənt]
alteration	изменение	['ɔ:lteɪ'reɪʃən]
alternator	генератор переменного тока	['ɔ:lteɪnɪtə]
• brushless alternator	бесщеточный	['brʌʃlis]
• synchronous alternator	синхронный	['sɪŋkrənəs]
aluminum	алюминий	[ə'lʊ:mɪnəm]
amber	янтарь	['æmbə]
ammeter	амперметр	['æmɪtə]
amplifier	усилитель	['æmplɪfaɪə]
• rotary amplifier	электромашинный	['rəʊtəri]
anchor	якорь	['æŋkə]

anchor shackle	смычка якоря	['æŋkə 'ækl]
angle	угол	['æŋɡəl]
to apply	применять	[ə'plai]
arc	(электрическая) дуга	[ɑ:k]
arm	рычаг	[ɑ:m]
armature	якорь (эл. машины или эл. магнита)	['ɑ:mətʃuə]
arrow	стрелка прибора	['ærəu]
to assemble	собирать	[ə'sembl]
to attach	прикреплять	[ə'tætʃ]
auxiliaries	вспомогательные механизмы	[ɔ:g'ziljəri:z]
axis / axle	ось, вал	['æksis] ['æksl]
• fixed axle	неподвижная ось	['fiks]
• hinge axle	ось шарнира	['hɪndʒ]
• leading axle	ведущая ось	['li:diŋ]
ball	шарик	[bɔ:l]
bank of tubes	пучок труб	[bæŋk əv tju:bz]
bar	пластина коллектора; эл. шина	[bɑ:]
base	станина, фундамент	[beis]
battery	(аккумуляторная) батарея	['bætəri]
• storage battery	аккумулятор	['stɔ:ridʒ]
to be in order	быть исправным	[bi: in 'ɔ:də]
to be out of order	быть неисправным	[bi: aʊt əv 'ɔ:də]
bearing	подшипник	['beəriŋ]
• axial bearing	упорный	['æksɪəl]
• ball bearing	шариковый	[bɔ:l]
• big end bearing	мотылевый	[big end]
• bottom end bearing	нижней головки шатуна	['bɔ:təm end]
• combined journal and thrust bearing	радиально-упорный	[kəm'baɪnd 'dʒə:nl ənd θrʌst]
• crank pin bearing	мотылевый	[kræŋk pin]
• crosshead bearing	головной	['krɒʃhed]
• double-row bearing	двухрядный	['dʌbləraʊ]
• friction bearing	скольжения	['frɪkʃən]
• frictionless bearing	качения	['frɪkʃənli:s]
• half bearing	разъемный, с сегментным вкладышем	[ha:f]
• journal bearing	радиальный	['dʒə:nl]
• main bearing	коренной	[meɪn]
• needle bearing	игольчатый	['ni:dl]
• prelubricated bearing	заправленный смазкой перед установкой	[pre'lu:brikeitɪd]
• roller bearing	роликовый	['rəʊlə]
• rudder bearing	баллера руля	['rʌdə]
• self-lubricating bearing	самосмазывающийся	['self'lu:brikeitɪŋ]
• solid bearing	неразъемный (глухой)	['sɒlɪd]
• spherical bearing	сферический	['sfɛrɪkəl]
• split bearing	разъемный	[splɪt]
• supporting bearing	опорный	[sə'pɔ:tiŋ]
• tapered bearing	конический	['teɪpəd]
• thrust bearing	упорный	[θrʌst]
bearing seat	гнездо подшипника	['beəriŋ si:t]
bedplate	фундаментальная плита	['bedpleɪt]
bilge distribution	клапанная коробка осушительного трубопровода	[bɪldʒ 'dɪstri'bju:ʃən]

bilge suction branch	приемный отросток осушительного трубопровода	[bildz 'sʌkʃən brɑ:ntʃ]
bilge water	трюмная вода	[bildz 'wɔ:tə]
block	колодка	[blɒk]
board	панель, пульт, щит	[bɔ:d]
• circuit board	печатная плата	['sə:kit]
• coastal power supply board	щит питания с берега	['kəʊstəl 'paʊə sə'plai]
• control board	пульт (панель) управления; приборная доска	[kən'trəʊl]
• distribution board	распределительный щит	['distri'bju:ʃən]
• terminal board	доска выводов	['tə:mi:nl]
bobbin	бобина, катушка, шпулька	['bɒbin]
body	корпус, станина	['bɒdi]
• injector body	корпус форсунки	[in'dʒektə]
• valve body	корпус клапана	[vælv]
boiler	котел	['bɔilə]
• auxiliary boiler	вспомогательный	[ɔ:g'ziljəri]
• circulation boiler	с естественной циркуляцией	['sə:kju:'leijən]
• cross-drum boiler	с поперечным расположением барабана	['krɒsdrum]
• flue boiler	дымогарный	[flu:]
• hot-water boiler	водогрейный	[hɒt 'wɔ:tə]
• oil-burning boiler	мазутный	[ɔil 'bɜ:nɪŋ]
• propulsion boiler	главный паровой	[prə'pʌlʃən]
• Scotch boiler	шотландский	[skɒtʃ]
• single-furnace boiler	однокорпусный	['sɪŋglə 'fɜ:nɪs]
• two-drum boiler	двухбарабанный	[tu: drʌm]
• two-furnace boiler	двухкорпусный	[tu: 'fɜ:nɪs]
• waste-heat boiler	котел-утилизатор	[weist 'hi:t]
• water-tube boiler	водотрубный	['wɔ:tə tjʊ:b]
boiler mounting	котельная арматура	['bɔilə 'maʊntɪŋ]
to bolt	скреплять болтами	[bɔʊlt]
• to cross-thread bolt	завинчивать болт с перекосом	['krɒsθred]
• to ease off bolt	отпускать болт	[i:z ɔf]
• to rivet bolt	расклепывать конец болта	['rɪvɪt]
• to slacken bolt	отпускать болт	['slækən]
bolt	болт	[bɔʊlt]
• centering bolt	центровочный	['sɛntəriŋ]
• clamp bolt	стяжной	[klæmp]
• collar-head bolt	с буртиком	['kɒləhed]
• connecting bolt	соединительный	[kə'nektɪŋ]
• countersunk-head bolt	с потайной головкой	['kaʊntəsʌŋk hed]
• coupling bolt	стяжной	['kʌplɪŋ]
• fillister-head bolt	с цилиндрической головкой	['fɪlɪstə hed]
• hexagonal-head bolt	с шестигранной головкой	['hek'sæɡənəl hed]
• holding down bolt	фундаментный	['həʊldɪŋ daʊn]
• rag bolt	завершенный	[ræg]
• round-head bolt	с полукруглой головкой	['raʊndhed]
• safety bolt	предохранительный	['seɪftɪ]
• square-head bolt	с квадратной головкой	['skweəhed]
• stay bolt	распорный	[steɪ]
• stop bolt	стопорный	[stɒp]
• T-head bolt	с Т-образной головкой	['ti:hed]

box	коробка, ящик	[bɒks]
• gear box	редуктор	[glə]
• mud box	грязевая коробка, отстойник	[mʌd]
• smoke box	короб для сбора и подачи дыма	[sməʊk]
• stuffing box	корпус сальника	['stʌfɪŋ]
• terminal box	клеммный щиток	['tɜːmɪnəl]
brace	растяжка	[breɪs]
bracket	кронштейн, консоль	['brækɪt]
brake horsepower	эффективная мощность в л.с.	['breɪk 'hɔːspauə]
brass	латунь	[brɑːs]
breather	сапун	['briːðə]
break	выключение, разрыв	[breɪk]
• automatic break	автоматическое отключение	['ɔːtə'mætɪk]
• line break	обрыв линии	[laɪn]
• wire break	обрыв провода	['waɪə]
breakdown	пробой, выход из строя, авария	['breɪkdaʊn]
• winding insulation breakdown	пробой изоляции обмотки	['waɪndɪŋ 'ɪnsjə'leɪʃən]
breaker	выключатель, прерыватель (тока)	['breɪkə]
• automatic breaker	автоматический	['ɔːtə'mætɪk]
• circuit breaker	автоматический	['sɜːkɪt]
bridge	мост, шунт, перемычка	[brɪdʒ]
bridging	соединение по мостовой схеме; шунтирование	['brɪdʒɪŋ]
broken	сломанный	['brəʊkən]
bronze	бронза	[brɒnz]
brush	щетка (эл. машины)	[brʌʃ]
brushgear	щеточный аппарат	['brʌʃgɪə]
brushless	бесщеточный	['brʌʃlis]
bush (bushing)	втулка	[bʊʃ] ['bʊʃɪŋ]
• centering bush	центрирующая	['sentərɪŋ]
• guide bush	направляющая	[gɑɪd]
• main bush	грундбукса	[meɪn]
• pressure bush	нажимная	['preʃə]
• supporting bush	опорная	['sə'pɔːtɪŋ]
• thrust bush	упорная	[θrʌʃt]
button	кнопка	['bʌtn]
by-pass	перепускной канал; шунт	['baɪpas]
cable	кабель; многожильный провод	['keɪbəl]
cam	кулак	[kæm]
camshaft	распредвал	['kæm/a:ft]
capability	способность; мощность	['keɪpə'bɪləti]
• inertia capability	инерционность	['ɪnəːʃə]
capacitance	эл. емкость; емкостное сопротивление	[kə'pæsɪtəns]
• actual capacitance	фактическая	['æktʃuəl]
• circuit capacitance	цепи	['sɜːkɪt]
• differential (input) capacitance	дифференциальная (входная)	[dɪfə'renʃəl] ['ɪnpʊt]
capacitor	конденсатор	[kə'pæsɪtə]
• adjustable capacitor	переменной емкости	['ə'dʒʌstəbəl]
• air (-dielectric) capacitor	с воздушным диэлектриком	[eə 'daɪ'lektɪk]
• charging capacitor	зарядный	['tʃɑːdʒɪŋ]
capacity	производительность	[kə'pæsɪti]
capstan	шпиль	['kæpstən]

• after capstan	кормовой	['ɑ:ftə]
• double-barreled capstan	двухбарабанный	['dʌbəl bəərəld]
• electric capstan	электрический	['i:lektrik]
• forward capstan	носовой	['fɔ:wəd]
• four-headed capstan	четырёхбарабанный	['fɔ:'hedid]
• hydraulic capstan	гидравлический	[haɪ'drɔ:lɪk]
• reversible capstan	реверсивный	['ri:vəsəbl]
• towing capstan	буксирный	['təuɪŋ]
• triple-headed capstan	трехбарабанный	['tripl'hedid]
• warping (gypsy) capstan	швартовный	['wɔ:pɪŋ] ['dʒɪpsɪ]
carbon	нагар	['kɑ:bən]
carbon dioxide extinction station	станция углекислотного тушения	['kɑ:bən daɪ'ɔksaɪd 'ɪkstɪŋkʃən 'steɪʃən]
cardan transmission	карданная передача	['kɑ:dæn trænzmɪʃən]
to carry out	выполнять	['kæri aʊt]
case / casing	кожух, оболочка	[keɪs] ['keɪsɪŋ]
• fire-proof casing	жаропрочная обшивка	['faɪə pru:f]
cell	элемент, ячейка, клетка	[sel]
to center	центрировать	['sentə]
centrifuge	центрифуга	['sentrifju:ds]
ceramics	керамика	[sə'reəmɪks]
chain	цепь	[tʃeɪn]
charge air cooler	воздухоохладитель	[tʃɑ:dʒ əə 'ku:lə]
to chase thread	очищать резьбу	[tʃeɪs θred]
to check	проверять	[tʃek]
changeover	переход, переключение	['tʃeɪndʒəʊvə]
character	характер	['kærəktə]
• load-current character	характер тока нагрузки	[ləʊd 'kʌrənt]
characteristic	характеристика	['kærəktə'rɪstɪk]
• external characteristic	внешняя	[ɪk'stɜ:nəl]
• no-load characteristic	холостого хода	['nəʊləʊd]
• regulation characteristic	регулирующая	['regjuleɪʃən]
• short-circuit characteristic	короткого замыкания	['ʃɔ:t'sɜ:kɪt]
• speed characteristic	скоростная	[spi:d]
charge	(эл.) заряд	[tʃɑ:dʒ]
• negative charge	отрицательный	['negətɪv]
• positive charge	положительный	['pɔ:zətɪv]
to choke	заглушать, засорять	[tʃəʊk]
to chop off rivet	срубить заклепку	[tʃɒp ɒf 'rɪvɪt]
circuit	цепь	['sɜ:kɪt]
• AC circuit	переменного тока	[eɪ si:]
• automatic control and regulating circuit	схема автоматического управления и регулирования	['ɔ:tə'mætɪk kən'trəʊl ænd 'regjuleɪtɪŋ]
• DC circuit	постоянного тока	[di: si:]
• external circuit	внешняя	[ɪk'stɜ:nəl]
• field circuit	возбуждения	[fi:ld]
• grounded circuit	заземленная	['graʊndɪd]
• input circuit	входная	['ɪnpʊt]
• open circuit	разомкнутая	['əʊpən]
• power circuit	силовая	['paʊə]
• short circuit	короткозамкнутая	[ʃɔ:t]

• start regulating equipment control circuit	цель управления пускорегулирующей аппаратуры	[sta:t 'regjuleitɪŋ ɪ'kwɪpmənt kən'traʊl]
to circulate	циркулировать	['sɑ:kjuleɪt]
to clean	чистить	[kli:n]
clearance	зазор	['kliəərəns]
clock	часы	[klɒk]
clockwise	по часовой стрелке	['klɒkwaɪz]
• counter-clockwise	против часовой стрелки	['kaʊntə 'klɒkwaɪz]
to close	закрывать	[kləʊz]
closing head	закрывающая головка (заклепки)	['kləʊzɪŋ hed]
CO ₂ cylinder	углекислотный баллон	[si: əʊ tu: 'silɪndə]
to coat	грунтовать	[kəʊt]
cock	кран, вентиль	[kɒk]
• indicator cock	индикаторный кран	['ɪndɪkeɪtə]
coil	спираль, катушка	[kɔɪl]
collar	манжета	['kɒlə]
collar cage	обойма манжеты	['kɒlə keɪdʒ]
combustion	сгорание	[kəm'bʌstʃən]
combustion chamber	камера сгорания	[kəm'bʌstʃən 'tʃeɪmbə]
commutation	коммутация, переключение	['kɒmjuteɪʃən]
commutator	коммутатор; (эл.) коллектор	['kɒmjuteɪtə]
compartment	отсек	[kəm'pɑ:tmənt]
compatibility	совместимость	[kəm'pæteɪbɪlɪti]
compression	сжатие, компрессия	[kəm'preʃən]
compression ratio	степень сжатия	[kəm'preʃən 'reɪʃiəʊ]
compressor	компрессор	[kəm'presə]
condenser	конденсатор	[kən'densə]
to conduct	проводить	[kən'dʌkt]
conduction	электропроводность	[kən'dʌkʃən]
conductor	проводник	[kən'dʌktə]
• magnetic conductor	магнитопровод	[mæg'netɪk]
• closed magnetic conductor	замкнутый магнитопровод	[kləʊzd mæg'netɪk]
• semi conductor	полупроводник	['semi]
to connect	соединять	[kə'nekt]
connecting rod	шатун	[kə'nektɪŋ rɒd]
connecting rod cap	крышка шатуна	[kə'nektɪŋ rɒd kæp]
connection	соединение, включение	[kə'nekʃən]
• accordant connection	согласное включение	[ə'kɔ:dənt]
• bridge connection	мостовая схема (соединение)	[brɪdʒ]
• cascade connection	каскадное, последовательное	[kæsk'eɪd]
• current connection	соединение токовых цепей	['kʌrənt]
• delta connection	соединение треугольником	['delta]
• delta-star connection	треугольник-звезда	['delta sta:]
• double-star connection	звезда-звезда	['dʌbəl sta:]
• star connection	звездой	[sta:]
• star-delta connection	звезда-треугольник	[sta: 'delta]
• threaded connection	резьбовое	['θreɪdɪd]
constant	постоянная	['kɒnstənt]
consumer	потребитель	[kən'sju:mə]
• energy consumer	потребитель энергии	['enədʒɪ]
consumption	потребление	[kən'sʌmpʃən]
contact	контакт	['kɒntækt]

• sliding contacts	скользящие контакты	['slaidɪŋ]
contaminant	загрязняющее вещество	[kən'tæmɪnənt]
to control	управлять, контролировать	[kən'trəʊl]
control desk	пульт управления	[kən'trəʊl desk]
• main control desk	главный	[meɪn]
• remote control desk	выносной	[rɪ'məʊt]
to convert	преобразовывать, превращать	[kən'veɜ:t]
converter	преобразователь	[kən'veɜ:tə]
• AC/DC converter	переменного тока в постоянный	[eɪ si: di: si:]
• rotary converter	вращающийся	['rəʊtəri]
convertibility	обратимость	[kən'veɜ:tə'bɪlətɪ]
to cool	охлаждать	[ku:l]
cooler	охладитель	['ku:lə]
copper	медь	['kɒpə]
core	сердечник	[kɔ:]
• armature core	якоря	['ɑ:mətʃuə]
• three-leg core	трехстержневой	[θri: leg]
cotton waste	хлопчатобумажная ветошь	['kɒtən weɪst]
counter	счетчик	['kaʊntə]
counter balance	противовес	['kaʊntə 'bæləns]
couple	пара (термопара)	['kʌpəl]
coupling	муфта	['kʌplɪŋ]
• cam coupling	кулачковая	[kæm]
• cone coupling	коническая	[kəʊn]
• disengaging coupling	расцепная	['dɪsɪn'geɪdʒɪŋ]
• flange coupling	фланцевая	[flændʒ]
• friction coupling	фрикционная	['frɪkʃən]
• gear coupling	зубчатая	[gɪə]
• hydraulic coupling	гидромуфта	[haɪ'drɔ:lɪk]
• jaw coupling	кулачковая	[dʒɔ:]
• marine transmission coupling	включения судовой трансмиссии	[mə'ri:n trænʒ'mɪʃən]
• multiple disk coupling	многодисковая	['mʌltɪpl disk]
• safety coupling	предохранительная	['seɪftɪ]
• shaft coupling	соединительная валопровода	[ʃɑ:ft]
• winch coupling	лебедки	[wɪntɪ]
• winch directional coupling	направления намотки троса лебедки	[wɪntɪ dɪ'rekʃənəl]
cover	закрытие, крышка, колпачок	['kʌvə]
• hatch cover	люковое закрытие / крышка люка	[hætʃ]
• manifold cover	закрытие коллектора	['mænɪfəʊld]
• storage battery cover	крышка аккумулятора	['stɔ:rɪdʒ 'bætəri]
• top cover	верхняя крышка	[tɒp]
• upper cover	верхнее закрытие	['ʌpə]
crack	трещина	[kræk]
cracked	треснувший	[krækt]
cradle	шлюпочный кильблок	['kreɪdl]
crane	кран	[kreɪn]
• beam crane	кран-балка	[bi:m]
• bracket crane	консольный	['brækɪt]
• bucket crane	ковшовый	['bʌkɪt]
• deck crane	палубный	[dek]
• derrick crane	мачтовый	['derɪk]
• grab crane	грейферный	[græb]

• hatch crane	люковый	[hætʃ]
• hoisting crane	подъемный	['hɔɪstɪŋ]
• jib crane	стреловой	[dʒɪb]
• manual crane	с ручным управлением	['mænjʊəl]
• pillar crane	мачтовый	['pɪlə]
• revolving crane	поворотный	['rɪvɔlvɪŋ]
• slewing crane	поворотный	['slu:ɪŋ]
crankpin	шейка мотыля	['kræŋkpi:n]
crankshaft	коленвал	['kræŋkʃɑ:fʃ]
• built crankshaft	составной коленвал	[bɪlt]
crankweb	щека коленвала	['kræŋkweb]
crosshead	крейцкопф	['krɔʃhed]
crosshead guide shoe	крейцкопфный направляющий башмак	['krɔʃhed 'gaɪdʃu:]
crosshead pin	палец крейцкопфа	['krɔʃhed pi:n]
cup grease	солидол	[kʌp 'ɡri:s]
current	ток	['kʌrənt]
• alternating current (AC)	переменный	['ɔ:lteɪnɪtɪŋ] [ei si:]
• actual current	действительный	['æktʃʊəl]
• armature current	якоря	['ɑ:mətʃuə]
• conduction current	проводимости	[kən'dʌkʃən]
• continuous current	непрерывный	[kən'tɪnjuəs]
• direct current (DC)	постоянный	[dɪ'rekt] [di: si:]
• excitation current	возбуждения	['eksɪ'teɪʃən]
• input current	входной	['ɪnput]
• mains current	в сети	['meɪnz]
• no-load current	холостого хода	['nəʊləʊd]
• output current	выходной	['aʊtput]
• pulsating current	прерывистый (импульсный)	[pʌl'seɪtɪŋ]
• rated current	номинальный	['reɪtɪd]
• rated secondary current	номинальный вторичный	['reɪtɪd 'sekəndəri]
• reverse current	обратный	['rɪvə:s]
• short-circuit current	короткого замыкания	['ʃɔ:t'sɜ:kɪt]
• stator current	статора	['steɪtə]
current-carrying	токонесущий	['kʌrənt 'kæərɪŋ]
current-conducting	токопроводящий	['kʌrənt kən'dʌktɪŋ]
to cut	резать	[kʌt]
cut-off	выключение	[kʌt ɔf]
cylinder	цилиндр	['sɪlɪndə]
cylinder head	головка цилиндра	['sɪlɪndə hed]
cylinder liner	гильза (втулка) цилиндра	['sɪlɪndə 'laɪnə]
to damage	повреждать	['dæmɪdʒ]
damping block	буферная колодка	['dæmpɪŋ blɒk]
davit (boat davit)	шлюпбалка	['dævɪt] [bəʊt 'dævɪt]
• accommodation davit	трапбалка	[ə'kɒmə'deɪʃən]
• crescent davit	серповидная	['kresənt]
• goosenecked davit	S-образная	['ɡu:nekt]
• gravity davit	гравитационная	['ɡrævɪtɪ]
• ladder davit	трапбалка	['lædə]
• luffing davit	склоняющаяся	['lʌfɪŋ]
• revolving davit	поворотная	['rɪvɔlvɪŋ]
• slewing davit	горизонтальная	['slu:ɪŋ]

• swan-necked davit	S-образная	['swɒn'nekt]
davit span	топрик шлюпбалки	['dævit spæn]
dead center	мертвая точка	[ded 'sentə]
• bottom dead center (BDC)	нижняя	['bɒtəm] [bi: di: si:]
• top dead center (TDC)	верхняя	[tɒp] [ti: di: si:]
to decrease	уменьшать	[di:'kri:s]
deflector	отражатель	[di'flektə]
delivery	подача	[di'livəri]
• full delivery	полная	[ful]
• partial delivery	частичная	[pɑ:'ʃəl]
• zero delivery	нулевая	['ziərəʊ]
delta	треугольник; соединение треугольником	['delta]
to demagnetize	размагничивать	[di:'mægnətaiz]
demand	электропотребление; потребность	[di'ma:nd]
density	плотность	['densiti]
dependence	зависимость	[di'pendəns]
deposits	отходы	[di'pɒzits]
derrick	стрела	['derik]
• boat derrick	шлюпочная	[bəʊt]
• guyed-mast derrick	мачтовая	['gaid'ma:st]
• hatch derrick	люковая	[hætʃ]
• wreck derrick	аварийная	[rek]
devil's claw	целной стопор с каргой	['devəlz klɔ:]
diagram	схема, чертеж	['daɪəgræm]
• circuit diagram	принципиальная схема	['sə:kit]
• connection diagram	схема соединений	[kə'nekʃən]
difference	разность	['difərəns]
• potential difference	потенциалов	[pəu'tenʃəl]
• voltage difference	напряжений	['vɔ:ltidʒ]
to dip	окутать	[dip]
dipstick	щуп для измерения уровня	['dɪpstɪk]
direction	направление	[di'rekʃən]
to disassemble	разбирать	['disə'sembəl]
discharge	разряд; выгрузка	['dɪstʃɑ:dʒ]
to discharge	разряжать; разгружать	[dis'tʃɑ:dʒ]
discharge nozzle	нагнетательный патрубок	['dɪstʃɑ:dʒ nɔ:zl]
to disconnect	рассоединять	['dɪskə'nekt]
disk	тарелка	[disk]
to dismantle	разбирать	[dis'mæntl]
to dismount	разбирать	['dis'maʊnt]
distributor	распределитель	[dis'tribjətə]
dowel	шпонка	['daʊəl]
drainage	дренаж	['dreɪnɪdʒ]
to drain	откачивать, осушать	[dreɪn]
drive	привод	[draɪv]
• belt drive	ременной	[belt]
• centrifugal relay drive	центробежного реле	['sentri'fju:gəl ri'lei]
• friction drive	фрикционный	['frɪkʃən]
• fuel injection pump drive	топливного насоса	[fju:əl ɪn'dʒekʃən plʌmp]
• fuel injection pump control rack drive	рейки топливного насоса	[fju:əl ɪn'dʒekʃən plʌmp kən'trəʊl ræk]

• governor drive	регулятора	['gʌvənə]
• main drive	главный	[meɪn]
• V-belt drive	клиноременной	[vi: belt]
drive axis	ось привода	[draɪv 'æksɪs]
to drive out	вытаскивать, расклепывать	[draɪv aʊt]
to drive rivet	ставить заклепку	[draɪv 'rɪvɪt]
drum	барабан	[drʌm]
• receiver drum	пароприемный барабан	[rɪ'si:və]
• steam drum	паросборник	[sti:m]
to dry	сушить	[draɪ]
duralumin	дюралюминий	[dʒuə'reɪljumɪn]
eccentric	эксцентрик	[ɪk'sentɪk]
to effect	выполнять, осуществлять	[ɪ'fekt]
effective horsepower	эффективная мощность в л.с.	[ɪ'fektɪv 'hɔ:s'paʊə]
ejector	эжектор	[ɪ'dʒektə]
electricity	электричество	[ɪlek'trɪsətɪ]
• dynamic electricity	динамическое	[daɪ'næmɪk]
• static electricity	статическое	[stætɪk]
electromagnet	электромагнит	[ɪ'lektroʊ'mægnət]
electromagnetic force	электромагнитная сила	[ɪ'lektroʊ'mægnətɪk fɔ:s]
element	элемент	[ɪ'elɪmənt]
electromotive force (emf)	электродвижущая сила (ЭДС)	[ɪ'lektroʊ'məutɪv fɔ:s] [ɪ: em ef]
• counter emf	противо-ЭДС	['kaʊntə]
• induced emf	наведенная ЭДС	[ɪn'dʒʌst]
• emf of mutual induction	ЭДС взаимной индукции	[mju:tʃʊəl ɪn'dʌkʃən]
• emf of self-induction	ЭДС самоиндукции	['self ɪn'dʌkʃən]
enclosed	закрытый, герметичный	[ɪn'kləʊzɪd]
end	торец	[end]
• front end	передний	[frʌnt]
energy	(эл.) энергия	['enədʒɪ]
to engage	соединять, включать	[ɪn'geɪdʒ]
engine	двигатель	['endʒɪn]
• air engine	пневматический двигатель, компрессор	[eə]
• air-injection engine	компрессорный, с пневматическим распылением	[eə ɪn'dʒekʃən]
• airless-injection engine	бескомпрессорный двигатель	['eəlis ɪn'dʒekʃən]
• anchor engine	приводной двигатель шпилья/брашпилья	['æŋkə]
• auxiliary engine	вспомогательный двигатель	[ɔ:g'zɪljəri]
• dead engine	заглохший двигатель	[ded]
• diesel engine	дизельный двигатель	['di:zəl]
• direct-injection engine	двигатель с прямым впрыском топлива	[di'rekt ɪn'dʒekʃən]
• donkey engine	вспомогательный двигатель	['dɒŋki]
• double-row engine	двухрядный двигатель	['dʌblə'raʊ]
• four-stroke diesel engine	четырёхтактный дизель	[fɔ: strəʊk 'di:zəl]
• gas turbine engine	газотурбинный двигатель	[gæs 'tə:bin]
• gasoline engine	бензиновый двигатель	['gæsəli:n]
• high-compression engine	двигатель с высокой степенью сжатия	[haɪ kəm'preʃən]
• high-efficiency engine	двигатель с высоким КПД	[haɪ ɪ'fɪjənsɪ]
• high-speed diesel engine	высокооборотный дизель	[haɪ spi:d 'di:zəl]
• in-line engine	однорядный двигатель	[ɪn'laɪn]

• lifeboat engine	шлюпочный двигатель	['laɪfbəʊt]
• marine engine	судовой двигатель	[mə'ri:n]
• medium-speed diesel engine	среднеоборотный дизель	['mi:diəm spi:d]
• oil engine	дизельный двигатель	[ɔɪl]
• propulsion engine	главный двигатель	[prə'pʌlʃən]
• row diesel engine	рядный дизель	[rəu 'di:zəl]
• slow-speed diesel engine	малооборотный дизель	[sləu spi:d 'di:zəl]
• steam turbine engine	паровая турбина	[sti:m 'tə:bin]
• supercharged diesel engine	дизель с наддувом	['sju:pə'tʃɑ:dʒd 'di:zəl]
• trunk-piston diesel engine	тронковый дизель	[trʌŋk 'pɪstən 'di:zəl]
• turbo-charged diesel engine	дизель с газотурбинным наддувом	['tə:bəu 'tʃɑ:dʒd 'di:zəl]
• two-stroke diesel engine	двухтактный дизель	[tu: strəʊk 'di:zəl]
• warmed-up engine	прогретый двигатель	[wɔ:md ʌp]
equipment	оборудование	['i:kwɪpmənt]
• distillation equipment	опреснительное	[dɪstɪ'leɪʃən]
• fire-fighting equipment	пожарное	['faɪə 'faɪtɪŋ]
to examine	проверять	[ɪg'zæmɪn]
excitation	возбуждение	['eksɪ'teɪʃən]
exciter	возбудитель	[ɪk'saɪtə]
to execute	выполнять	['eksɪkjʊ:t]
to extract	извлекать	[ɪk'strækt]
to fabricate	изготавливать	['fæbrɪkeɪt]
fairlead	направляющее устройство	['feəli:d]
fan	вентилятор	[fæn]
fan belt	ремень вентилятора	[fæn belt]
to fasten	скреплять	['fɑ:sən]
fastener	зажим, крепление	['fɑ:sənə]
fastening parts	крепёжные детали	['fɑ:sənɪŋ pa:ts]
fault	неисправность, повреждение	[fɔ:lt]
feed water	питательная вода	[fi:d 'wɔ:tə]
feedback	обратная связь	['fi:dbæk]
feeder	загрузочное устройство	['fi:də]
field	поле	[fi:ld]
• cross field	поперечное	[krɒs]
• magnetic field	магнитное	[mæg'netɪk]
to fill	наполнять	[fɪl]
filter	фильтр	['fɪltə]
• air filter	воздушный	[eə]
• coarse oil filter	масляный грубой очистки	[kɔ:s ɔɪl]
• filter-silencer	-глушитель	['saɪlənsə]
• fine oil filter	масляный тонкой очистки	[faɪn ɔɪl]
• fuel filter	топливный	['fju:əl]
filter element	фильтрующий элемент	['fɪltə 'elɪmənt]
to fit	прилаживать, подгонять	[fɪt]
fittings	фитинговые соединения трубопроводов	['fɪtɪŋz]
to fix	закреплять, чинить	[fɪks]
fixture	зажим, хомут	['fɪkstʃə]
flame	пламя	[fleɪm]
flange	фланец	[flændʒ]
• cock flange	крана	[kɒk]
• injector flange	форсунки	[ɪn'dʒektə]

• shaft flange	вала	[ʃɑ:ft]
flat bar	полосовой металл, полоса (стали)	[flæt bɑ:]
flex	гибкий провод	[fleks]
flip-flop	триггер	[ˈflɪpflop]
flow	поток; протекание (тока)	[fləʊ]
• continuous flow	непрерывный поток	[kən'tɪnjuəs]
• flow of electricity	протекание тока	[əv ɪlek'trɪsəti]
to flow	течь	[fləʊ]
to flow out	вытекать	[fləʊ aʊt]
flywheel	маховик	[ˈflaɪwi:l]
four-stroke cycle	четырёхтактный цикл	[fɔ: strəʊk 'saɪkl]
frame	рама	[freɪm]
• foundation frame	рама фундаментная	[faʊn'deɪʃən freɪm]
frequency	частота (тока)	[ˈfri:kwənsi]
fuel consumption	расход (потребление) топлива	[fju:əl kən'sʌmpjən]
fuel rate	расход топлива	[fju:əl reɪt]
furnace	топка	[ˈfə:nɪs]
• down-draft furnace	с нижней тягой	[daʊn dra:ft]
• oil-fired furnace	мазутная	[ɔɪl 'faɪəd]
• underfeed furnace	с нижней подачей топлива	[ˌʌndə'fi:d]
• upshot fired furnace	с восходящим движением газов	[ˌʌpʃɒt 'faɪəd]
gap	зазор, промежуток	[gæp]
• air gap	воздушный	[eə]
• energy gap	перепад энергии	[ˈenədʒi]
fuse	предохранитель, пробка	[fju:z]
gasket	набивка, прокладка, сальник, уплотнение	[ˈgæskɪt]
gauge	указатель, измерительный прибор	[geɪdʒ]
• fuel contents gauge	указатель уровня топлива	[fju:əl 'kɒntents]
• level gauge	указатель уровня, уровнемер	[ˈlevəl]
• oil temperature gauge	указатель температуры масла	[ɔɪl 'temprɪtə]
• pressure gauge	манометр	[ˈpreʃə]
gear	зубчатое колесо, передача	[gɪə]
• bevel gear	коническая передача	[ˈbevəl]
• chain gear	цепная передача	[tʃeɪn]
• composite gear	многовенцовое колесо	[ˈkɒmpəzɪt]
• differential gear	дифференциальная передача	[ˈdɪfə'renʃəl]
• double-wheel gear	двухвенцовое колесо	[ˈdʌbəl wi:l]
• drive (driving) gear	ведущее колесо	[draɪv] [ˈdraɪvɪŋ]
• driven gear	ведомое колесо	[ˈdrɪvən]
• external gear	передача внешнего зацепления	[ɪk'stə:nəl]
• friction gear	фрикционная передача	[ˈfrɪkʃən]
• globoidal gear	глобoidная передача	[gləʊ'bɔɪdəl]
• ground gear	колесо со шлифованными зубьями	[graʊnd]
• hardened gear	закаленное колесо	[ˈhɑ:dənd]
• helical gear	косозубая передача	[ˈhelɪkəl]
• herringbone gear	шевронное колесо	[ˈherɪŋ'bəʊn]
• idle gear	промежуточное колесо	[ˈaɪd]
• increase gear	повышающая передача, мультипликатор	[ˈɪnkri:s]
• internal gear	внутреннего зацепления	[ɪn'tə:nəl]

• involute gear	звoluteвная передача	['ɪnvəlʊ:t]
• pick-off gear	сменное колесо	[pɪk ɔf]
• pinion gear	шестерня	['pɪnjən]
• planet gear	сателлит	['plænit]
• planetary gear	планетарная передача	['plænɪtəri]
• rack gear	реечная передача	[ræk]
• reducing gear	редуктор	[rɪ'dʒu:sɪŋ]
• reversing gear	реверсивная передача	[rɪ'vɜ:sɪŋ]
• screw gear	винтовая передача	[skru:]
• spiral gear	винтовая передача	['spɑɪərəl]
• spur gear	прямозубая цилиндрическая передача	[spɜ:]
• step-down gear	понижающая передача	['stepdaʊn]
• step-up gear	повышающая передача	['stepʌp]
• sun gear	солнечное (центральное) колесо	[sʌn]
• wave gear	волновая передача	[weɪv]
• worm gear	червячная передача	[wɜ:m]
gear grease	трансмиссионное масло	[gɪə grɪ:s]
gear ratio / transmission ratio	передаточное число	[gɪə 'reɪʃiəʊ] [trænz'mɪʃən 'reɪʃiəʊ]
gear	устройство	[gɪə]
• anchor gear	якорное устройство	['æŋkə]
• boat-handling gear	шлюпочное устройство	[bəʊt 'hændlɪŋ]
• cam gear	кулачковый механизм	[kæm]
• cargo handling gear	погрузочно-разгрузочный механизм	['kɑ:gəʊ 'hændlɪŋ]
• exhaust valve gear	механизм выпускного клапана	[ɪg'zɔ:st vælv]
• fuel gear	устройство для приема топлива	[fju:əl]
• launching gear	устройство для спуска шлюпки	['lɔ:ntɪŋ]
• lifting gear	подъемное устройство	['lɪftɪŋ]
• manoeuvring gear	подруливающее устройство	[mə'nu:vərɪŋ]
• mooring gear	швартовное устройство	['muərɪŋ]
generator	генератор	['dʒenəreɪtə]
• AC generator	переменного тока	[eɪ si:]
• arc-welding generator	для дуговой сварки	[ɑ:k 'weldɪŋ]
• auxiliary generator	вспомогательный	[ɔ:g'zɪljəri]
• DC generator	постоянного тока	[di: si:]
• electric generator	электрогенератор	['ɪlektrɪk]
• emergency generator	аварийный	[ɪ'mɑ:dʒənsɪ]
• foam generator	пенногенератор	[fəʊm]
• fresh-water generator	опреснительная установка	[fref 'wɔ:tə]
• harbor generator	стояночный	['hɑ:bəl]
• propulsion generator	главной гребной установки	[prə'pʌlʃən]
• standby generator	резервный	['stændbaɪ]
• steam generator	парогенератор	[sti:m]
• winch generator	для питания электролебедок	[wɪntʃ]
girder strap	стяжная балка	['gə:də stræp]
gland	уплотнение, набивка, сальник	[glænd]
• piston rod gland	сальник штока поршня	['pɪstən rɔd]
glow plugs and starter switch	выключатель свечей накаливания и стартера	[gləʊ plʌgz ənd stɑ:t swɪtʃ]
governor	регулятор	['gʌvənə]
• engine governor	хода двигателя	['endsɪn]

governor arm	рычаг регулятора	['gʌvənə a:m]
• safety governor arm	безопасности	['seifti]
• speed governor arm	скорости	[spi:d]
grease	смазка, смазывать	[gri:s]
to grind	шлифовать	[graɪnd]
gripe	найтовое крепление шлюпки	[graɪp]
groove	канавка, паз	[gru:v]
to ground	заземлять	[graʊnd]
grounding	заземление; заземляющее устройство	['graʊndɪŋ]
guide vane	направляющая лопатка	[gaɪd veɪn]
guides	направляющие	['gaɪdz]
half-ring	полукольцо	[ha:f rɪŋ]
handle	рукоять, ручка	['hændl]
• ball handle	ручка шаровая	[bɔ:l]
• direction handle	рукоятка направления вращения	[dɪ'rekʃən]
• engine shutdown handle	рукоятка остановки двигателя	['endʒɪn /ʌt daʊn]
• fuel feed shut-off handle	рукоятка выключения подачи топлива	[fju:əl fi:d /ʌt ɔf]
• manoeuvring handle	рукоятка маневрирования	[mæ'nu:vərɪŋ]
handwheel	маховик	['hændwi:l]
heat	тепло, жар; нагревать	[hi:t]
heat exchanger	теплообменник	[hi:t ɪks'tʃeɪndʒə]
heater	нагреватель	['hi:tə]
hinge	шарнир	['hɪndz]
• intermediate hinge	промежуточный	['ɪntə'mɪ:diət]
to hoist	поднимать	[hɔɪst]
hoisting-launching device	подъемно-спусковое устройство	['hɔɪstɪŋ 'bɔ:ntɪŋ dɪ'vaɪs]
holder	обойма, патрон	['həʊldə]
horsepower	лошадиная сила	['hɔ:s'paʊə]
hoop	бугель	[hu:p]
hourmeter	счетчик моточасов	['aʊəmitə]
housing	кожух, оболочка, корпус, станина, рама	['haʊzɪŋ]
• breather housing	корпус сапуна	['brɪ:ðə]
hub	ступица	[hʌb]
• propeller hub	гребного вала	[prə'pelə]
hydraulic motor	гидравлический двигатель	['haɪ'drɔ:lɪk 'məʊtə]
to ignite	зажигать, воспламенять	[ɪg'naɪt]
ignition	зажигание	[ɪg'niʃən]
impeller	крылатка	[ɪm'pelə]
in gear	в зацеплении	[ɪn giə]
incomplete	незамкнутый (о цепи)	['ɪnkəm'pli:t]
to increase	увеличивать(ся)	[ɪn'kri:s]
to indicate	показывать, указывать	['ɪndikeɪt]
to induce	индуцировать, наводить	[ɪn'dju:s]
induction	индукция	[ɪn'dʌkʃən]
• mutual induction	взаимоиндукция	['mju:tʃuəl]
• self-induction	самоиндукция	[self]
inertia	инерция	['ɪnə:ʃə]
injector	форсунка	[ɪn'dʒektə]
inner race	внутреннее кольцо подшипника	['ɪnə reɪs]
in-series	последовательно (включенный)	[ɪn 'sɪəri:z]

to inspect	проверять	[in'spekt]
to install	устанавливать	[in'stɔ:l]
to insulate	изолировать	[insjəleɪt]
insulated	изолированный	[insjəleɪtɪd]
insulating	изоляционный	[insjəleɪtɪŋ]
insulation	изоляция, изоляционный материал	[insjə'leɪʃən]
interaction	взаимодействие	[ɪntəræktʃən]
iron	железо	['aɪən]
• alloyed cast iron	легированный чугун	['ɔ:bɪd kɑ:st]
• angle iron	уголковая сталь	['æŋgəl]
• bar iron	прутковая сталь	[bɑ:]
• black sheet iron	черная жельсть	[blæk ʃi:t]
• box iron	швеллер	[bɒks]
• cast iron	чугун	[kɑ:st]
• corrugated iron	рифленная сталь	['kɔ:rəʒeɪtɪd]
• double-T iron	двутавровая сталь	['dʌbl̩ tɪ:]
• galvanized iron	оцинкованное железо	[gælvənaɪzɪd]
• gray cast iron	серый чугун	[greɪ kɑ:st]
• H-iron	двутавровая сталь	[eɪt]
• sheet iron	тонколистовое железо	[ʃi:t]
• T-iron	тавраовая сталь	[ti:]
• white iron	белый чугун	[waɪt]
jacket	рубашка (цилиндра)	['dʒækɪt]
• water jacket	водяная рубашка	['wɔ:tə]
joint	соединение	[dʒɔɪnt]
• key joint	шпоночное	[ki:]
• slip joint	скользящее	[slɪp]
• splined joint	шлицевое	['splaɪnd]
• welded joint	сварное	['weldɪd]
jump	скачок	[dʒʌmp]
jumper	перемычка	['dʒʌmpə]
junction	переход; соединение	['dʒʌŋkʃən]
kilo-	кило-	['ki:ləʊ]
• kilo-ampere	-ампер	['æmpɪə]
• kilo-cycle (hertz)	-герц	['saɪkəl] [hɜ:ts]
• kilo-ohm	-ом	[əʊm]
• kilo-volt	-вольт	[vəʊlt]
• kilo-watt	-ватт	[wɒt]
to keep	держать (хранить)	[ki:p]
key	шпонка	[ki:]
• draw key	вытяжная	[drɔ:]
• feather key	призматическая	['feðə]
• flat key	на лыске	[flæt]
• fox key	с контрклином	[fɒks]
• guide key	направляющая	[gaɪd]
• round key	цилиндрическая	[raʊnd]
• sunk key	врезная	[sʌŋk]
• Woodruff key	сегментная, Вудруфа	['wʊdrʌf]
key slot	шпоночный паз	[ki: slɒt]
knob	ручка (круглая), рукоятка	[nɒb]
to knock	стучать	[nɒk]
ladder tackle	трап-тали	['lædə 'tækəl]

lamp	лампа	[læmp]
latch	защелка	[lætʃ]
lead	свинец	[led]
to leak	течь	[li:k]
leakage	течь	[ˈli:kɪdʒ]
to leave	оставлять	[li:v]
leg	(магнитный) стержень	[leg]
lever	рычаг	[ˈli:və]
• cock lever	ручка крана	[kɒk]
• lever for exhaust valve	балансир выхлопного клапана	[fɔ: ɪgˈzɔ:st vælv]
lid	крышка, колпачок	[lɪd]
to lift	поднимать	[lɪft]
light	свет	[laɪt]
lighting	освещение	[ˈlaɪtɪŋ]
limiter	ограничитель	[ˈlɪmɪtə]
line	(эл.) линия, трубопровод	[laɪn]
• bilge line	осушительный трубопровод	[bɪldʒ]
• live line	линия под напряжением	[laɪv]
• main line	магистраль	[meɪn]
link	связь, соединение	[lɪŋk]
load	нагрузка; нагружать	[ləʊd]
• actual load	фактическая нагрузка	[ˈæktʃuəl]
• at load	под нагрузкой	[æt]
• excessive load	чрезмерная нагрузка	[ɪkˈsesɪv]
• linear load	линейная нагрузка	[ˈlɪniə]
locking device	запирающее устройство	[ˈlɒkɪŋ dɪˈvaɪs]
log(-book)	(вахтенный) журнал	[ˈlɒgbʊk]
loop	петля; контур; рамка	[lu:p]
loose	свободный, незакрепленный; ослаблять	[lu:s]
loss	потеря	[lɒs]
to lower	опускать	[ˈləʊə]
lubricant	смазочный материал	[ˈlu:briˌkənt]
• consistent lubricant	консистентная смазка	[kənˈsɪstənt]
• multi-purpose lubricant	универсальная смазка	[ˈmʌlti ˈpɜ:pəs]
to lubricate	смазывать	[ˈlu:briˌkeɪt]
lubrication	смазка	[ˈlu:briˌkeɪʃən]
• forced-feed lubrication	под давлением	[fɔ:st fi:d]
• immersion lubrication	погружением	[ɪˈmɜ:ʃən]
• splash lubrication	разбрызгиванием	[splæʃ]
lubricator	масленка	[ˈlu:briˌkeɪtə]
• ejector lubricator	эжекторный маслораспылитель	[ɪˈdʒektə]
• grease lubricator	масленка для пластичной смазки	[ɡri:s]
• needle lubricator	игльчатый лубрикатор	[ˈni:dʒ]
• single lubricator	масленка для местной смазки	[ˈsɪŋɡəl]
• spring lubricator	пружинная масленка	[sprɪŋ]
magnet	магнит	[ˈmæɡnət]
• artificial magnet	искусственный	[ˈɑ:tɪfɪʃəl]
• permanent magnet	постоянный	[ˈpɜ:mənənt]
to magnetize	намагничивать	[ˈmæɡnətaɪz]
main / mains	эл. сеть, силовая сеть	[meɪn] [ˈmeɪnz]
main bearing journal	коренная шейка коленчатого вала	[meɪn ˈbeərɪŋ ˈdʒɜ:nəl]

to maintain	обслуживать	[meɪn'teɪn]
maintenance	техобслуживание	['meɪntənəns]
to make	делать, создавать	[meɪk]
• to make fast	закреплять	[meɪk fa:st]
manifold	коллектор	['mæɪnɪfaʊld]
• inlet manifold	впускной	['ɪnlet]
• outlet manifold	выпускной	['aʊtlet]
manually operated	с ручным управлением	['mæɪnjuəli 'ɔ:pəreɪtɪd]
mark	метка, риска	[mɑ:k]
to measure	измерять	['meʒə]
mechanism	механизм	['mekənɪzəm]
• fuel feed control mechanism	регулировки подачи топлива	[fju:əl fi:d kən'trəʊl]
• remote control mechanism	дистанционного управления	[ri'məʊt kən'trəʊl]
megger	мегомметр, меггер	['megə]
misfire	перебои в зажигании	[mɪs'faɪə]
mode	режим (работы); способ	[məʊd]
• mode of control	способ управления	[kən'trəʊl]
• mode of installation	способ установки	['ɪnstə'leɪʃən]
• mode of operation	режим работы	['ɔ:pə'reɪʃən]
• current mode	токовый режим	['kʌrənt]
• motor mode	двигательный режим	['məʊtə]
motor half-coupling	приводная полумуфта	['məʊtə hɑ:f 'kʌplɪŋ]
mounting	станина; монтаж, установка	['maʊntɪŋ]
to move	двигать	[mu:v]
mushroom head	грибок (грибовидная головка)	['mʌʃrʊm hed]
needle	игла, стрелка (прибора)	['ni:dəl]
net	сеть, схема	[net]
nipple	ниппель	['nɪpəl]
nitrogen	азот	['nɪtrədʒən]
noise	шум	[nɔɪz]
nozzle	сопло	['nɔ:zl]
nut	гайка	[nʌt]
• butterfly nut	- барашек	['bʌtəflaɪ]
• castle nut	корончатая	['kɑ:səl]
• check nut	стопорная	[tʃek]
• circular nut	круглая	['sɑ:kjʊlə]
• collar nut	с буртиком	['kɔlə]
• coupling nut	стяжная	['kʌplɪŋ]
• fastening nut	крепежная	['fɑ:sənɪŋ]
• hexagonal nut	шестигранная	[hek'sæɡənəl]
• jam nut	контргайка	[dʒæm]
• left-handed nut	с левой резьбой	['left'hændɪd]
• lock nut	контргайка	[lɒk]
• loose nut	незатянутая	[lu:s]
• right-handed nut	с правой резьбой	['raɪt'hændɪd]
• round nut	круглая	[raʊnd]
• rounded corners nut	с закругленными углами	['raʊndɪd 'kɔ:nəz]
• safety nut	предохранительная	['seɪftɪ]
• self-locking nut	самоконтрящаяся	['self'lɒkɪŋ]
• square nut	квадратная	[skweə]
• thick nut	высокая	[θɪk]
• thin nut	низкая	[θɪn]

• wing nut	- барашек	[wiŋ]
ohm	ом	[əʊm]
ohmmeter	омметр	[ˈəʊmi:tə]
oil	смазка, масло	[ɔɪl]
• cloudy oil	мутное масло	[ˈklaʊdi]
• engine oil	моторное масло	[ˈɛndʒɪn]
• high-pressure oil	масло с противозадирными присадками	[haɪ ˈpreʃə]
• light engine oil	маловязкое моторное масло	[laɪt ˈɛndʒɪn]
• paint oil	олифа	[peɪnt]
• solidified oil	загущенное масло	[səˈlɪdɪfaɪd]
• thick oil	вязкое масло	[θɪk]
• thin oil	маловязкое масло	[θɪn]
• used oil	отработанное масло	[ju:st]
• viscid oil	вязкое масло	[ˈvɪsɪd]
to oil	смазывать, промасливать	[ɔɪl]
oil catcher	маслосборник	[ɔɪl ˈkætfə]
oil drain	слив масла	[ɔɪl dreɪn]
oil separator	маслосепаратор	[ɔɪl ˈsepəreɪtə]
to open	открывать	[ˈəʊpən]
to operate	управлять	[ˈɔpəreɪt]
out of gear	вне зацепления	[aʊt əv ɡiə]
outer race	наружное кольцо (подшипника качения)	[ˈaʊtə reɪs]
outlet	выход	[ˈaʊtlet]
output	развиваемая мощность, производительность	[ˈaʊtpʊt]
to overload	перегружать	[ˈəʊvəˈləʊd]
to overspeed	идти вразнос	[ˈəʊvəˈspi:d]
overvoltage	перенапряжение	[ˈəʊvəˈvɔʊltɪdʒ]
oxygen	кислород	[ˈɒksɪdʒən]
packing	уплотнение, набивка	[ˈpækɪŋ]
panel	панель	[ˈpænl]
parallel	параллельный	[ˈpærələl]
particle	частица	[ˈpɑ:tɪkl]
• charged particle	заряженная частица	[ˈtʃɑ:dʒd]
pendant	шкентель	[ˈpendənt]
phase	фаза	[feɪz]
PI-control device	изодром	[pi: ai kənˈtrəʊl dɪˈvaɪs]
pin	штифт, шплинт	[pɪn]
• bolt pin	чека	[bɔ:lt]
• catch pin	стопорный штифт	[kætf]
• center pin	ось; шкворень	[ˈsentə]
• centering pin	центрирующий штифт	[ˈsentərɪŋ]
• check pin	стопорный штифт	[tʃek]
• clevis pin	штифт с головкой и отверстием под шплинт	[ˈkleɪvɪs]
• collar pin	штифт с буртиком	[ˈkɒlə]
• cotter pin	шплинт; разводная чека	[ˈkɒtə]
• guard pin	предохранительный штифт	[ɡɑ:d]
• gudgeon pin	поршневой палец	[ˈɡʌdʒən]
• guide pin	направляющий штифт	[ɡaɪd]
• piston pin	поршневой палец	[ˈpɪstən]
• roll pin	цилиндрический штифт	[rɔ:l]

• stop pin	стопорный штифт	[stɒp]
• test pin	контрольный штифт	[test]
pinion	шестерня	['piɪnjən]
pipe	труба / клюз	[paɪp]
• drain pipe	сливная труба	[dreɪn]
• hawsepipe	якорный клюз	[hɔ:z]
• mooring pipe	швартовный клюз	['muəriŋ]
• spurling pipe	цепной клюз	['spɜ:lɪŋ]
• telescope pipe for piston cooling	телескопическая труба для охлаждения поршня	['telɪskəʊp paɪp fɔ: 'pɪstən 'ku:lɪŋ]
pipng / pipeline	трубопровод	['paɪpɪŋ] ['paɪplaɪn]
• air piping	воздушный	[eə]
• delivery piping	подающий, питающий	[dɪ'lɪvəri]
• feed piping	подводящий	[fi:d]
• fuel piping	топливный	[fju:əl]
• main piping	главный, магистральный	[meɪn]
• oil piping	масляный	[ɔɪl]
• outlet piping	выпускной	['aʊtlet]
• scavenging air piping	продувочного воздуха	['skævɪndzɪŋ eə]
• suction piping	всасывающий	['sʌkʃən]
• water piping	водяной	['wɔ:tə]
piston	поршень	['pɪstən]
• working piston	рабочий поршень	['wɜ:kɪŋ]
piston rod	поршневой шток	['pɪstən rɒd]
pitch	шаг (заклёпок, спирали, резьбы)	[pɪtʃ]
• pitch of rivets	заклепочного шва	['rɪvɪts]
• screw pitch	резьбы винта	[skru:]
• thread pitch	резьбы	[θred]
place	место; помещать	[pleɪs]
plant	установка; электростанция	[plɑ:nt]
• auxiliary power plant	вспомогательная электростанция	[ɔ:g'zɪljəri 'paʊə]
• combined plant	комбинированная установка	[kəm'baɪnd]
• dilution air plant	установка для подачи свежего воздуха в трюмы	[daɪ'lju:ʃən eə]
• distillation plant	опреснительная установка	['dɪstɪ'leɪʃən]
• electric propulsion plant	гребная электрическая установка	['ɪlektrɪk prə'pʌlʃən]
• emergency plant	аварийная установка	['ɪmə:dʒənsɪ]
• evaporator plant	испарительная установка	['ɪvəpəreɪtə]
• freezing plant	морозильная установка	['fri:zɪŋ]
• lighting plant	осветительная установка	['laɪtɪŋ]
• power plant	электростанция	['paʊə]
• sewage plant	установка для очистки отходов	['sju:ɪdʒ]
• ventilating plant	вентиляционная установка	['ventɪleɪtɪŋ]
plate	планка	[pleɪt]
plastics	пластмасса	['plæstɪks]
plug	пробка; эл.вилка	[plʌg]
• cock plug	пробка крана	[kɒk]
• drain plug	сливная пробка	[dreɪn]
• glow plug	свеча накаливания	[gləʊ]
• threaded plug	пробка резьбовая	['θredɪd]
to plug	затыкать	[plʌg]
polarity	полярность	[pəʊ'lærɪti]

pole	полюс	[pəʊl]
• pole of magnet	магнита	[ˈmæɡnət]
• negative pole	отрицательный	[ˈnegətɪv]
• positive pole	положительный	[ˈpɒzətɪv]
port	отверстие, канал	[pɔ:t]
• inlet port	входное отверстие	[ˈɪnlet]
• outlet port	выходное отверстие	[ˈaʊtlet]
• scavenge port	продувочный канал	[ˈskævɪndʒ]
power	мощность	[ˈpaʊə]
power transmission	передача (электро)энергии	[ˈpaʊə trænzmɪʃən]
preheater	подогреватель	[priːˈhi:tə]
to press	нажимать, давить	[pres]
pressure	давление	[ˈpreʃə]
pressure alarm	сигнализатор высокого давления	[ˈpreʃə əˈlɑ:m]
• prop	подпорка, опора, стойка	[prɒp]
propeller	гребной винт	[prəˈpelə]
• detachable blades propeller	со съёмными лопастями	[dɪˈtætəbl̩ bleɪdz]
• fixed blades propeller	с неподвижными лопастями	[fɪkst̩ bleɪdz]
• keyed propeller	со шпонкой	[ki:d]
• keyless propeller	бесшпоночный	[ˈki:ləs]
• solid propeller	цельнолитой	[ˈsɒlɪd]
• two-blades propeller	двухлопастный	[ˈtuːˈbleɪdz]
• welded propeller	сварной	[ˈweldɪd]
propeller blade	лопасть гребного винта	[prəˈpelə bleɪd]
to protect	защищать	[prəˈtekt]
protector	протектор, предохранитель	[prəˈtektə]
to provide	обеспечивать	[prəˈvaɪd]
pull rod	тяга	[pul rɒd]
pulley	шкив	[ˈpʊli]
to pump	качать	[pʌmp]
pump	насос	[pʌmp]
• axial flow pump	осевой	[ˈæksɪəl fləʊ]
• bilge pump	трюмный, осушительный	[bɪldʒ]
• centrifugal pump	центробежный	[ˈsentriˈfju:ɡəl]
• displacement pump	объемного типа	[dɪsˈpleɪsmənt]
• double-entry pump	с двусторонним всасыванием	[ˈdʌbl̩ ˈentri]
• feed pump	питательный	[fi:d]
• fuel pump	топливный	[fju:əl]
• fuel injection pump	топливный высокого давления	[fju:əl ɪnˈdʒekʃən]
• gear pump	шестеренчатый	[ɡiə]
• hand oil priming pump	насос ручной прокачки масла	[hænd ɔɪl ˈpraɪmɪŋ]
• hydraulic pump	гидронасос	[haɪˈdrɒ:lɪk]
• oil pump	масляный	[ɔɪl]
• reciprocating pump	поршневой	[rɪˈsɪprəkeɪtɪŋ]
• rotary pump	роторный	[ˈrəʊtəri]
• sea-water pump	заборной воды	[siː ˈwɔ:tə]
• screw pump	винтовой	[skru:]
• single-entry pump	с односторонним всасыванием	[ˈsɪŋɡl̩ ˈentri]
• vane pump	лопастной	[veɪn]
• water pump	водяной	[ˈwɔ:tə]
purification	очистка	[ˈpjʊərɪfɪˈkeɪʃən]
to push	толкать, нажимать	[puʃ]

push rod	толкатель	[puʃ rɒd]
rack	стойка, рейка	[ræk]
rags	ветошь	[rægz]
range	диапазон; амплитуда	[reɪndʒ]
rated	номинальный	['reɪtɪd]
rating	номинальная характеристика	['reɪtɪŋ]
to reach	достигать	[ri:tʃ]
reading	показание приборов	['ri:diŋ]
rectifier	выпрямитель	['rektɪfaɪə]
to reduce	снижать, уменьшать	[ri'dju:s]
reel	барабан, катушка, бобина	[ri:l]
to refill	наполнять вновь	['ri:fil]
regulation	регулирование, регулировка	['regju'leɪʃən]
• automatic regulation	автоматическое	['ɔ:tə'mæti:k]
• current regulation	тока	['kʌrənt]
• step-by-step regulation	ступенчатое	[step baɪ step]
• stepless regulation	плавное	['steplɪs]
regulator	регулятор	['regjuleɪtə]
• temperature regulator	температуры	['tempɪrɪtə]
• viscosity regulator	вязкости	[vis'kɔ:siti]
relay	реле	[ri'leɪ]
• centrifugal speed-sensitive relay	центробежное реле скорости	['sentri'fju:ɡəl spi:d 'sensitiv]
to release	освобождать	[ri'li:s]
to remedy fault	устранить неисправность	['remɪdi fɔ:lt]
to remove	удалять, снимать	[ri'mu:v]
to renew	заменять, обновлять	[ri'nju:]
to repaint	перекрасить	[ri'peɪnt]
to replace	заменять	[ri'pleɪs]
resistance	сопротивление	[ri'zɪstəns]
• insulation resistance	изоляции	['ɪnsjə'leɪʃən]
to restart	запускать снова	['ri:stɑ:t]
to restore	восстанавливать	[ri'stɔ:]
retainer	замок, держатель	[ri'teɪnə]
• spring retainer	держатель пружины	[sprɪŋ ri'teɪnə]
retaining block	сухарь	[ri'teɪnɪŋ blɒk]
to return	возвращать	[ri'tɜ:n]
reversal	реверс	[ri've:səl]
revolution	оборот	['revə'lju:ʃən]
rheostat	реостат	['ri:əʊstæt]
• regulating rheostat	регулируемый	['regjuleɪtɪŋ]
rib	ребро, шлангоут	[rib]
rim	край, хромка	[rɪm]
• flywheel gear rim	венец маховика	['flaɪwi:l giə]
ring	кольцо	[rɪŋ]
• compression ring	компрессионное	[kəm'preʃən]
• distance ring	распорное (проставочное, промежуточное)	['dɪstəns]
• end ring	концевое	[end]
• half-ring	полукольцо	[hɑ:f]
• locking ring	запирающее, стопорное	['lɒkɪŋ]
• oil control ring	маслосъемное	[ɔɪl kən'trɒl]
• oil seal ring	масло-уплотнительное	[ɔɪl si:l]

• packing ring	уплотнительное	['pækɪŋ]
• piston ring	поршневое	['pɪstən]
• setting ring	установочное	['setɪŋ]
• spacer ring	промежуточное	['speɪsə]
• supporting ring	опорное	[sə'pɔ:tɪŋ]
• thrust ring	упорное	[θrʌst]
to rise	подниматься	[raɪz]
rivet	заклепка	['rɪvɪt]
• flat-head rivet	с плоской головкой	['flæθəd]
• globe-head rivet	с шарообразной головкой	['gləʊbəd]
• round-head rivet	с полукруглой головкой	['raʊndəd]
to rivet on	приклепывать	['rɪvɪt ɔn]
riveting	заклепочное соединение	['rɪvɪtɪŋ]
• lap riveting	заклепочное соединение внахлестку	[læp]
• lozenge riveting	шахматная клепка	['lɔzɪŋdʒ]
• riveting in rows	клепка в ряд	[ɪn rəʊz]
rocker arm	коромысло	['rɒkə ə:m]
roller	ролик	['rəʊlə]
to rotate	вращать	[rəʊ'teɪt]
rotation	вращение	[rəʊ'teɪʃən]
rotor	ротор	['rəʊtə]
RPM (revolutions per minute)	оборотов в минуту	[ə: pi: em]
rubber	резина	['rʌbə]
rudder	руль	['rʌdə]
running position	рабочее положение	['rʌnɪŋ pə'zɪʃən]
salient (poles)	явные (полюса)	['seɪljənt pəʊlz]
scale	шкала	[skeɪl]
scavenging air receiver	приемник продувочного воздуха	['skævɪndʒɪŋ əə rɪ'si:və]
scratch	царапина	['skrætʃ]
screen	экран	['skri:n]
to screw	завинчивать	['skru:]
screw	винт	['skru:]
• adjusting screw	регулируемый	[ə'dʒʌstɪŋ]
• countersunk screw	с потайной головкой	['kaʊntəsʌŋk]
• crosshead screw	с крестообразным шлицем	['krɒʃhed]
• forcing screw	нажимной	['fɔ:sɪŋ]
• hexagon screw	с шестигранной головкой	['heksəgən]
• high-pitch screw	с резьбой крупного шага	[haɪ pɪt]
• left-hand screw	с левой резьбой	['left'hænd]
• lock screw	стопорный	[lɒk]
• low-pitch screw	с резьбой мелкого шага	[ləʊ pɪt]
• odd-pitch screw	с резьбой нестандартного шага	[ɒd pɪt]
• right-hand screw	с правой резьбой	['raɪthænd]
• round-head screw	с полукруглой головкой	['raʊndəd]
• self-tapping screw	самонарезающий	['self'tæpɪŋ]
• set screw	установочный	[set]
• slotted screw	со шлицем	['slɒtɪd]
• square-head screw	с квадратной головкой	['skweəhed]
• tuning screw	настроечный	['tju:nɪŋ]
• wood screw	шуруп	[wʊd]
to screw down	завинчивать	['skru: daʊn]
to screw on	навинчивать	['skru: ɔn]

screw out	вывинчивать	[skru: aʊt]
to seal	пломбировать	[si:l]
seal	уплотнение	[si:l]
• axial seal	осевое	[ˈæksɪəl]
• dust-proof seal	пылезащитное	[ˈdʌstpru:f]
• fabric seal	из ткани	[ˈfæbrɪk]
• felt seal	войлочное	[felt]
• flange seal	фланцевое	[flændʒ]
• mechanical seal	механическое	[miˈkænikəl]
• metal seal	металлическое	[ˈmetəl]
• oil seal	масляное	[ɔɪl]
• radial seal	радиальное	[ˈreɪdɪəl]
• ring seal	уплотнительное кольцо	[rɪŋ]
• rubber seal	резиновое	[ˈrʌbər]
• shaft seal	вала	[ʃɑ:ft]
• wiper seal	грязесъемник	[ˈwaɪpər]
secondary	вторичный	[ˈsekəndəri]
servomotor	сервомотор	[ˈsə:vəʊˈməʊtər]
sequence	последовательность	[ˈsi:kwəns]
shaft	вал	[ʃɑ:ft]
• anchor shaft	веретено якоря	[ˈæŋkə]
• brake shaft	тормозной	[breɪk]
• crank shaft	коленчатый	[kræŋk]
• drive shaft	ведущий	[draɪv]
• driven shaft	ведомый	[ˈdrɪvən]
• flanged shaft	фланцевый вал	[flændʒd]
• flexible shaft	гибкий	[ˈfleksɪbəl]
• hollow shaft	полый	[ˈhɒləʊ]
• line shaft	промежуточный	[laɪn]
• output shaft	выходной	[ˈaʊtpʊt]
• propeller shaft	гребной	[prəˈpelər]
• propulsion shaft	гребной	[preˈpʌlʃən]
• solid shaft	сплошной	[ˈsɒlɪd]
• spline shaft	шлицевый, зубчатый	[splɪn]
• stern-tube shaft	дейдвудный	[stɜ:n tju:b]
• tail shaft	гребной (концевой)	[teɪl]
• thrust shaft	упорный вал	[θrʌst]
• transmission shaft	трансмиссионный	[trænzˈmɪʃən]
shank	тело (болта, заклепки)	[ʃæŋk]
shell	корпус, обшивка; вкладыш	[ʃel]
• bearing shell	опорный вкладыш	[ˈbeərɪŋ]
• steel shell	стальной корпус	[sti:l]
shock absorber	амортизатор	[ʃɒk əbˈsɔ:bər]
to shut	закрывать	[ʃʌt]
shutter	заслонка	[ˈʃʌtər]
slack	слабый, незатянутый	[slæk]
sleeve	рукав, втулка	[sli:v]
slider	ползун	[ˈslaɪdər]
smoke	дым; дымиться	[sməʊk]
soft packed stuffing	мягкая набивка	[sɒft pækt ˈstʌfɪŋ]
spacer	распорка, прокладка	[ˈspeɪsər]
spare parts	запасные части	[speə pa:ts]

speed	скорость, число оборотов	[spi:d]
spindle	ось, палец, шпindelь	['spindl]
• valve spindle	шпindelь клапана	[vælv]
spiral	спираль	['spaiərel]
spline	шлиц	[splain]
splint	шплинт	[splint]
spray tip	наконечник распылителя	[sprei tip]
spring	пружина	[sprin]
to stand by	находиться в готовности	[stænd bai]
standby position	режим готовности к работе	['stændbai pə'ziʃən]
starter	стартер	['sta:tə]
starting air bottle	баллон пусковой воздушный	['sta:tiŋ eə 'bɒtl]
stator	статор	['steitə]
steam	пар	[sti:m]
steel	сталь	[sti:l]
stern shaft journal	кормовая шейка вала	[stə:n fa:ft 'dʒə:nəl]
stiffener	ребро жесткости	['stifənə]
to stop	останавливать(ся)	[stɒp]
stopper	стопор	['stɒpə]
• bow stopper	палубный стопор якорной цепи	[bau]
strainer	фильтр грубой очистки	['streinə]
• fine strainer	фильтр тонкой очистки	[fain]
• intake strainer	приемный фильтр	['inteik]
• oil suction strainer	фильтр масла на входе	[oil 'slʌkʃən]
stroke	ход, такт	[strəuk]
• compression stroke	сжатия	[kəm'preʃən]
• exhaust stroke	выпуска	[ig'zɔ:st]
• intake stroke	впуска	['inteik]
• power stroke	рабочий	['paʊə]
stud	шпилька	[stʌd]
substance	вещество	['sʌbstəns]
sump	отстойник, поддон	[sʌmp]
superheater	пароперегреватель	['sju:pə'hi:tə]
to supply	поставлять, снабжать	[sə'plai]
support	опора	[sə'pɔ:t]
to switch off	выключать	[switʃ ɔf]
to switch on	включать	[switʃ ɔn]
system	система	['sistim]
• ballast system	балластная	['bæləst]
• bilge pumping system	осушительная	[bildʒ 'plʌmpɪŋ]
• fuel oil heating system	подогрева топлива	[fju:əl oil 'hi:tiŋ]
• fuel oil piping system	топливных трубопроводов	[fju:əl oil 'paipiŋ]
• fuel oil pumping system	перекачки топлива	[fju:əl oil 'plʌmpɪŋ]
• fuel oil purification system	очистки топлива	[fju:əl oil 'pjʊərifikaɪʃən]
• fuel oil service system	подачи топлива к форсункам	[fju:əl oil 'sə:vis]
• fuel oil system	топливная	[fju:əl oil]
• fuel storage system	хранения топлива	[fju:əl 'stɔ:ridʒ]
• lubrication oil system	смазки	['lu:brikaɪʃən oil]
tachometer	тахометр	[tæ'kɒmitə]
to take off	снимать	[teik ɔf]
to take out	вынимать	[teik aut]
• to take out of gear	выводить из зацепления	[teik aut əv giə]

tank	цистерна, бак	[tæŋk]
• balancing tank	усреднительный резервуар	['bælənsɪŋ]
• ballast tank	балластный бак	['bæləst]
• diesel oil tank	цистерна дизельного топлива	['di:zəl ɔɪl]
• drain tank	сточная цистерна	[dreɪn]
• expansion tank	расширительный бачок	[ɪk'spænjən]
• renovating tank	отстойная цистерна	['renəu'veɪtɪŋ]
• service tank	расходная цистерна	['sə:vɪs]
• storage tank	резервуар-хранилище, расходная цистерна	['stɔ:rdʒ]
• supply tank	расходная цистерна	[sə'plai]
tappet	кулак, кулачок	['tæpɪt]
terminal	вывод, клемма	['tɜ:mɪn]
to test	испытывать, проверять	[test]
thermocouple	термоэлемент, термомпара	['θɜ:mə'kʌpəl]
thermometer	термометр	[θɜ'mɒmɪtə]
thread	резьба	[θred]
• double thread	двухзаходная	['dʌbəl]
• female (screw) thread	внутренняя, гайка	['fi:meɪl sku:]
• fine thread	мелкая	[faɪn]
• flattened thread	неполная	['flætənd]
• inch (Whitworth) thread	дюймовая (резьба Витворта)	[ɪntʃ] ['wɪtwɜ:θ]
• ISO metric thread	метрическая по стандарту ИСО	[aɪzəu 'metrɪk]
• left-hand thread	левая	['left'hænd]
• male thread	наружная, винт	[meɪl]
• metric thread	метрическая	['metrɪk]
• multistart thread	многозаходная	['mʌltɪstɑ:t]
• pipe thread	трубная	[paɪp]
• right-hand thread	правая	['raɪthænd]
• round thread	круглая	[raʊnd]
• square thread	прямоугольная	[skweə]
• straight thread	цилиндрическая	[streɪt]
• stripped thread	сорванная	[stript]
• tapered thread	коническая	['teɪpəd]
• trapezoidal thread	трапецидальная	[træpə'zɔɪdəl]
• triangular thread	треугольная	[traɪ'æŋɡjʊlə]
three-leg (core)	трехстержневой (сердечник)	[θri: leg] [kɔ:]
three-phase (transformer)	трехфазный (трансформатор)	[θri: feɪz [træns'fɔ:mə]
to tighten	затягивать, натягивать	['taɪtn]
tightening arrangement	уплотнительное устройство	['taɪtnɪŋ ə'reɪndsmənt]
tightness	герметичность	['taɪtnɪs]
tin	олово	[tɪn]
toothing	зубчатый венец	['tu:θɪŋ]
• external toothing	внешнее зацепление	[ɪk'stɜ:nəl]
• internal toothing	внутреннее зацепление	[ɪn'tɜ:nəl]
top	верхняя часть	[tɒp]
torque	крутящий момент	[tɔ:k]
to treat	обращаться (с чем-либо)	[tri:t]
trunk	тронк	[trʌŋk]
to try	испытывать	[traɪ]
tube	труба	[tju:b]
• discharge tube	сливная	['dɪstʃɑ:ds]
• evaporating tube	испарительная	[ɪ'væpəreɪtɪŋ]

• fire tube	жаровая	['faia]
• flame tube	жаровая	[fleim]
• stern tube	дейдвудная	[stə:n]
turbine	турбина	['tə:bin]
turbocharger	турбонагнетатель	['tə:bə'tʃa:dsə]
turbocompressor	турбокомпрессор	['tə:bəu kəm'presə]
to turn	поворачивать	[tə:n]
to turn off	выключать	[tə:n ɔf]
to turn on	включать	[tə:n ɔn]
two-core	двухжильный	[tu: kɔ:]
two-phase	двухфазный	[tu: feiz]
two-pole	двухполюсной	[tu: pəul]
two-stroke cycle	двухтактный цикл	[tu: strəuk 'saikəl]
under load	при нагрузке	['ʌndə ləud]
union	штуцер; муфта (трубопровода)	['ju:njən]
to unscrew	отвинчивать	['ʌn'skru:]
uptake	вертикальный дымоход	['ʌpteik]
valve	клапан	[vælv]
• by-pass valve	перепускной	['baipa:s]
• check valve	обратный	[tʃek]
• delivery valve	нагнетательный	[di'livəri]
• discharge valve	выпускной/разгрузочный клапан	[dis'tʃa:ds]
• drain valve	спускной	[drein]
• exhaust valve	выпускной	[ig'zɔ:st]
• fuel injection valve	форсунка	[fju:əl in'dsekʃən]
• gate valve	клинкетный	[geit]
• globe valve	тарельчатый (с корпусом шарообразной формы)	['gləub]
• non-return valve	невозвратный	[nənri'tə:n]
• main stop valve	главный стопорный	[mein stɔp]
• pressure control valve	клапан-регулятор давления	['preʃə kən'trəul]
• relief valve	предохранительный	[ri'li:f]
• safety valve	предохранительный	['seift]
• salinometer valve	солемерный клапан	['sælinəu'mi:tə]
• self-closing drain valve	самозапирающийся спускной клапан	['self'kləuzɪŋ drein]
• slide valve	золотник	[slaid]
• starting valve	пусковой клапан	['sta:tiŋ]
• starting air valve	пусковой воздушный клапан	['sta:tiŋ eə]
vent	вентиляционное отверстие; газоотводная/ воздухоотводная труба	[vent]
ventilation	вентиляция	['venti'leɪʃən]
• crankcase ventilation	картера	['kræŋkeɪs]
to vibrate	вибрировать	[vai'breɪt]
voltage	напряжение	['vəultɪdʒ]
• line-to-line voltage	линейное	[lain tu: lain]
• mains voltage	сети	[meinz]
• pace voltage	шаговое	[peɪs]
• rated voltage	номинальное	['reɪtɪd]
voltmeter	вольтметр	['vəult'mi:tə]
volume	объем	['vɔljum]
volute	спираль; улитка (центробежного насоса или компрессора)	[və'lju:t]

washer	шайба	['wɔʃə]
• crown washer	со стопорными зубцами	['kraun]
• flat washer	плоская	['flæt]
• lock washer	стопорная	['lɒk]
• oil feed washer	маслоподающая	['ɔil fi:d]
• slip washer	быстросъемная с прорезью	['slip]
• slot washer	разрезная	['slɒt]
• spring washer	пружинная, Гровера	['sprɪŋ]
• taper washer	косая	['teɪpə]
• thrust washer	упорная	['θrʌst]
• toothed washer	зубчатая	['tu:θt]
waste gases	отработавшие газы	[weɪst ɡæzɪz]
water drum	нижний барабан котла	['wɔ:tə drʌm]
water level indicator	датчик уровня воды	['wɔ:tə 'levəl 'ɪndɪkeɪtə]
watt	ватт	['wɒt]
wattmeter	ваттметр	['wɒt'mi:tə]
wave	волна	['weɪv]
wear	износ, изнашивать	[weə]
wedge	клин	['wedʒ]
wedge gate	клиновидный литник	['wedʒ ɡeɪt]
to weld	сваривать	['weld]
weld	сварной шов	['weld]
• butt weld	стыковой	['bʌt]
• edge weld	торцевой	['edʒ]
• fillet weld	угловой	['fɪlɪt]
• lap weld	нахлесточный	['læp]
• seam weld	роликовый	['si:m]
• tight weld	плотный	['taɪt]
• T weld	тавровый	['ti:]
to weld all around	накладывать шов по периметру	['weld ɔ:l ə'raʊnd]
to weld on	приваривать	['weld ɔn]
welding	сварка	['weldɪŋ]
• acetylene (gas) welding	газосварка	['ə'setɪlɪ:n] [ɡæs]
• arc welding	дуговая	['ɑ:k]
• autogenous welding	автогенная	['ɔ:'bɔdʒɪnəs]
• butt welding	встык	['bʌt]
• fusion welding	плавлением	['fju:ʒən]
• high frequency welding	токама высокой частоты	['haɪ 'fri:kwənsɪ]
• pulsed arc welding	импульсно-дуговая	['pʌlsɪd ɑ:k]
• seam welding	шовная, роликовая	['si:m]
• spot welding	точечная	['spɒt]
wheel (cog wheel)	зубчатое колесо	['kɒg wi:l]
• ratchet wheel	храповик	['rætʃɪt]
• worm wheel	червячное колесо	['wɔ:m]
winch	лебедка	['wɪntʃ]
• anchor winch	якорная	['æŋkə]
• boat winch	шлюпочная	['bəʊt]
• cargo winch	грузовая	['kɑ:ɡəʊ]
• deck winch	палубная	['dek]
• hatch winch	люковая	['hætʃ]
• hoist winch	подъемная	['hɔɪst]
• mooring winch	швартовная	['muərɪŋ]
• reversible winch	реверсивная	['ri've:səbəl]

• salvage winch	спасательная	['sælvi:dʒ]
• slewing winch	для поворота стрелы	['slu:ɪŋ]
• towing winch	буксирная	['təʊɪŋ]
winding	обмотка	['waɪndɪŋ]
• secondary open winding	вторичная разомкнутая	['sekəndəri 'əʊpən]
to wipe	протирать	[waɪp]
wire	проволока	['waɪə]
• iron wire	стальная	['aɪən]
worm	червяк	[wɜ:m]
• concave worm	глобоидный	[kɔŋ'keɪv]
• left-hand worm	левооборотный	['left'hænd]
• right-hand worm	правооборотный	['raɪthænd]
worm-and-wheel gearbox	червячный редуктор	[wɜ:m ænd wi:l gjə bɔks]
wrench	гаечный ключ; гайковерт	[rentʃ]
• adjustable wrench	разводной	[ə'dʒʌstəbl]
• dial indicating torque wrench	динамометрический со стрелочным круглым индикатором	['daɪəl 'ɪndɪ'keɪtɪŋ tɔ:k]
• double open end wrench	рожковый двусторонний	['dʌbəl 'əʊpən end]
• non-spark wrench	неискрообразующий (для танкеров)	[nən'spɑ:k]
• plate type torque wrench	динамометрический со стрелочно-дуговой шкалой	[pleɪt taɪp tɔ:k]
• pneumatic angle impact wrench	пневматический ударный углового типа	[nju:'mæɪtɪk 'æŋɡəl 'ɪmpækt]
• pneumatic impact wrench	пневматический ударный	[nju:'mæɪtɪk 'ɪmpækt]
• pneumatic ratchet wrench	пневмо-ключ с трещеткой для затяжки гаек	[nju:'mæɪtɪk 'rætʃɪt]
• wrench ratchet for socket wrench	ключ-трещетка для ключей-стопок	['rætʃɪt fɔ: 'sɒkɪt]
• single open end wrench	рожковый односторонний	['sɪŋɡəl 'əʊpən end]
• striking single opened end	рожковый односторонний под удар	['straɪkɪŋ 'sɪŋɡəl 'əʊpənɪd end]
• tap wrench	вороток для метчиков	[tæp]
• torque wrench	динамометрический	[tɔ:k]
• 12 point open box wrench	звездочка-головка (12 граней)	[twelve pɔɪnt 'əʊpən bɔks]
yoke	хомут, вилка	[jəʊk]
• engine lifting yoke	скоба для подъема дизеля	['endzɪn 'lɪftɪŋ]
zinc	цинк	[zɪŋk]

Russian-English

автоматическое отключение	automatic break	['ɔ:tə'mæɪtɪk] [breɪk]
азот	nitrogen	['naɪtrədʒən]
аккумулятор	accumulator	[ə'kjʊ:mjuleɪtə]
• кислотный	acid accumulator	['æsɪd]
• щелочной	alkaline accumulator	['ælkəlaɪn]
алюминий	aluminum	[ə'lu:mɪnəm]
амортизатор	shock absorber	[ʃɒk əb'sɔ:bə]
амперметр	ammeter	['æmɪtə]
амплитуда	range	[reɪndʒ]
арматура	accessory	[ək'sesəri]
• кабельная арматура	cable accessories	['keɪbəl ək'sesəriz]
• переносная арматура	portable accessory	['pɔ:təbl ək'sesəri]
• электроустановочные материалы (арматура)	wiring accessories	['waɪərɪŋ ək'sesəriz]

ахтерпик	afterpeak	['ɑ:ftə'pi:k]
балансир выхлопного клапана	lever for exhaust valve	['li:və fɔ: ig'zɔ:st vælv]
баллон для воздуха	air tank	[eə tæŋk]
баллон пусковой воздушный	starting air bottle	['sta:tɪŋ eə 'bɒtl]
барабан	drum	[drʌm]
• нижний барабан котла	water drum	['wɔ:tə]
• пароприемный	receiver drum	['ri:si:və]
барабан, катушка, бобина	reel	[ri:l]
батарея (аккумуляторная)	battery	['bætəri]
бесщеточный	brushless	['brʌʃlis]
бобина, катушка, шпулька	bobbin	['bɒbɪn]
болт	bolt	[bɔ:lt]
• заершенный	rag bolt	[ræg]
• предохранительный	safety bolt	['seɪftɪ]
• распорный	stay bolt	[steɪ]
• с буртиком	collar-head bolt	['kɒləhed]
• с квадратной головкой	square-head bolt	['skweəhed]
• с полукруглой головкой	round-head bolt	['raʊndhed]
• с потайной головкой	countersunk-head bolt	['kaʊntəsʌŋk hed]
• с Т-образной головкой	T-head bolt	['ti:hed]
• с цилиндрической головкой	fillister-head bolt	['fɪlɪstəhed]
• с шестигранной головкой	hexagonal-head bolt	[hek'sæɡənəl hed]
• соединительный	connecting bolt	[kə'nektɪŋ]
• стопорный	stop bolt	[stɒp]
• стяжной	clamp/coupling bolt	[klæmp] ['kʌplɪŋ]
• фундаментный	holding down bolt	['həʊldɪŋ daʊn]
• центровочный	centering bolt	['sɛntərɪŋ]
бронза	bronze	[brɒnz]
бугель	hoop	[hu:p]
буферная колодка	damping block	['dæmpɪŋ blɒk]
быть исправным	to be in order	[bi: ɪn 'ɔ:də]
быть неисправным	to be out of order	[bi: aʊt əv 'ɔ:də]
в зацеплении	in gear	[ɪn ɡiə]
вал	shaft	[ʃɑ:ft]
• ведомый	driven shaft	['drɪvən]
• ведущий	drive shaft	[draɪv]
• выходной	output shaft	['aʊtpʊt]
• гибкий	flexible shaft	['fleksɪbəl]
• гребной	propeller/propulsion shaft	[prə'pelə] [prə'pʌʃjən]
• гребной (концевой)	tail shaft	[teɪl]
• дейдвудный	stern-tube shaft	[stɜ:n tju:b]
• коленчатый	crank shaft	[kræŋk]
• полый	hollow shaft	['hɒləʊ]
• промежуточный	line shaft	[laɪn]
• сплошной	solid shaft	['sɒlɪd]
• тормозной	brake shaft	[breɪk]
• трансмиссионный	transmission shaft	[trænz'mɪʃən]
• упорный вал	thrust shaft	[θrʌst]
• фланцевый вал	flanged shaft	[flændʒd]
• шлицевый, зубчатый	spline shaft	[splɪn]
ватт	watt	[wɒt]
ваттметр	wattmeter	['wɒt'mɪ:tə]

венец маховика	flywheel gear rim	['flaiwi:l giə rim]
вентилятор	fan	[fæn]
вентиляционное отверстие	vent	[vent]
вентиляция	ventilation	['venti'leifən]
• картера	crankcase ventilation	['kræŋkeis]
веретено якоря	anchor shaft	['æŋkə 'ʃɑ:ft]
вертикальный дымоход	uptake	['ʌpteik]
верхняя часть	top	[tɒp]
ветошь	rags	[rægz]
• хлопчатобумажная ветошь	cotton waste	['kɒtən weɪst]
вещество	substance	['sʌbstəns]
взаимодействие	interaction	['ɪntər'ækʃən]
вибрировать	to vibrate	[vaɪ'breɪt]
вилка	yoke/plug	[jəʊk] [plʌg]
винт	screw	[skru:]
• нажимной	forcing screw	['fɔ:sɪŋ]
• настроечный	tuning screw	['tju:nɪŋ]
• регулировочный	adjusting screw	[ə'dʒʌstɪŋ]
• с квадратной головкой	square-head screw	['skweəhed]
• с крестообразным шлицем	crosshead screw	['krɒshed]
• с левой резьбой	left-hand screw	['left'hænd]
• с полукруглой головкой	round-head screw	['raʊndhed]
• с потайной головкой	countersunk screw	['kaʊntəsʌŋk]
• с правой резьбой	right-hand screw	['raɪthænd]
• с резьбой крупного шага	high-pitch screw	[haɪ pɪtʃ]
• с резьбой мелкого шага	low-pitch screw	[ləʊ pɪtʃ]
• с резьбой нестандартного шага	odd-pitch screw	[ɒd pɪtʃ]
• с шестигранной головкой	hexagon screw	['heksəgən]
• самонарезающий	self-tapping screw	['self'tæpɪŋ]
• со шлицем	slotted screw	['slɒtɪd]
• стопорный	lock screw	[lɒk]
• установочный	set screw	[set]
вкладыш	shell	[ʃel]
• вкладыш нижней головки шатуна	bottom end bearing	['bɒtəm end beərɪŋ]
включать	to switch on / to turn on	[swɪtʃ ɔn] [tɜ:n ɔn]
включать, вводить в зацепление	to engage	[ɪn'geɪdʒ]
вне зацепления	out of gear	[aʊt əv giə]
внутреннее кольцо подшипника	inner race	['ɪnə reɪs]
водяная рубашка	water jacket	['wɔ:tə 'dʒækɪt]
возбудитель	exciter	[ɪk'saɪtə]
возбуждать, ставить под напряжение	to activate	['æktɪveɪt]
возбуждение	excitation	['eksɪ'teɪʃən]
возвращать	to return	[rɪ'tɜ:n]
волна	wave	[weɪv]
вольтметр	voltmeter	['vɔʊlt'mi:tə]
восстанавливать	to restore	[rɪs'tɔ:]
вращать	to rotate	['rəʊ'teɪt]
вращение	rotation	['rəʊ'teɪʃən]
вспомогательные механизмы	auxiliaries	[ɔ:'gɪljəɪz]
вторичный	secondary	['sekəndəri]
втулка	bush (bushing)	[bʊʃ] ['bʊʃɪŋ]
• нажимная	pressure bush	['preʃə]

• направляющая	guide bush	[gaid]
• опорная	supporting bush	[sə'pɔ:tɪŋ]
• трехсекционная	3-part liner	[θri: pɑ:t 'lainə]
• упорная	thrust bush	[θrʌst]
• центрирующая	centering bush	['sentərɪŋ]
вывинчивать	to screw out	[skru: 'aʊt]
выводить из зацепления	to take out of gear	[teɪk aʊt əv ɡiə]
выгрузка	discharge	['dɪstʃɑ:dʒ]
выключатель, прерыватель (тока)	breaker	['breɪkə]
• автоматический	automatic breaker / circuit breaker	['ɔ:tə'mætɪk] ['sə:kɪt]
• свечей накаливания и стартера	glow plugs and starter switch	[gləʊ plʌgz ənd stɑ:t swɪtʃ]
выключать	to switch off / turn off	[swɪtʃ ɔ:f] [tɜ:n ɔ:f]
выключение, разрыв	break / cut-off	[breɪk] [kʌt ɔ:f]
вынимать	to take out	[teɪk aʊt]
выполнять	to carry out / execute	['kæri aʊt] ['eksɪkjʊ:t]
выполнять, осуществлять	to effect	['ɪfekt]
выпрямитель	rectifier	['rektɪfaɪə]
вытаскивать, расклепывать	to drive out	[draɪv aʊt]
вытекать	to flow out	[fləʊ aʊt]
выход	outlet	['aʊtlet]
гаечный ключ; гайковерт	wrench	[rentʃ]
• вороток для метчиков	tap wrench	[tæp]
• динамометрический	torque wrench	[tɔ:k]
• динамометрический со стрелочно-дуговой шкалой	plate type torque wrench	[pleɪt taɪp tɔ:k]
• динамометрический со стрелочным круглым индикатором	dial indicating torque wrench	['daɪəl 'ɪndɪ'keɪtɪŋ tɔ:k]
• звездочка-головка (12 граней)	12 point open box wrench	[twelve pɔɪnt 'əʊpən bɔks]
• ключ-трещетка для ключей-стопок	wrench ratchet for socket	['rætʃɪt fɔ: 'sɔkɪt]
• неискрообразующий (для танкеров)	non-spark wrench	[nən'spɑ:k]
• пневматический ударный	pneumatic impact wrench	[nju:'mætɪk 'ɪmpækt]
• пневматический ударный углового типа	pneumatic angle impact wrench	[nju:'mætɪk 'æŋɡəl 'ɪmpækt]
• пневмо-ключ с трещеткой для затяжки гаек	pneumatic ratchet wrench	[nju:'mætɪk 'rætʃɪt]
• разводной	adjustable wrench	[ə'dʒʌstəbəl]
• рожковый двусторонний	double open end wrench	['dʌbləl 'əʊpən end]
• рожковый односторонний под удар	striking single opened end	['straɪkɪŋ 'sɪŋɡəl 'əʊpənd end]
гайка	nut	[nʌt]
• -барашек	butterfly / wing nut	['bʌtəflaɪ] [wɪŋ]
• высокая	thick nut	[θɪk]
• квадратная	square nut	[skweə]
• контргайка	jam / lock nut	[dʒæm] [lɒk]
• корончатая	castle nut	['kɑ:səl]
• крепежная	fastening nut	['fɑ:sənɪŋ]
• круглая	circular / round nut	['sə:kjʊlə] [raʊnd]
• незатянутая	loose nut	[lu:s]
• низкая	thin nut	[θɪn]
• предохранительная	safety nut	['seɪftɪ]
• самоконтрящаяся	self-locking nut	['self'lɒkɪŋ]
• с буртиком	collar nut	['kɔlə]
• с закругленными углами	rounded corners nut	['raʊndɪd 'kɔ:nəz]

• с левой резьбой	left-handed nut	['left'hændɪd]
• с правой резьбой	right-handed nut	['raɪt'hændɪd]
• стопорная	check nut	[tʃek]
• стяжная	coupling nut	['kʌplɪŋ]
• шестигранная	hexagonal nut	[hek'sæɡənəl]
генератор	generator	['dʒenəreɪtə]
• аварийный	emergency generator	[ɪ'mæ:dʒənsɪ]
• вспомогательный	auxiliary generator	[ɔ:g'zɪljəri]
• главной гребной установки	propulsion generator	[prə'plʌʃən]
• для дуговой сварки	arc-welding generator	[a:k 'weldɪŋ]
• для питания электролебедок	winch generator	[wɪntʃ]
• парогенератор	steam generator	[sti:m]
• пеногенератор	foam generator	[fəʊm]
• переменного тока	AC generator / alternator	[ei si:] ['ɔ:lternəɪtə]
• бесщеточный	brushless alternator	['brʌʃlis]
• синхронный	synchronous alternator	['sɪŋkrənəs]
• постоянного тока	DC generator	[di: si:]
• резервный	standby generator	['stændbaɪ]
• стояночный	harbor generator	['hɑ:bə]
• электрогенератор	electric generator	[ɪ'lektrɪk]
герметичность	tightness	['taɪtnɪs]
герметичный, закрытый	enclosed	[ɪn'kləʊzɪd]
гильза цилиндра	cylinder liner	['sɪlɪndə 'laɪnə]
гнездо подшипника	bearing seat	['beərɪŋ si:t]
головка цилиндра	cylinder head	['sɪlɪndə hed]
гребной винт	propeller	[prə'pelə]
• бесшпоночный	keyless propeller	['ki:ləs]
• двухлопастный гребной винт	two-blades propeller	['tu:'bleɪdz]
• с неподвижными лопастями	fixed blades propeller	[fɪkst bleɪdz]
• сварной	welded propeller	['weldɪd]
• со съёмными лопастями	detachable blades propeller	[dɪ'tætʃəbl bleɪdz]
• со шпонкой	keyed propeller	[ki:d]
• цельнолитой	solid propeller	['sɒlɪd]
грибок (грибовидная головка)	mushroom head	['mʌʃrʊm hed]
грундбукса	main bush	[meɪn buʃ]
грунтовать	to coat	[kəʊt]
грязесъемник	wiper seal	['waɪpə si:l]
давление	pressure	['preʃə]
датчик уровня воды	water level indicator	['wɔ:tə 'levəl 'ɪndɪkeɪtə]
двигатель	engine	['endʒɪn]
• бензиновый двигатель	gasoline engine	['gæsəli:n]
• бескомпрессорный	airless-injection engine	['eəlis ɪn'dʒekʃən]
• вспомогательный двигатель	auxiliary engine	[ɔ:g'zɪljəri]
• высокооборотный дизель	high-speed diesel engine	[haɪ spi:d 'di:zəl]
• газотурбинный двигатель	gas turbine engine	[gæs 'tə:bin]
• главный двигатель	propulsion engine	[prə'plʌʃən]
• двигатель внутреннего сгорания	internal combustion engine	[ɪn'tə:nəl kəm'brʌstʃən]
• двигатель с высоким КПД	high-efficiency engine	[haɪ ɪ'fɪʃənsɪ]
• двигатель с высокой степенью сжатия	high-compression engine	[haɪ kəm'preʃən]
• двигатель с прямым впрыском топлива	direct-injection engine	[dɪ'rekt ɪn'dʒekʃən]
• двухрядный двигатель	double-row engine	['dʌbləʊ]
• двухтактный дизель	two-stroke diesel engine	[tu: strəʊk 'di:zəl]

• дизель с газотурбинным наддувом	turbo-charged diesel engine	[ˈtə:bəʊ ˈtʃɑ:dʒd ˈdi:zəl]
• дизель с наддувом	supercharged diesel engine	[ˈsju:pəˈtʃɑ:dʒd ˈdi:zəl]
• дизельный двигатель	diesel engine	[ˈdi:zəl]
• заглохший двигатель	dead engine	[ded]
• малооборотный дизель	slow-speed diesel engine	[sləʊ spi:d ˈdi:zəl]
• однорядный двигатель	in-line engine	[inˈlaɪn]
• пневматический двигатель	air engine	[eə]
• приводной двигатель шпиля / брашпиля	anchor engine	[ˈæŋkə]
• прогретый двигатель	warmed-up engine	[wɔ:md ʌp]
• рядный дизель	row diesel engine	[rəʊ ˈdi:zəl]
• среднеоборотный дизель	medium-speed diesel engine	[ˈmi:diəm spi:d ˈdi:zəl]
• судовой двигатель	marine engine	[məˈri:n]
• тронковый дизель	trunk-piston diesel engine	[trʌŋk ˈpɪstən ˈdi:zəl]
• четырехтактный дизель	four-stroke diesel engine	[fɔ: strəʊk ˈdi:zəl]
• шлюпочный двигатель	lifeboat engine	[ˈlaɪfbəʊt]
двигать	to move	[mu:v]
двухжильный	two-core	[tu: kɔ:]
двухполюсной	two-pole	[tu: pəʊl]
двухтактный цикл	two-stroke cycle	[tu: strəʊk ˈsaɪkl]
двухфазный	two-phase	[tu: feɪz]
делать, создавать	to make	[meɪk]
держатель, замок	retainer	[riˈteɪnə]
• держатель пружины	spring retainer	[sprɪŋ riˈteɪnə]
держать (хранить)	to keep	[ki:p]
диапазон	range	[reɪndʒ]
дифференциал	differential gear	[ˈdɪfəˈrenʃəl]
доска выводов	terminal board	[ˈtɜ:mɪnəl bɔ:d]
достигать	to reach	[ri:tʃ]
доступ	access	[ˈæksɪs]
• под нагрузкой	on-load access	[ɒn ləʊd]
• с задней стороны (панели)	rear access	[riə]
• с передней стороны (панели)	front access	[frʌnt]
доступность, досягаемость	accessibility	[ækˈsesɪbɪlɪti]
доступный, открытый (о проводке)	accessible	[ækˈsesəbl]
дренаж	drainage	[ˈdreɪnɪdʒ]
дуга (электрическая)	arc	[ɑ:k]
дым	smoke	[sməʊk]
дымиться	to smoke	[sməʊk]
дюралюминий	duralumin	[dʒuəˈræljʊmɪn]
емкость (эл.); емкостное сопротивление	capacitance	[kəˈpæsɪtəns]
• дифференциальная (входная)	differential (input) capacitance	[dɪfəˈrenʃəl ˈɪnpu:t]
• фактическая	actual capacitance	[ˈæktʃuəl]
• цепи	circuit capacitance	[ˈsɜ:kɪt]
жаропрочная обшивка	fire-proof casing	[ˈfaɪə pru:f ˈkeɪsɪŋ]
железо	iron	[ˈaɪən]
• оцинкованное	galvanized iron	[ˈgælvənaɪzd]
• тонколистовое	sheet iron	[ʃi:t]
журнал (вахтенный)	log(-book)	[ˈlɒgbʊk]
завинчивать	to screw (down)	[skru: daʊn]
• завинчивать болт с перекосом	to cross-thread bolt	[ˈkrɒsθred bəʊlt]
зависимость	dependence	[dɪˈpendəns]
заглушать, засорять	to choke	[tʃəʊk]

загрузочное устройство	feeder	['fi:də]
загрязняющее вещество	contaminant	[kən'tæmɪnənt]
зажигание	ignition	[ɪg'nɪʃən]
зажигать, воспламенять	to ignite	[ɪg'nait]
зажим, крепление	fastener	['fɑ:sənə]
заземление; заземляющее устройство	grounding	['graʊndɪŋ]
заземлять	to ground	[graʊnd]
зазор	clearance	['kliərəns]
заклепка	rivet	['rɪvɪt]
• с плоской головкой	flat-head rivet	['flæθəd]
• с шарообразной головкой	globe-head rivet	['gləʊbəd]
• с полукруглой головкой	round-head rivet	['raʊndəd]
заклепочное соединение	riveting	['rɪvɪtɪŋ]
• внахлестку	lap riveting	[læp]
закреплять, зачаливать	to make fast	[meɪk fɑ:st]
закреплять, чинить	to fix	[fɪks]
закрывать	to close / shut	[kloʊz] [ʃʌt]
закрытие	cover	['kʌvə]
• верхнее	upper cover	['ʌpə]
• коллектора	manifold cover	['mænɪfəʊld]
• люковое	hatch cover	[hætʃ]
заменять	to replace	[rɪ'pleɪs]
заменять, обновлять	to renew	[rɪ'nju:]
закрывающая головка (заклепки)	closing head	['kloʊzɪŋ hed]
запирающее устройство	locking device	['lɒkɪŋ dɪ'vaɪs]
запасные части	spare parts	[speə pɑ:ts]
запускать снова	to restart	[rɪ'stɑ:t]
заряд (эл.)	charge	[tʃɑ:dʒ]
• отрицательный	negative charge	['negətɪv]
• положительный	positive charge	['pɒzətɪv]
заслонка	shutter	['ʃʌtə]
затыкать	to plug	[plʌg]
затягивать, натягивать	to tighten	['taɪtn]
защелка	latch	[lætʃ]
защищать	to protect	[prə'tekt]
золотник	slide valve	[slaɪd]
зубчатое колесо, передача	gear	[gɪə]
• ведомое	driven gear	['drɪvən]
• ведущее	drive (driving) gear	[draɪv] ['draɪvɪŋ]
• винтовое	screw / spiral gear	[skru:] ['spɑɪərə]
• внешнего зацепления	external gear	[ɪk'stə:nəl]
• внутреннего зацепления	internal gear	[ɪn'tə:nəl]
• волновое	wave gear	[weɪv]
• глобoidное	globoidal gear	[gləʊ'bɔɪdə]
• двухвенцовое	double-wheel gear	['dʌbl wi:l]
• закаленное	hardened gear	['hɑ:dənd]
• колесо со шлифованными зубьями	ground gear	[graʊnd]
• косозубое	helical gear	['helɪkəl]
• многовенцовое	composite gear	['kɒmpəzɪt]
• планетарное	planetary gear	['plænɪtəri]
• повышающее	step-up gear	['stepʌp]
• повышающая передача, мультипликатор	increase gear	['ɪnkri:s]

• понижающее	step-down gear	['stepdaun]
• промежуточное	idle gear	['aidl]
• прямозубое цилиндрическое	spur gear	[spə:]
• реверсивное	reversing gear	[ri'və:sɪŋ]
• реечное	rack gear	[ræk]
• сменное	pick-off gear	[pɪk ɔf]
• солнечное (центральное)	sun gear	[sʌn]
• фрикционное	friction gear	['frɪkʃən]
• цепное	chain gear	[tʃeɪn]
• червянное	worm gear	[wɔ:m]
• шевронное	herringbone gear	['herɪŋ'bəʊn]
• эвольвентное	involute gear	['ɪnvəlu:t]
зубчатое зацепление	toothing	['tu:θɪŋ]
• внешнее	external toothing	[ɪk'stɜ:nəl]
• внутреннее	internal toothing	[ɪn'tɜ:nəl]
зубчатое колесо	wheel (cog wheel)	[kɔg wi:l]
игла	needle	['ni:dɪ]
игольчатый лубрикатор	needle lubricator	['ni:dɪ 'lu:brikeɪtə]
идти вразнос	to overspeed	['əʊvə'spi:d]
извлекать	to extract	[ɪk'strækt]
изготавливать	to fabricate	['fæbrɪkeɪt]
изменение	alteration	['ɔ:l'teɪrɪʃən]
измерительный прибор	gauge	[geɪdʒ]
измерять	to measure	['meɪʒə]
износ; изнашивать	wear / to wear	[weə]
изодром	PI-control device	[pi: ai kə'ntrəʊl di'vaɪs]
изолированный	insulated	['ɪnsjəleɪtɪd]
изолировать	to insulate	['ɪnsjəleɪt]
изоляция, изоляционный материал	insulation	['ɪnsjə'leɪʃən]
изоляционный	insulating	['ɪnsjəleɪtɪŋ]
индукция	induction	[ɪn'dʌkʃən]
• взаимоиндукция	mutual induction	['mju:tʃuəl]
• самоиндукция	self-induction	[self]
индуцировать, наводить	to induce	[ɪn'dju:s]
инерционность	inertia capability	['ɪnə:ʃə 'keɪpə'bɪlətɪ]
инерция	inertia	['ɪnə:ʃə]
испытывать, проверять	to test	[test]
испытывать, пытаться	to try	[traɪ]
кабель	cable	['keɪbəl]
камера сгорания	combustion chamber	[kəm'bʌstʃən 'tʃeɪmbə]
канавка, паз	groove	[gru:v]
карданная передача	cardan transmission	['kɑ:dæn trænzmɪʃən]
качать	to pump	[pʌmp]
керамика	ceramics	[sə'remɪks]
кило-	kilo-	['ki:ləʊ]
• -ампер	kilo-ampere	['æmpɪə]
• -ватт	kilo-watt	[wɒt]
• -вольт	kilo-volt	[vɒlt]
• -герц	kilo-cycle (hertz)	['saɪkl] [hɜ:ts]
• -ом	kilo-ohm	[əʊm]
кислород	oxygen	['ɔksɪdʒən]
кран	valve	[vælv]

• впускной воздушный	air inlet	[eə 'inlet]
• выпускной	exhaust valve / discharge valve	[ig'zɔ:st] [dis'tʃa:ds]
• главный стопорный	main stop valve	[mein stɒp]
• дренажный	drain valve	[dreɪn]
• клапан-регулятор давления	pressure control valve	['preʃə kən'trəʊl]
• клинкетный	gate valve	[geɪt]
• нагнетательный	delivery valve	[dɪ'lɪvəri]
• невозвратный	non-return valve	[nənri'tə:n]
• обратный	check valve	[tʃek]
• перепускной	by-pass valve	['baɪpɑ:s]
• предохранительный	safety / relief valve	['seɪftɪ] ['ri:li:f]
• пусковой	starting valve	['stɑ:tɪŋ]
• пусковой воздушный	starting air valve	['stɑ:tɪŋ eə]
• разгрузочный	discharge valve	[dis'tʃɑ:ds]
• самозапирающийся спускной	self-closing drain valve	['self'kləʊzɪŋ dreɪn]
• солемерный	salinometer valve	['sælinəu'mi:tə]
• тарельчатый	globe valve	['gləʊb]
клемма	terminal	['tɜ:mɪnəl]
клеммный щиток	terminal box	['tɜ:mɪnəl bɒks]
клетка в ряд	riveting in rows	['rɪvɪtɪŋ ɪn rəʊz]
• шахматная клетка	lozenge riveting	['lɔzɪndʒ 'rɪvɪtɪŋ]
клетка	cell	[sel]
клин	wedge	[wedʒ]
клиновидный литник	wedge gate	[wedʒ geɪt]
клюд	pipe	[paɪp]
• цепной	spurling pipe	['spɜ:lɪŋ]
• швартовный	mooring pipe	['muərɪŋ]
• якорный	hawsepipe	[hɔ:z]
кнопка	button	['bʌtn]
кожух, оболочка	case / casing / housing	[keɪs] ['keɪsɪŋ] ['haʊzɪŋ]
коллектор	manifold	['mænɪfəʊld]
• воздушный	air manifold	[eə]
• впускной	inlet manifold	['inlet]
• выпускной	outlet manifold	['aʊtlet]
(эл.) коллектор	commutator	['kɒmjuteɪtə]
коленвал	crankshaft	['kræŋkʃɑ:ft]
• составной коленвал	built crankshaft	[bilt]
колодка	block	[blɒk]
кольцо	ring	[rɪŋ]
• запирающее, стопорное	locking ring	['lɒkɪŋ]
• компрессионное	compression ring	[kəm'preʃən]
• концевое	end ring	[end]
• маслоъемное	oil control ring	[ɔɪl kən'trəʊl]
• масло-уплотнительное	oil seal ring	[ɔɪl si:l]
• опорное	supporting ring	[sə'pɔ:tɪŋ]
• полукольцо	half-ring	[hɑ:f]
• поршневое	piston ring	['pɪstən]
• промежуточное	spacer ring	['speɪsə]
• распорное (проставочное, промежуточное)	distance ring	['dɪstəns]
• уплотнительное	packing ring	['pækɪŋ]
• упорное	thrust ring	[θrʌst]
• установочное	setting ring	['setɪŋ]

коммутатор	commutator	['kɒmjuteɪtə]
коммутация, переключение	commutation	['kɒmjuteɪʃən]
компрессор	compressor	[kəm'presə]
• воздушный	air compressor	[eə]
конденсатор	capacitor / condenser	[kə'pæsɪtə] [kən'densə]
• зарядный	charging capacitor	['tʃɑ:dʒɪŋ]
• переменной емкости	adjustable capacitor	[ə'dʒʌstəbl]
• с воздушным диэлектриком	air (-dielectric) capacitor	[eə 'daɪ'lektrɪk]
кондиционер	air conditioner	[eə kən'dɪʃənə]
контакт	contact	['kɒntækt]
• скользящие контакты	sliding contacts	['slaɪdɪŋ]
контролировать	to control	[kən'trəʊl]
коренная шейка коленчатого вала	main bearing journal	[meɪn 'beərɪŋ 'dʒə:nəl]
кормовая шейка вала	stern shaft journal	[stɜ:n ʃɑ:ft 'dʒə:nəl]
короб для сбора и подачи дыма	smoke box	[sməʊk bɒks]
коробка	box	[bɒks]
• грязевая коробка	mud box	[mʌd bɒks]
• клапанная коробка осушительного трубопровода	bilge distribution	[bɪldʒ 'dɪstrɪ'bju:ʃən]
коромысло	rocker arm	['rɒkə a:m]
короткое замыкание	short circuit	['ʃɔ:t'sɜ:kɪt]
корпус	body	['bɒdɪ]
• клапана	valve body	[vælv 'bɒdɪ]
• сальника	stuffing box	['stʌfɪŋ bɒks]
• стальной	steel shell	[sti:l ʃel]
• форсунки	injector body	[ɪn'dʒektə 'bɒdɪ]
котел	boiler	['bɔɪlə]
• водогрейный	hot-water boiler	[hɒt 'wɔ:tə]
• водотрубный	water-tube boiler	['wɔ:tə tju:b]
• вспомогательный	auxiliary boiler	[ɔ:g'zɪljəri]
• главный паровой	propulsion boiler	[prə'pʌlʃən]
• двухбарабанный	two-drum boiler	[tu: drʌm]
• двухкорпусный	two-furnace boiler	[tu: 'fɜ:nɪs]
• дымогарный	flue boiler	[flu:]
• мазутный	oil-burning boiler	[ɔɪl 'bɜ:nɪŋ]
• однокорпусный	single-furnace boiler	['sɪŋgəl 'fɜ:nɪs]
• с естественной циркуляцией	circulation boiler	['sɜ:kju'leɪʃən]
• с поперечным расположением барабана	cross-drum boiler	['krɒsdrʌm]
• -утилизатор	waste-heat boiler	[weɪst 'hi:t]
• шотландский	Scotch boiler	[skɒt]
котельная арматура	boiler mounting	['bɔɪlə 'maʊntɪŋ]
край, кромка	rim	[rɪm]
кран, вентиль	cock	[kɒk]
• индикаторный кран	indicator cock	['ɪndɪkeɪtə kɒk]
кран	crane	[kreɪn]
• -балка	beam crane	[bi:m]
• грейферный	grab crane	[græb]
• ковшовый	bucket crane	['bʌkɪt]
• консольный	bracket crane	['brækɪt]
• люковый	hatch crane	[hætʃ]
• мачтовый	derrick / pillar crane	['derɪk] ['pɪlə]
• палубный	deck crane	[dek]

• поворотный	revolving / slewing crane	[ri'vɔlviŋ] ['siu:ɪŋ]
• подъемный	hoisting crane	['hɔɪstɪŋ]
• с ручным управлением	manual crane	['mænjʊəl]
• стреловой	jib crane	[dʒɪb]
крейцкопф	crosshead	['krɔʃhed]
крейцкопфный направляющий башмак	crosshead guide shoe	['krɔʃhed 'gaɪdʃu:]
крепежные детали	fastening parts	['fa:sənɪŋ pa:ts]
кронштейн, консоль	bracket	['brækit]
крутящий момент	torque	[tɔ:k]
крылатка	impeller	[ɪm'pelə]
крышка, колпачок	cover, lid, cap	['klʌvə] [lɪd] [kæp]
• крышка аккумулятора	storage battery cover	['stɔ:ri:ds 'bætəri 'klʌvə]
• верхняя крышка	top cover	[tɒp 'klʌvə]
• крышка люка	hatch cover	[hætʃ 'klʌvə]
• крышка шатуна	connecting rod cap	[kə'nektiŋ rɒd kæp]
кулак, кулачок	tappet	['tæpɪt]
лампа	lamp	[læmp]
латунь	brass	[brɑ:s]
лебедка	winch	[wɪntʃ]
• буксирная	towing winch	['təʊɪŋ]
• грузовая	cargo winch	['kɑ:gəʊ]
• для поворота стрелы	slewing winch	['siu:ɪŋ]
• люковая	hatch winch	[hætʃ]
• палубная	deck winch	[dek]
• подъемная	hoist winch	[hɔɪst]
• реверсивная	reversible winch	[ri'vɜ:səbl]
• спасательная	salvage winch	['sælvɪdʒ]
• швартовная	mooring winch	['muəriŋ]
• шлюпочная	boat winch	[bəʊt]
• якорная	anchor winch	['æŋkə]
линия (эл.)	line	[laɪn]
• под напряжением	live line	[laɪv]
лопасть гребного винта	propeller blade	[prə'pelə bleɪd]
лошадиная сила	horsepower	['hɔ:s'paʊə]
магистраль	main line	['meɪnləɪn]
магнит	magnet	['mæɡnət]
• искусственный	artificial magnet	['ɑ:tɪ'fiʃəl]
• постоянный	permanent magnet	['pɜ:mənənt]
магнитное поле	magnetic field	[mæɡ'netɪk 'fi:ld]
магнитопровод	magnetic conductor	[mæɡ'netɪk kən'dʌktə]
• замкнутый	closed magnetic conductor	[kləʊzd]
манжета	collar	['kɒlə]
манометр	pressure gauge	['preʃə 'geɪdʒ]
масленка	lubricator	['lu:brikeitə]
• для местной смазки	single lubricator	['sɪŋɡəl]
• для пластичной смазки	grease lubricator	[grɪ:s]
• пружинная	spring lubricator	[sprɪŋ]
масло	oil	[ɔɪl]
• вязкое	thick / viscid oil	[θɪk] ['vɪsɪd]
• загущенное	solidified oil	[sə'lɪdɪfaɪd]
• маловязкое	thin oil	[θɪn]
• маловязкое моторное	light engine oil	[laɪt 'endʒɪn]

• моторное	engine oil	['endsɪn]
• мутное	cloudy oil	['klaʊdɪ]
• отработанное	used oil	[ju:st]
• с противозадирными присадками	high-pressure oil	[haɪ 'preʃə]
маслосборник	oil catcher	[ɔɪl 'kætʃə]
маслосепаратор	oil separator	[ɔɪl 'sepəreɪtə]
маховик	flywheel / handwheel	['flaɪwi:l] ['hændwi:l]
мегомметр, меггер	megger	['megə]
медь	copper	['kɒpə]
мертвая точка	dead center	[ded 'sentə]
• верхняя	top dead center (TDC)	[tɒp] [ti: di: si:]
• нижняя	bottom dead center (BDC)	['bɒtəm] [bi: di: si:]
механизм	mechanism / gear	['mekənɪzəm] [gɪə]
• дистанционного управления	remote control mechanism	[ri'məʊt kən'trəʊl 'mekənɪzəm]
• кулачковый	cam gear	[kæm gɪə]
• механизм выпускного клапана	exhaust valve gear	[ɪg'zɔ:st vælv gɪə]
• погрузочно-разгрузочный	cargo handling gear	['kɑ:gəʊ 'hændlɪŋ gɪə]
• регулировки подачи топлива	fuel feed control mechanism	[fju:əl fi:d kən'trəʊl 'mekənɪzəm]
монтаж, установка	mounting	['maʊntɪŋ]
мост, шунт, перемычка	bridge	[brɪdʒ]
мощность	power	['paʊə]
• развиваемая	output	['aʊtpʊt]
муфта	coupling	['kʌplɪŋ]
• включения судовой трансмиссии	marine transmission coupling	[mə'ri:n trænz'mɪʃən]
• гидромуфта	hydraulic coupling	[haɪ'drɔ:lɪk]
• зубчатая	gear coupling	[gɪə]
• коническая	cone coupling	[kəʊn]
• кулачковая	cam / jaw coupling	[kæm] [dʒɔ:]
• лебедки	winch coupling	[wɪntʃ]
• многодисковая	multiple disk coupling	['mʌltɪpl dɪsk]
• направления намотки троса лебедки	winch directional coupling	[wɪntʃ di'rekʃənəl]
• предохранительная	safety coupling	['seɪftɪ]
• расцепная	disengaging coupling	['dɪsɪn'geɪdʒɪŋ]
• соединительная валопровода	shaft coupling	[ʃɑ:ft]
• фланцевая	flange coupling	[flændʒ]
• фрикционная	friction coupling	['frɪkʃən]
набивка, уплотнение	packing	[pækɪŋ]
• мягкая набивка	soft packed stuffing	[sɒft pækt 'stʌfɪŋ]
навинчивать	to screw on	[skru: ɔn]
нагар	carbon	['kɑ:bən]
нагнетательный патрубок	discharge nozzle	['dɪʃtʃɑ:dʒ nɔ:zl]
нагреватель	heater	['hi:tə]
нагревать	to heat	[hi:t]
нагрузка, нагружать	load	[ləʊd]
• линейная нагрузка	linear load	['lɪniə]
• под нагрузкой	at load	[æt]
• фактическая нагрузка	actual load	['æktʃuəl]
• чрезмерная нагрузка	excessive load	[ɪk'sesɪv]
нажимать, давить	to press	[pres]
найтовое крепление шлюпки	gripe	[graɪp]
накапливать	to accumulate	[ə'kju:mjuleɪt]

накладывать шов по периметру	to weld all around	[weɪd ɔ:l ə'raʊnd]
наконечник распылителя	spray tip	[spreɪ tɪp]
накопление	accumulation	[ə'kjʊ:mju'leɪʃən]
намагничивать	to magnetize	['mægnətaɪz]
наполнять	to fill	[fɪl]
• наполнять вновь	to refill	['ri:fɪl]
направление	direction	[dɪ'rekʃən]
направляющая лопатка	guide vane	[gɑɪd veɪn]
направляющее устройство	fairlead	['feəli:d]
направляющие	guides	['gɑɪdz]
напряжение	voltage	['vɔʊltɪdʒ]
• линейное	line-to-line voltage	[laɪn tu: laɪn]
• номинальное	rated voltage	['reɪtɪd]
• сети	mains voltage	['meɪnz]
• шаговое	pace voltage	[peɪs]
наружное кольцо (подшипника качения)	outer race	['aʊtə reɪs]
насос	pump	[pʌmp]
• винтовой	screw pump	[skru:]
• водяной	water pump	['wɔ:tə]
• гидронасос	hydraulic pump	[haɪ'drɔ:lɪk]
• забортной воды	sea-water pump	[si: 'wɔ:tə]
• лопастной	vane pump	[veɪn]
• масляный	oil pump	[ɔɪl]
• объемного типа	displacement pump	[dɪs'pleɪsmənt]
• осевой	axial flow pump	['æksɪəl fləʊ]
• осушительный, трюмный	bilge pump	[bɪldʒ]
• питательный	feed pump	[fi:d]
• поршневой	reciprocating pump	[rɪ'sɪprəkeɪtɪŋ]
• роторный	rotary pump	['rəʊtəri]
• ручной насос прокачки масла	hand oil priming pump	[hænd ɔɪl 'praɪmɪŋ]
• с двусторонним всасыванием	double-entry pump	['dʌblə 'entri]
• с односторонним всасыванием	single-entry pump	['sɪŋɡəl 'entri]
• топливный	fuel pump	[fju:əl]
• топливный насос высокого давления	fuel injection pump	[fju:əl ɪn'dʒekʃən]
• центробежный	centrifugal pump	['sentri'fju:ɡəl]
• шестеренчатый	gear pump	[ɡiə]
настраивать	to adjust	[ə'dʒʌst]
находиться в готовности	to stand by	[stænd baɪ]
незамкнутый (о цепи)	incomplete	['ɪnkəmpli:t]
неисправность, повреждение	fault	[fɔ:lt]
нипель	nipple	['nɪpəl]
номинальная характеристика	rating	['reɪtɪŋ]
номинальный	rated	['reɪtɪd]
обеспечивать	to provide	[prə'vaɪd]
обмотка	winding	['waɪndɪŋ]
• вторичная разомкнутая	secondary open winding	['sekəndəri 'əʊpən]
обойма	holder	['həʊldə]
• манжеты	collar cage	['kɒlə keɪdʒ]
оборот	revolution	['revə'lju:ʃən]
оборудование	equipment	['ɪkwɪpmənt]
• опреснительное	distillation equipment	[dɪstɪ'leɪʃən]
• пожарное	fire-fighting equipment	['faɪə 'faɪtɪŋ]

обратимость	convertibility	[kən'vɜ:tə'bɪləti]
обратная связь	feedback	['fi:dbæk]
обращаться (с чем-либо)	to treat	[tri:t]
обрыв	break	[breɪk]
• линии	line break	[laɪn]
• провода	wire break	['waɪə]
обрыв, разрыв	abruption	[ə'brʌpʃən]
обслуживать	to maintain	[meɪn'teɪn]
объем	volume	['vɒljʊm]
ограничитель	limiter	['lɪmɪtə]
окунуть	to dip	[dɪp]
олифа	paint oil	[peɪnt ɔɪl]
олово	tin	[tɪn]
ом	ohm	[əʊm]
омметр	ohmmeter	['əʊmɪ:tə]
опора	support	[sə'pɔ:t]
опускать	to lower	['ləʊə]
освещение	lighting	['laɪtɪŋ]
освобождать	to release	[rɪ'li:s]
ослаблять	to loose	[lu:s]
оставлять	to leave	[li:v]
останавливать(ся)	to stop	[stɒp]
ось, вал	axis, axle	['æksɪs] ['æksl]
• ведущая	leading axle	['li:dlŋ]
• неподвижная	fixed axle	[fɪkst]
• привода	drive axis	[draɪv]
• шарнира	hinge axis	[hɪndʒ]
отверстие	port	[pɔ:t]
• входное	inlet port	['ɪnlet]
• выходное	outlet port	['aʊtlet]
отвинчивать	to unscrew	['ʌn'skru:]
откачивать, осушать	to drain	[dreɪn]
открывать	to open	['əʊpən]
отливная вода	drain water	[dreɪn 'wɔ:tə]
отпускать болт	to ease off / slacken bolt	[i:z ɔf bɔʊlt] ['slækən bɔʊlt]
отражатель	deflector	[dɪ'fɛktə]
отработавшие газы	waste gases	[weɪst ɡæsɪz]
отсек	compartment	[kəm'pɑ:tmənt]
отстойник	sump / mud box	[sʌmp] [mʌd bɒks]
отходы	deposits	[dɪ'pɔzɪts]
охладитель	cooler	['ku:lə]
• воздухоохладитель	air cooler	[eə]
• продувочного воздуха	scavenging air cooler	['skævɪndʒɪŋ eə]
охлаждать	to cool	[ku:l]
очистка	purification	['pjʊərɪfɪ'keɪʃən]
очищать резьбу	to chase thread	[tʃeɪs θred]
палец крестового	crosshead pin	['krɒshed pɪn]
панель	panel	['pænəl]
пар	steam	[sti:m]
пара (термопара)	couple	['kʌpəl]
параллельный	parallel	['pærəlel]
пароперегреватель	superheater	['sju:pə'hi:tə]

паросборник	steam drum	[sti:m drʌm]
патрон	holder	['həʊldə]
перебои в зажигании	misfire	[mis'faɪə]
перегружать	to overload	['əʊvə'ləʊd]
передаточное число	gear ratio / transmission ratio	[giə] [trænz'miʃən] ['reɪʃiəʊ]
передача (электро)энергии	power transmission	['paʊə trænz'miʃən]
перекрасить	to repaint	[ri'peɪnt]
перемычка	jumper	['dʒʌmpə]
перенапряжение	overvoltage	['əʊvə'vɔʊltidʒ]
перепад энергии	energy gap	['enədʒi ɡæp]
перепускной канал	by-pass	['baɪpɑːs]
переход, переключение	changeover	[tʃeɪndʒ'əʊvə]
переход, соединение	junction	['dʒʌŋkʃən]
переходник	adapter	[ə'dæptə]
печатная плата	circuit board	['sə:kɪt bɔːd]
питательная вода	feed water	[fi:d 'wɔːtə]
планка	plate	[pleɪt]
пламя	flame	[fleɪm]
пластина коллектора	bar	[bɑː]
пластмасса	plastics	['plæstɪks]
пломба, пломбировать	seal	[si:l]
плотность	density	['densɪti]
поворачивать	to turn	[tɜːn]
повреждать	to damage	['dæmɪdʒ]
подача	delivery	[dɪ'livəri]
• нулевая	zero delivery	['ziərəʊ]
• полная	full delivery	[fʊl]
• частичная	partial delivery	['pɑːʃəl]
поддон	sump	[sʌmp]
поднимать	to hoist / to lift	[hɔɪst] [lɪft]
подниматься, вставать	to rise	[raɪz]
подогреватель	preheater	[pri:'hi:tə]
подпорка, опора, стойка	prop	[prɒp]
подшипник	bearing	['beərɪŋ]
• баллера руля	rudder bearing	['rʌdə]
• головной	crosshead bearing	['krɒʃhed]
• двухрядный	double-row bearing	['dʌblə'rəʊ]
• заправленный смазкой перед установкой	prelubricated bearing	[pre'lu:brikeitɪd]
• игольчатый	needle bearing	['ni:dɪ]
• качения	frictionless bearing	['frɪkʃənɪs]
• конический	tapered bearing	['teɪpəd]
• коренной	main bearing	[meɪn]
• мотылевый	big end / crank pin bearing	[bɪɡ end] [kræŋk pin]
• неразъемный (глухой)	solid bearing	['sɒlɪd]
• нижней головки шатуна	bottom end bearing	['bɒtəm end]
• опорный	supporting bearing	[sə'pɔːtɪŋ]
• радиально-упорный	combined journal and thrust bearing	[kəm'baɪnd 'dʒəːnl ənd θrʌst]
• радиальный	journal bearing	[dʒəːnl]
• разъемный	split bearing	[splɪt]
• разъемный, с сегментным вкладышем	half bearing	[hɑːf]
• роликовый	roller bearing	['rəʊlə]
• самосмазывающийся	self-lubricating bearing	['self'lu:brikeitɪŋ]

• скольжения	friction bearing	['frikʃən]
• сферический	spherical bearing	['sferikəl]
• упорный	axial / thrust bearing	['æksɪəl] [θrʌst]
• шариковый	ball bearing	[bɔ:l]
подъемно-спусковое устройство	hoisting-launching device	['hɔɪstɪŋ 'lɔ:ntʃɪŋ dɪ'vaɪs]
показание приборов	reading	['ri:dɪŋ]
показывать, указывать	to indicate	['ɪndɪkeɪt]
поле	field	[fi:ld]
• поперечное	cross field	[krɒs]
ползун	slider	['slaɪdə]
полосовой металл, полоса (стали)	flat bar	[flæt bɑ:]
полюс	pole	[pəʊl]
• магнита	pole of magnet	['mægnət]
• отрицательный	negative pole	['negətɪv]
• положительный	positive pole	['pɒzətɪv]
полярность	polarity	[pəʊ'lærɪti]
помещать	to place	[pleɪs]
поршень	piston	['pɪstən]
• рабочий	working piston	['wɜ:kɪŋ]
поршневой палец	piston pin	[pɪstən pɪn]
поршневой шток	piston rod	['pɪstən rɒd]
последовательно (включенный)	in-series	[ɪn 'siəri:z]
последовательность	sequence	['si:kwəns]
поставлять, снабжать	to supply	[sə'plaɪ]
постоянная	constant	['kɒnstənt]
потеря	loss	[lɒs]
поток, протекание (тока)	flow	[fləʊ]
• непрерывный поток	continuous flow	[kən'tɪnjuəs]
• протекание тока	flow of electricity	[ɪlek'trɪsətɪ]
потребитель	consumer	[kən'sju:mə]
• энергии	energy consumer	['enədʒi]
потребление	consumption	[kən'sʌmpʃən]
потребность	demand	[dɪ'mɑ:nd]
предохранитель, пробка	fuse	[fju:z]
преобразователь	converter	[kən'vɜ:tə]
• вращающийся	rotary converter	['rɔ:təri]
• переменного тока в постоянный	AC/DC converter	[eɪ si: di: si:]
преобразовывать, превращать	to convert	[kən'vɜ:t]
при нагрузке	under load	['ʌndə lɔ:d]
приборная доска	control board	[kən'trɔʊl] [bɔ:d]
приваривать	to weld on	[weld ɔn]
привод	drive	[draɪv]
• главный	main drive	[meɪn]
• клиноременной	V-belt drive	[vi: belt]
• регулятора	governor drive	['gʌvənə]
• рейки топливного насоса	fuel injection pump control rack drive	[fju:əl ɪn'dʒekʃən pʌmp kən'trɔʊl ræk]
• ременной	belt drive	[belt]
• фрикционный	friction drive	['frikʃən]
• центробежного реле	centrifugal relay drive	['sentri'fju:gəl ri'lei]
приводная полумуфта	motor half-coupling	['mɔ:tə ha:f 'kʌplɪŋ]
приемник продувочного воздуха	scavenging air receiver	['skævɪndʒɪŋ eə ri'si:və]

приемный отросток осушительного трубопровода	bilge suction branch	[bɪldʒ 'sʌkʃən bra:ntʃ]
приклепывать	to rivet on	['rɪvɪt ɔn]
прикреплять	to attach	[ə'tætʃ]
прилаживать, подгонять	to fit	[fɪt]
применять	to apply	[ə'plaɪ]
пробка	plug	[plʌg]
• храна	cock plug	[kɒk]
• резьбовая	threaded plug	['θredɪd]
• сливная	drain plug	[dreɪn]
пробой, выход из строя, авария	breakdown	['breɪkdaʊn]
• пробой изоляции обмотки	winding insulation breakdown	['waɪndɪŋ 'ɪnsjə'leɪʃən]
проверять	to check / to examine / to inspect	[tʃek] [ɪg'zæmɪn] [ɪn'spekt]
провод гибкий	flex	[fleks]
проводить	to conduct	[kən'dʌkt]
проводник	conductor	[kən'dʌktə]
• полупроводник	semi conductor	['semi]
провока	wire	['waɪə]
• стальная	iron wire	['aɪən]
продувочный канал	scavenge port	['skævɪndʒ pɔ:t]
производительность	capacity / output	[kə'pæsɪti] ['aʊtpʊt]
прокладка, сальник, уплотнение	gasket	[gæskɪt]
промежуток, зазор	gap	[gæp]
• воздушный	air gap	[eə]
противовес	counter balance	['kaʊntə 'bæləns]
протирать	to wipe	['waɪp]
пружина	spring	[sprɪŋ]
пульт управления	control desk	[kən'trɔʊl desk]
• выносной	remote control desk	[rɪ'məʊt]
• главный	main control desk	[meɪn]
пучок труб	bank of tubes	[bæŋk əv tju:bz]
рабочее положение	running position	['rʌnɪŋ pə'zɪʃən]
разбирать	to disassemble / to dismantle / to dismount	['dɪsə'sembəl] [dɪs'mæntl] [dɪs'maʊnt]
разгружать, разряжать	to discharge	[dɪs'tʃɑ:dʒ]
размагничивать	to demagnetize	['di:mægnətaɪz]
разность	difference	[dɪfərəns]
• напряжений	voltage difference	['vɔʊltɪdʒ]
• потенциалов	potential difference	[pəʊ'tenʃəl]
разряд, выгрузка	discharge	['dɪstʃɑ:dʒ]
рама	frame	[freɪm]
• фундаментная	foundation frame	[faʊn'deɪʃən]
рамка	loop	[lu:p]
рамовая шейка	main-bearing journal	[meɪn beərɪŋ 'dʒɔ:nl]
расклепывать конец болта	to rivet bolt	['rɪvɪt baʊlt]
распорка, прокладка	spacer	['speɪsə]
распредвал	camshaft	['kæmʃɑ:ft]
распределитель	distributor	[dɪs'trɪbjətə]
• воздуха	air distributor	[eə]
рассоединять	to disconnect	['dɪskə'nekt]
растяжка	brace	[breɪs]
расход (потребление) топлива	fuel rate / fuel consumption	[fju:əl reɪt] [fju:əl kən'sʌmpʃən]
ребро	rib	[rɪb]

• жесткости	stiffener	['stifənə]
регулирование	regulation	['regju'leɪʃən]
• автоматическое	automatic regulation	['ɔ:tə'mætɪk]
• плавное	stepless regulation	['steplɪs]
• ступенчатое	step-by-step regulation	[step baɪ step]
• тока	current regulation	['kʌrənt]
регулировка	alignment	[ə'lainmənt]
регулировка, настройка	adjustment	[ə'dʒʌstmənt]
регулирующая стяжка	adjusting turnbuckle	[ə'dʒʌstɪŋ 'tə:nbʌkl]
регулирующее звено	adjusting link	[ə'dʒʌstɪŋ lɪŋk]
регулятор	governor / regulator	['gʌvənə] ['regjuleɪtə]
• вязкости	viscosity regulator	[vɪs'kɔ:sɪti 'regjuleɪtə]
• температуры	temperature regulator	['tempɪrɪtə 'regjuleɪtə]
• хода двигателя	engine governor	['ɛndʒɪn 'gʌvənə]
редуктор	gear box	[gɪə bɒks]
режим (работы)	mode	[məʊd]
• двигательный	motor mode	['məʊtə]
• работы	mode of operation	['ɔ:pə'reɪʃən]
• токовый	current mode	['kʌrənt]
• режим готовности к работе	standby position	['stændbaɪ pə'zɪʃən]
резать	to cut	[kʌt]
резина	rubber	['rʌbə]
резьба	thread	[θred]
• внутренняя, гайка	female (screw) thread	['fi:meɪl skru:]
• двухзаходная	double thread	['dʌbəl]
• дюймовая (резьба Витворта)	inch (Whitworth) thread	[ɪntʃ] ['wɪtwɔ:θ]
• коническая	tapered thread	['teɪpəd]
• круглая	round thread	[raʊnd]
• левая	left-hand thread	['left'hænd]
• мелкая	fine thread	[faɪn]
• метрическая	metric thread	['metrɪk]
• метрическая по стандарту ИСО	ISO metric thread	[aɪzəʊ 'metrɪk]
• многозаходная	multistart thread	['mʌltɪstɑ:t]
• наружная, винт	male thread	[meɪl]
• неполная	flattened thread	['flætənd]
• правая	right-hand thread	['raɪthænd]
• прямоугольная	square thread	[skweə]
• сорванная	stripped thread	[stript]
• трапецеидальная	trapezoidal thread	[træpə'zɔɪdəl]
• треугольная	triangular thread	[traɪ'æŋɡjʊlə]
• трубная	pipe thread	[paɪp]
• цилиндрическая	straight thread	[streɪt]
реле	relay	[ri'leɪ]
• центробежное скорости	centrifugal speed-sensitive relay	['sentrɪ'fju:ɡəl spi:d 'sensɪtɪv]
ремень вентилятора	fan belt	[fæn belt]
реостат	rheostat	['ri:əʊstæt]
• регулировочный	regulating rheostat	['regjuleɪtɪŋ]
риска, метка	mark	[ma:k]
ролик	roller	['rəʊlə]
ротор	rotor	['rəʊtə]
рубашка (цилиндра)	jacket	['dʒækɪt]
рубильник	circuit breaker	['sə:kɪt 'breɪkə]

рукав, втулка	sleeve	[sli:v]
рукоятка, ручка	handle	['hændl]
• выключения подачи топлива	fuel feed shut-off handle	[fju:əl fi:d /ʌt ɔf]
• маневрирования	manoeuvring handle	[mə'nu:vəriŋ]
• направления вращения	direction handle	[di'rekʃən]
• остановки двигателя	engine shutdown handle	['endʒɪn /ʌt daʊn]
• шаровая	ball handle	[bɔ:l]
руль	rudder	['rʌdə]
ручка (круглая), рукоятка	knob	[nɔb]
ручка крана	cock lever	[kɔk 'li:və]
рычаг регулятора	governor arm	['gʌvənə ə:m]
• безопасности	safety governor arm	['seifti]
• скорости	speed governor arm	[spi:d]
с ручным управлением	manually operated	['mænjʊəli 'ɔpəreitɪd]
сальник штока поршня	piston rod gland	['pɪstən rɔd glænd]
сапун	breather	['bri:ðə]
сателлит	planet gear	['plænit giə]
сваривать	to weld	[weld]
сварка	welding	['weldɪŋ]
• автогенная	autogenous welding	[ɔ:'tɔdʒɪnəs]
• встык	butt welding	[bʌt]
• газосварка	acetylene (gas) welding	[ə'setili:n] [gæs]
• дуговая	arc welding	[ɑ:k]
• импульсно-дуговая	pulsed arc welding	['pʌlsɪd ə:k]
• плавлением	fusion welding	['fju:zən]
• токами высокой частоты	high frequency welding	[haɪ 'fri:kwənsɪ]
• точечная	spot welding	[spɔt]
• шовная, роликовая	seam welding	[si:m]
сварной шов	weld	[weld]
• нахлесточный	lap weld	[læp]
• плотный	tight weld	[taɪt]
• роликовый	seam weld	[si:m]
• стыковой	butt weld	[bʌt]
• тавровый	T weld	[ti:]
• торцевой	edge weld	[eds]
• угловой	fillet weld	['fɪlɪt]
свет	light	[laɪt]
свеча накаливания	glow plug	[gləʊ plʌg]
свинец	lead	[led]
свободный, незакрепленный	loose	[lu:s]
связь, соединение	link	[lɪŋk]
сгорание	combustion	[kəm'bʌstʃən]
сервомотор	servomotor	['sə:vəʊməʊtə]
сердечник	core	[kɔ:]
• трехстержневой	three-leg core	[θri: leg]
• якоря	armature core	['ɑ:mətʃuə]
сеть (эл.), силовая сеть	main / mains	[meɪn] ['meɪnz]
сеть, схема	net	[net]
сжатие, компрессия	compression	[kəm'preʃən]
сигнализатор высокого давления	pressure alarm	['preʃə ə'la:m]
система	system	['sɪstɪm]
• балластная	ballast system	['bæləst]
• осушительная	bilge pumping system	[bɪldʒ 'plʌmpɪŋ]

• очистки топлива	fuel oil purification system	[fju:əl ɔil 'pjʊərifikaɪʃən]
• перекачки топлива	fuel oil pumping system	[fju:əl ɔil 'pʌmpɪŋ]
• подачи топлива к форсункам	fuel oil service system	[fju:əl ɔil 'sɜ:vɪs]
• подогрева топлива	fuel oil heating system	[fju:əl ɔil 'hi:tiŋ]
• смазки	lubrication oil system	['lu:bri'keɪʃən ɔil]
• топливная	fuel oil system	[fju:əl ɔil]
• топливных трубопроводов	fuel oil piping system	[fju:əl ɔil 'paɪpɪŋ]
• хранения топлива	fuel storage system	[fju:əl 'stɔ:ri:dʒ]
скачок	jump	[dʒʌmp]
скоба для подъема дизеля	engine lifting yoke	['endʒɪn 'lɪftɪŋ jəʊk]
скорость, число оборотов	speed	[spi:d]
скреплять	to fasten	['fa:sən]
скреплять болтами	to bolt	[bɔʊlt]
слабый, незатянутый	slack	[slæk]
слив масла	oil drain	[ɔil dreɪn]
сломанный	broken	['brəʊkən]
смазочный материал	grease	[gri:s]
смазка	lubrication	['lu:bri'keɪʃən]
• погружением	immersion lubrication	['ɪmɜ:ʃən]
• под давлением	forced-feed lubrication	[fɔ:st fi:d]
• разбрызгиванием	splash lubrication	[splæʃ]
смазочный материал	lubricant	['lu:bri:kənt]
• консистентная смазка	consistent lubricant	[kən'sɪstənt]
• универсальная смазка	multi-purpose lubricant	['mʌlti 'pɜ:pəs]
смазывать	to lubricate / to grease / to oil	['lu:brikeɪt] [gri:s] [ɔil]
смычка якоря	anchor shackle	['æŋkə 'ʃækl]
снижать, уменьшать	to reduce	[ri'dju:s]
снимать	to take off	[teɪk ɔf]
собирать	to assemble	[ə'sembəl]
совместимость	compatibility	[kəm'pætə'bɪləti]
соединение	joint	[dʒɔɪnt]
• сварное	welded joint	['weldɪd]
• скользящее	slip joint	[slɪp]
• шлицевое	splined joint	['splaɪnd]
• шпоночное	key joint	[ki:]
соединение, включение	connection	[kə'nekʃən]
• звезда-звезда	double-star connection	['dʌbl stɑ:]
• звездой	star connection	[stɑ:]
• звезда-треугольник	star-delta connection	[stɑ: 'delta]
• каскадное, последовательное	cascade connection	[kæs'keɪd]
• мостовое	bridge connection	['brɪdʒ]
• резьбовое соединение	threaded connection	['θredɪd]
• токовых цепей	current connection	['kʌrənt]
• треугольником	delta connection	['delta]
• треугольник-звезда	delta-star connection	['delta stɑ:]
соединять	to connect	[kə'nekt]
солидол	cup grease	[kʌp gri:s]
сопло	nozzle	['nɔ:zl]
сопротивление	resistance	[rɪ'zɪstəns]
• изоляции	insulation resistance	['ɪnsjə'leɪʃən]
спираль	coil, spiral	[kɔɪl] ['spaɪərəl]
спиральная камера	volute	[və'lju:t]

способ	mode	[məʊd]
• управления	mode of control	[kə'ntrəʊl]
• установки	mode of installation	['ɪnstə'leɪʃən]
способность; мощность	capability	['keɪpə'bɪləti]
срубать заклепку	to chop off rivet	[tʃɒp ɒf 'rɪvɪt]
ставить заклепку	to drive rivet	[draɪv 'rɪvɪt]
сталь	steel / iron	[sti:l] ['aɪən]
• двутавровая	double-T iron / H-iron iron	['dʌbəl ti: 'aɪən] [eɪtʃ 'aɪən]
• ленточная	strip steel	[stri:p sti:l]
• прутковая	bar iron	[bɑ: 'aɪən]
• рифленная	corrugated iron	['kɒrɪgeɪtɪd 'aɪən]
• тавровая	T-iron	[ti: 'aɪən]
• уголковая	angle iron	['æŋɡəl 'aɪən]
станина	mounting	['maʊntɪŋ]
станина, фундамент	base	[beɪs]
станция углекислотного тушения	carbon dioxide extinction station	['kɑ:bən daɪ'ɒksaɪd 'ɪkstɪŋkʃən 'steɪʃən]
стартер	starter	['stɑ:tə]
статор	stator	['steɪtə]
степень сжатия	compression ratio	[kəm'preʃən 'reɪʃiəʊ]
стержень (магнитный)	leg	[leg]
стойка, рейка	rack	[ræk]
стопор	stopper	['stɒpə]
• палубный якорной цепи	bow stopper	[bau]
стрела	derrick	['derɪk]
• аварийная	wreck derrick	[rek]
• люковая	hatch derrick	[hætʃ]
• мачтовая	guyed-mast derrick	['gɑɪd'mɑ:st]
• шлюпочная	boat derrick	[bəʊt]
стрелка прибора	arrow, needle	['ærəʊ] ['ni:dl]
ступица	hub	[hʌb]
• гребного вала	propeller hub	[prə'pelə hʌb]
стучать	to knock	[nɒk]
стяжная балка	girder strap	['gɪdə stræp]
сухарь	retaining block	[ri'teɪnɪŋ blɒk]
сушить	to dry	[draɪ]
схема, чертеж	diagram	['daɪəgræm]
• принципиальная	circuit diagram	['sə:kɪt]
• соединений	connection diagram	[kə'nekʃən]
счетчик	counter	['kaʊntə]
• моточасов	hourmeter	['aʊəmi:tə]
такт, ход	stroke	[strəʊk]
• впуска	intake stroke	['ɪnteɪk]
• выпуска	exhaust stroke	[ɪg'zɔ:st]
• рабочий	power stroke	['paʊə]
• сжатия	compression stroke	[kəm'preʃən]
тарелка	disk	[dɪsk]
тахометр	tachometer	[tæ'kɒmɪtə]
тело (болта, заклепки)	shank	[ʃæŋk]
тепло, жар	heat	[hi:t]
теплообменник	heat exchanger	[hi:t ɪks'tʃeɪndʒə]
термометр	thermometer	[θə'mɒmɪtə]

термоэлемент, термопара	thermocouple	['θə.mə'kʌpəl]
техобслуживание	maintenance	['meɪntənəns]
течь (струится)	to flow / to leak	[fləʊ] [li:k]
течь (протечка)	leakage	['li:kɪdʒ]
ток	current	['kʌrənt]
• возбуждения	excitation current	['eksɪ'teɪʃən]
• в сети	mains current	['meɪnz]
• входной	input current	['ɪnpʊt]
• выходной	output current	['aʊtpʊt]
• действительный	actual current	['æktʃʊəl]
• короткого замыкания	short-circuit current	['ʃɔ:t'sə:kɪt]
• непрерывный	continuous current	['kən'tɪnjuəs]
• номинальный	rated current	['reɪtɪd]
• номинальный вторичный	rated secondary current	['reɪtɪd 'sekəndəri]
• обратный	reverse current	['rɪ'vɜ:s]
• переменный	alternating current (AC)	['ɔ:l'tɛnɛɪtɪŋ] [ei si:]
• постоянный	direct current (DC)	[di'rekt] [di: si:]
• прерывистый (импульсный)	pulsating current	[pʌl'seɪtɪŋ]
• проводимости	conduction current	['kən'dʌkʃən]
• статора	stator current	['steɪtə]
• холостого хода	no-load current	['nəʊləʊd]
• якоря	armature current	['ɑ:mətʃʊə]
токонесущий	current-carrying	['kʌrənt 'kæərɪŋ]
токопроводящий	current-conducting	['kʌrənt kən'dʌktɪŋ]
толкатель	push rod	[pʊʃ rɒd]
толкать, нажимать	to push	[pʊʃ]
топка	furnace	['fɜ:nɪs]
• мазутная	oil-fired furnace	[ɔɪl 'faɪəd]
• с восходящим движением газов	upshot fired furnace	['ʌpʃɒt 'faɪəd]
• с нижней подачей топлива	underfeed furnace	['ʌndə'fi:d]
• с нижней тягой	down-draft furnace	[daʊn dra:ft]
топик шлюпбалки	davit span	['dævɪt spæn]
торец	end	[end]
• задний	back end	[bæk]
• передний	front end	[frʌnt]
трап забортный	accommodation ladder	[ə'kɒmə'deɪʃən 'lædə]
трап-тали	ladder tackle	['lædə 'tækəl]
треснувший	cracked	[krækt]
треугольник, соединение треугольником	delta	['delta]
трехфазный (трансформатор)	three-phase (transformer)	[θri: feɪz træn'sfɔ:mə]
трещина	crack	[kræk]
триггер	flip-flop	['flɪpflop]
тронк	trunk	[trʌŋk]
труба	pipe / tube	[paɪp] [tju:b]
• воздухоотводная	vent	[vent]
• газоотводная	vent	[vent]
• дейдвудная	stern tube	[stɜ:n tju:b]
• жаровая	fire tube / flame tube	['faɪə] ['fleɪm]
• испарительная	evaporating tube	['ɪvæpəreɪtɪŋ tju:b]
• сливная	discharge tube / drain pipe	['dɪʃtʃɑ:dʒ tju:b] [dreɪn paɪp]
• телескопическая для охлаждения поршня	telescope pipe for piston cooling	['telɪskəʊp paɪp fɔ: 'pɪstən 'ku:lɪŋ]

трубопровод	pipng / pipeline	[ˈpaɪpɪŋ] [ˈpaɪplaɪn]
• водяной	water piping	[ˈwɔ:tə]
• воздушный	air piping	[eə]
• выпускной	outlet piping	[ˈaʊtlət]
• масляный	oil piping	[ɔɪl]
• подающий, питательный	delivery piping	[dɪˈlɪvəri]
• подводный	feed piping	[fi:d]
• главный, магистральный	main piping	[meɪn]
• осушительный	bilge line	[bɪldʒ ˈlaɪn]
• отводной, сливной	discharge piping	[dɪsˈtʃɑ:dʒ]
• продувочного воздуха	scavenging piping	[ˈskævɪndʒɪŋ eə]
• топливный	fuel piping	[fju:əl]
трюмная вода	bilge water	[bɪldʒ ˈwɔ:tə]
турбина	turbine	[ˈtɜ:baɪn]
• паровая	steam turbine engine	[sti:m ˈtɜ:baɪn ˈendʒɪn]
турбокомпрессор	turbocompressor	[ˈtɜ:bəʊ kəmˈpresə]
турбонагнетатель	turbocharger	[ˈtɜ:bəʊˈtʃɑ:dʒə]
тяга	pull rod	[pʊl rɒd]
увеличивать(ся)	to increase	[ɪnˈkri:s]
углекислотный баллон	CO ₂ cylinder	[si: əʊ tu: ˈsɪlɪndə]
угол	angle	[ˈæŋɡəl]
удалять, снимать	to remove	[rɪˈmu:v]
указатель	gauge	[geɪdʒ]
• температуры масла	oil temperature gauge	[ɔɪl ˈtemprɪtʃə]
• уровня, уровнемер	level gauge	[ˈlevəl]
• уровня топлива	fuel contents gauge	[fju:əl ˈkɒntents]
улитка (центробежного насоса или компрессора)	volute	[vəˈlju:t]
уменьшать	to decrease	[di:ˈkri:s]
уплотнение, набивка, сальник	gland	[glænd]
уплотнение, пломба	seal	[si:l]
• вала	shaft seal	[ʃɑ:ft]
• войлочное	felt seal	[felt]
• из ткани	fabric seal	[ˈfæbrɪk]
• масляное	oil seal	[ɔɪl]
• металлическое	metal seal	[ˈmetəl]
• механическое	mechanical seal	[miˈkænikəl]
• осевое	axial seal	[ˈæksɪəl]
• пылезащитное	dust-proof seal	[ˈdʌstpru:f]
• радиальное	radial seal	[ˈreɪdʒəl]
• резиновое	rubber seal	[ˈrʌbə]
• уплотнительное кольцо	ring seal	[rɪŋ]
• фланцевое	flange seal	[flændʒ]
уплотнительное устройство	tightening arrangement	[ˈtaɪtnɪŋ əˈreɪndsmənt]
управлять	to operate	[ˈɒpəreɪt]
усилитель	amplifier	[ˈæmplɪfaɪə]
• электромашинный	rotary amplifier	[ˈrɔ:təri]
усреднительный резервуар	balancing tank	[ˈbælənsɪŋ tæŋk]
устанавливать	to install	[ɪnˈstɔ:l]
установка	plant	[plɑ:nt]
• аварийная	emergency plant	[ɪˈmɑ:dʒənsɪ]
• вентиляционная	ventilating plant	[ˈventɪleɪtɪŋ]
• гребная электрическая	electric propulsion plant	[ɪˈlektrɪk prəˈpʌlʃən]

• для очистки отходов	sewage plant	['sju:ɪdʒ]
• для подачи свежего воздуха в трюмы	dilution air plant	[daɪ'lʊ:ʃən eə]
• испарительная	evaporator plant	[ɪ'væpəreɪtə]
• комбинированная	combined plant	[kəm'baɪnd]
• морозильная	freezing plant	['fri:zɪŋ]
• опреснительная	distillation plant	['dɪstɪ'leɪʃən]
• осветительная	lighting plant	['laɪtɪŋ]
устранить неисправность	to remedy fault	['remɪdi fɔ:lt]
устройство	gear	[gɪə]
• гидравлическое затягивающее	hydraulic tightening gear	[haɪ'drɔ:ɪk 'taɪtɪŋ]
• подруливающее	manoeuvring gear	[mæ'nu:vərɪŋ]
• подъемное	lifting gear	['lɪftɪŋ]
• устройство для приема топлива	fuel gear	['fju:əl]
• устройство для спуска шлюпки	launching gear	['lɔ:ntʃɪŋ]
• швартовное	mooring gear	['muərɪŋ]
• шлюпочное	boat-handling gear	[bəʊt 'hændlɪŋ]
• якорное	anchor gear	['æŋkə]
фаза	phase	[feɪz]
фильтр	filter / strainer	['fɪltə] ['streɪnə]
• воздушный	air filter	[eə 'fɪltə]
• -глушитель	filter-silencer	['fɪltə 'saɪlənsə]
• грубой очистки	strainer	['streɪnə]
• масла на входе	oil suction strainer	[ɔɪl 'sʌkʃən 'streɪnə]
• масляный грубой очистки	coarse oil filter	[kɔ:s ɔɪl 'fɪltə]
• масляный тонкой очистки	fine oil filter	[faɪn ɔɪl 'fɪltə]
• приемный	intake strainer	['ɪnteɪk 'streɪnə]
• тонкой очистки	fine strainer	[faɪn 'streɪnə]
• топливный	fuel filter	['fju:əl 'fɪltə]
фильтрующий элемент	filter element	['fɪltə 'elɪmənt]
фитинговые соединения трубопроводов	fittings	['fɪtɪŋz]
фланец	flange	[flændʒ]
• вала	shaft flange	[ʃɑ:ft]
• крана	cock flange	[kɒk]
• форсунки	injector flange	[ɪn'dʒektə]
форсунка	fuel injection valve / injector	['fju:əl ɪn'dʒekʃən vælv] [ɪn'dʒektə]
фундаментальная плита	bedplate	['bedpleɪt]
характер	character	['kærəktə]
• тока нагрузки	load-current character	[ləʊd 'kʌrənt]
характеристика	characteristic	['kærəktə'rɪstɪk]
• внешняя	external characteristic	[ɪk'stə:nəl]
• короткого замыкания	short-circuit characteristic	['ʃɔ:tʃə:kɪt]
• регулировочная	regulation characteristic	['regjʊ'leɪʃən]
• скоростная	speed characteristic	[spi:d]
• холостого хода	no-load characteristic	['nəʊləʊd]
хомут, зажим	fixture / yoke / clamp	['fɪkstʃə] [jəʊk] [klæmp]
храповик	ratchet wheel	['rætʃɪt wi:l]
царапина	scratch	[skrætʃ]
центрировать	to center / to align	['sentə] [ə'lɑɪn]
центрифуга	centrifuge	['sentrɪfju:dʒ]
цепной стелор с каргой	devil's claw	['devəlz klɔ:]

цепь	chain	[tʃeɪn]
цепь (эл.)	circuit	['sɜ:kɪt]
• автоматического управления и регулирования	automatic control and regulating circuit	['ɔ:tə'mætɪk kən'trəʊl ænd 'regjuleɪtɪŋ]
• внешняя	external circuit	[ɪk'stɜ:nəl]
• возбуждения	field circuit	[fi:ld]
• входная	input circuit	['ɪnpʊt]
• заземленная	grounded circuit	['graʊndɪd]
• переменного тока	AC circuit	[eɪ si:]
• постоянного тока	DC circuit	[di: si:]
• разомкнутая	open circuit	['əʊpən]
• силовая	power circuit	['paʊə]
• управления пускорегулирующей аппаратуры	start regulating equipment control circuit	[stɑ:t 'regjuleɪtɪŋ i'kwɪpmənt kən'trəʊl]
цилиндр	cylinder	['sɪlɪndə]
цинк	zinc	[zɪŋk]
циркулировать	to circulate	['sɜ:kjuleɪt]
цистерна, бак	tank	[tæŋk]
• балластная	ballast tank	['bæləst]
• дизельного топлива	diesel oil tank	['di:zəl ɔɪl]
• отстойная	renovating tank	['renəʊ'veɪtɪŋ]
• расходная	service / storage / supply tank	['sɜ:vɪs] [sə'plai] ['stɔ:ɪdɪz]
• расширительная	expansion tank	[ɪk'spænfən]
• сточная	drain tank	[dreɪn]
частица	particle	['pɑ:tɪkl]
• заряженная	charged particle	['tʃɑ:dʒd]
частота (тока)	frequency	['fri:kwənsɪ]
часы	clock	[klɒk]
• по часовой стрелке	clockwise	['klɒkwaɪz]
• против часовой стрелки	counter-clockwise	['kaʊntə 'klɒkwaɪz]
чека	bolt pin	[bəʊlt pɪn]
червяк	worm	[wɜ:m]
• глобоидный	concave worm	[kɔŋ'keɪv]
• левооборотный	left-hand worm	['left'hænd]
• правооборотный	right-hand worm	['raɪthænd]
червячный редуктор	worm-and-wheel gearbox	[wɜ:m ænd wi:l giə bɒks]
черная жель	black sheet iron	[blæk 'ʃi:t 'aɪən]
четырёхтактный цикл	four-stroke cycle	[fɔ: strəʊk 'saɪkl]
чистить	to clean	[kli:n]
чугун	cast iron	[kɑ:st 'aɪən]
• белый	white iron	[waɪt]
• легированный	alloyed cast iron	['ælɔɪd]
• серый	gray cast iron	[greɪ]
шаг (защелок, спирали, резьбы)	pitch	[pɪtʃ]
• заклепочного шва	pitch of rivets	['rɪvɪts]
• резьбы	screw / thread pitch	[skru:ɪ] [θred]
шайба	washer	[wɒʃə]
• быстросъемная с прорезью	slip washer	[slɪp]
• зубчатая	toothed washer	[tu:θt]
• косая	taper washer	['teɪpə]
• маслоподающая	oil feed washer	[ɔɪl fi:d]
• плоская	flat washer	[flæt]
• пружинная, Гровера	spring washer	[sprɪŋ]

• разрезная	slot washer	[slɒt]
• со стопорными зубцами	crown washer	[kraʊn]
• стопорная	lock washer	[lɒk]
• упорная	thrust washer	[θrʌst]
шарик	ball	[bɔ:l]
шарнир	hinge	[hɪndʒ]
• промежуточный	intermediate hinge	[ˈɪntəˈmi:diət]
шатун	connecting rod	[kəˈnektɪŋ rɒd]
швеллер	box iron	[bɒks ˈaɪən]
шейка мотыля	crankpin	[ˈkræŋkpɪn]
шестерня	pinion	[ˈpɪnjən]
шина (эл.)	bar	[bɑ:]
шкала	scale	[skeɪl]
шкентель	pendant	[ˈpendənt]
шкив	pulley	[ˈpʊli]
шлифовать	to grind	[graɪnd]
шлиц	spline	[splɪn]
шлюпбалка	davit (boat davit)	[ˈdævɪt] [bəʊt ˈdævɪt]
• S-образная	goosenecked / swan-necked davit	[ˈgu:snɛkt] [ˈswɔːnnekt]
• горизонтальная	slewing davit	[ˈslu:ɪŋ]
• гравитационная	gravity davit	[ˈgrævɪtɪ]
• поворотная	revolving davit	[rɪˈvɒlvɪŋ]
• серповидная	crescent davit	[ˈkresənt]
• склоняющаяся	luffing davit	[ˈlʌfɪŋ]
• трапбалка	accommodation / ladder davit	[əˈkɒməˈdeɪʃən] [ˈlædə]
шлюпочный кильблок	cradle	[ˈkreɪdɪ]
шпангоут	rib	[rɪb]
шпиль	capstan	[ˈkæpstən]
• буксирный	towing capstan	[ˈtəʊɪŋ]
• гидравлический	hydraulic capstan	[haɪˈdrɔ:lɪk]
• двухбарбанный	double-barreled capstan	[ˈdʌbəl ˈbærəld]
• кормовой	after capstan	[ˈɑ:ftə]
• носовой	forward capstan	[ˈfɔ:wəd]
• реверсивный	reversible capstan	[rɪˈvɜ:səbəl]
• трехбарбанный	triple-headed capstan	[ˈtrɪplˈhedɪd]
• четырехбарбанный	four-headed capstan	[ˈfɔ:ˈhedɪd]
• швартовый	warping (gypsy) capstan	[ˈwɔ:pɪŋ] [ˈdʒɪpsɪ]
• электрический	electric capstan	[ɪˈlektrɪk]
шпилька	stud	[stʌd]
шпindelь, ось, палец	spindle	[ˈspɪndl]
• шпindelь клапана	valve spindle	[vælv]
шплинт, разводная чека	cotter pin	[ˈkɒtə pɪn]
штифт	pin	[pɪn]
• контрольный	test pin	[test]
• направляющий	guide pin	[gaɪd]
• предохранительный	guard pin	[ga:d]
• с буртиком	collar pin	[ˈkɒlə]
• с головкой и отверстием под шплинт	clevis pin	[ˈklevɪs]
• стопорный	catch / check / stop pin	[kæʃ] [tʃek] [stɒp]
• центрирующий	centering pin	[ˈsentərɪŋ]
• цилиндрический	roll pin	[rɔ:l]
шплинт	splint	[splɪnt]
шпонка	key	[ki:]

• врезная	sunk key	[sʌŋk]
• вытяжная	draw key	[drɔ:]
• на лыске	flat key	[flæt]
• направляющая	guide key	[gaɪd]
• призматическая	feather key	[ˈfeðə]
• с контрклином	fox key	[fɒks]
• сегментная, Вудруфа	Woodruff key	[ˈwʊdrʌf]
• цилиндрическая	round key	[raʊnd]
шпоночный паз	key slot	[ki: slɒt]
штуцер	union	[ˈju:njən]
шум	noise	[nɔɪz]
шунт	by-pass	[ˈbaɪpɑs]
шунтирование; соединение по мостовой схеме	bridging	[ˈbrɪdʒɪŋ]
щека коленвала	crankweb	[ˈkræŋkwɛb]
щетка (эл. машины)	brush	[brʌʃ]
щеточный аппарат	brushgear	[ˈbrʌʃɡiə]
щит	board	[bɔ:d]
• питания с берега	coastal power supply board	[ˈkɔ:stəl ˈpaʊə səˈplaɪ]
• распределительный	distribution board	[ˈdɪstrɪˈbju:ʃən]
щуп для измерения уровня	dipstick	[ˈdɪpstɪk]
шуруп	wood screw	[wʊd ˈskru:]
эжектор	ejector	[ɪˈdʒektə]
эжекторный маслораспылитель	ejector lubricator	[ɪˈdʒektə ˈlu:briˈkeɪtə]
экран	screen	[skri:n]
эксцентрик	eccentric	[ɪkˈsɛntrɪk]
электричество	electricity	[ɪlekˈtrɪsəti]
• динамическое	dynamic electricity	[daɪˈnæmɪk]
• статическое	static electricity	[ˈstætɪk]
электродвижущая сила (ЭДС)	electromotive force (emf)	[ɪˈlektroʊˈmɔ:tv fɔ:s] [ɪ: em ef]
• взаимной индукции	emf of mutual induction	[ˈmju:tʃuəl ɪnˈdʌkʃən]
• наведенная	induced emf	[ɪnˈdʒʊst]
• противо-ЭДС	counter emf	[ˈkaʊntə]
• самоиндукции	emf of self-induction	[ˈself ɪnˈdʌkʃən]
электромагнит	electromagnet	[ɪˈlektroʊˈmæɡnət]
электромагнитная сила	electromagnetic force	[ɪˈlektroʊmæɡˈnetɪk fɔ:s]
электропотребление	demand	[dɪˈmɑ:nd]
электропроводность	conduction	[kənˈdʌkʃən]
электростанция	power plant	[ˈpaʊə plɑ:nt]
• вспомогательная	auxiliary power plant	[ɔ:gˈzɪljəri]
элемент	element	[ˈelɪmənt]
энергия (эл.)	energy	[ˈenədʒi]
эффективная мощность в л.с.	brake / effective horsepower	[ˈbreɪk ˈhɔ:sˈpaʊə] [ɪˈfektɪv ˈhɔ:sˈpaʊə]
явные (полюса)	salient (poles)	[ˈseɪljənt ˈpəʊlz]
якорь	anchor	[ˈæŋkə]
якорь (эл. машины или эл. магнита)	armature	[ˈɑ:mətʃə]
янтарь	amber	[ˈæmbə]
ячейка	cell	[sel]
ящик	box	[bɒks]

