



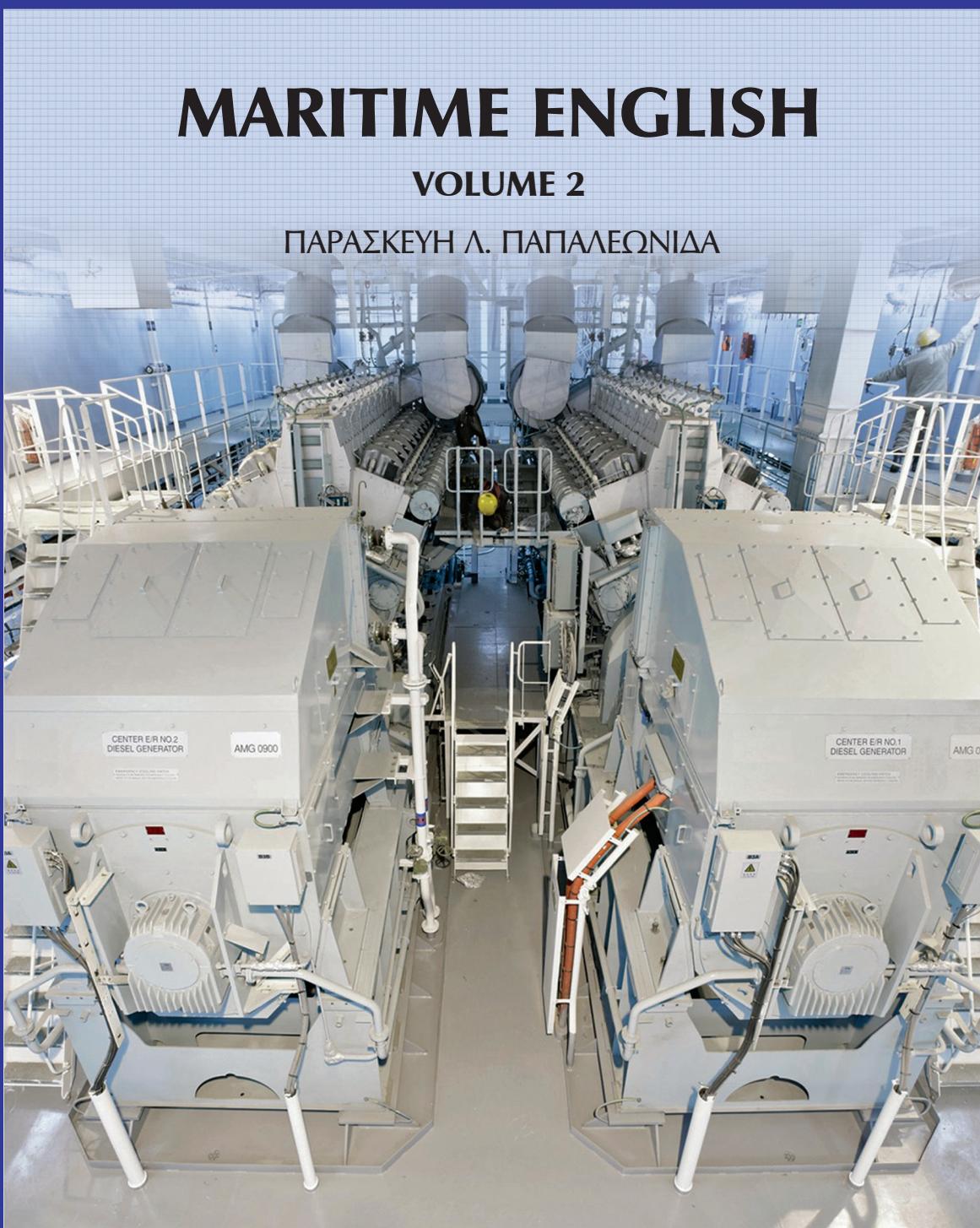
ΧΡΥΣΟΥΝ ΜΕΤΑΛΛΙΟΝ
ΑΚΑΔΗΜΙΑΣ ΑΘΗΝΩΝ

ΕΚΠΑΙΔΕΥΤΙΚΟ ΚΕΙΜΕΝΟ
ΑΚΑΔΗΜΙΩΝ ΕΜΠΟΡΙΚΟΥ ΝΑΥΤΙΚΟΥ

MARITIME ENGLISH

VOLUME 2

ΠΑΡΑΣΚΕΥΗ Λ. ΠΑΠΑΛΕΩΝΙΔΑ



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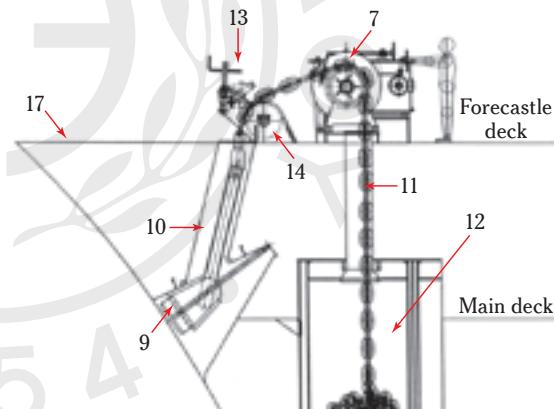
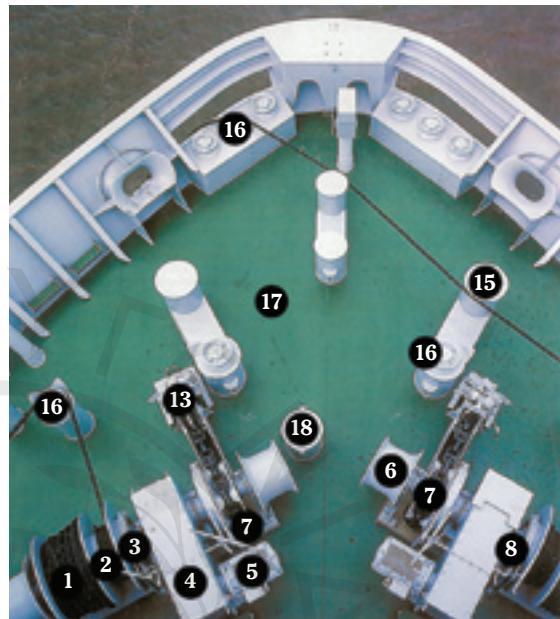
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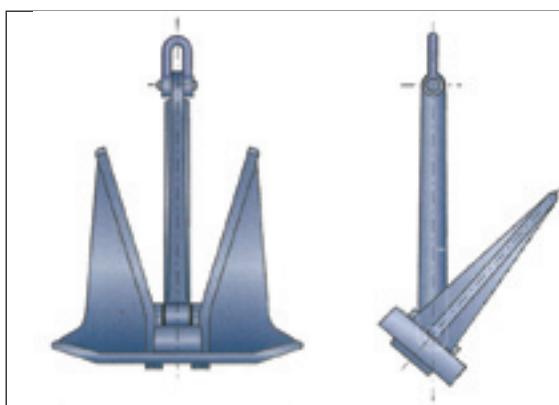
b) An anchor windlass with mooring drum and warping head is shown in the following pictures and the drawing. Fill in the missing words.

gypsy wheel	hawse pipe	bollard	anchor	motor	stopper	locker
-------------	------------	---------	--------	-------	---------	--------

1. Storage part of the mooring drum
2. Working part (pulling section) of the drum
3. Break band
4. Gear box
5. Electro-hydraulic _____
6. Warping head
7. Chain in the _____
8. Dog clutch
9. _____
10. _____
11. Spurling pipe
12. Chain _____
13. Chain _____ with security device
14. Roller guide
15. _____
16. Roller guide
17. Forecastle Deck
18. Hatch to chain locker



c) Read the following advertisement and write up the missing words.



AC-14 anchor

This is a high holding power anchor. The features are shaped to ensure an immediate grip into the seabed. Its increased efficiency over conventional anchors is maintained on most sea bottoms including clay and pebbly sand.

Risk Assessment

Risk assessment is an effective means of identifying safety risks and determining the most cost-effective means to reduce them. Risk assessment uses a matrix that has ranges of **consequence** and **likelihood** as the axes.

RISK ESTIMATOR		Consequence		
		Slightly Harmful	Harmful	Extremely Harmful
Likelihood	Highly Unlikely	Trivial Risk	Tolerable Risk	Moderate Risk
	Unlikely	Tolerable Risk	Moderate Risk	Substantial Risk
	Likely	Moderate Risk	Substantial Risk	Intolerable Risk

The combination of a consequence and likelihood range gives an estimate of risk, for instance:

RISK SCORE

- **LOW – Tolerable:** Monitor and Manage
- **MEDIUM:** Monitor and maintain strict control measures As Low As Reasonable Practicable (ALARP)
- **HIGH:** Review and introduce additional controls to mitigate to ALARP
- **EXTREME:** Intolerable, STOP work and immediately introduce further control measures

Dealing with safety risks includes:

- Avoiding the risk by deciding not to start or continue with the activity that gives rise to the risk
- Accepting or increasing the risk in order to pursue an opportunity
- Removing the risk source
- Changing the likelihood
- Changing the consequences
- Sharing the risk with another party or parties
- Retaining the risk by informed decision

The key to risk management is to identify risks that are intolerable and to mitigate them to a tolerable level.

B. A Guide to Risk Assessment³. Listen and fill in the missing words.



1. The _____ of hazards is the first and most important step, since everything that follows depends on it.
2. The risks associated with each hazard are evaluated in terms of the _____ of harm and the potential _____.
3. Risk should be reduced to a level that is as low as is reasonably _____ (ALARP).
4. The people chosen to undertake risk assessments should be those most familiar with the area, and who have most experience of the task to be assessed.

3. A Guide to Risk Assessment in Ship Operations, IACS, (June 2012) www.iacs.org.uk.

1. Safety Communications

I. Meteorological information

a) Look at the ship's weather forecasts in the Astral case study.

The Met Office sea area forecast for the 24 hours from 0500 UTC Sunday 9 March 2008 for sea area Wight predicted:

Westerly 5 to 7 backing southerly 7, occasionally Gale 8, perhaps severe Gale 9 Later. Moderate or rough increasing very rough or high. Showers then rain. Good becoming moderate or poor.

The Navtex weather forecast received on the bridge of *Astral* at 1800 on 9 March predicted south west winds 8-9 later for the Wight area.

What does each piece of information given in the weather forecast refer to? Underline in the text then note down below the following:

wind direction →

sea state →

wind force →

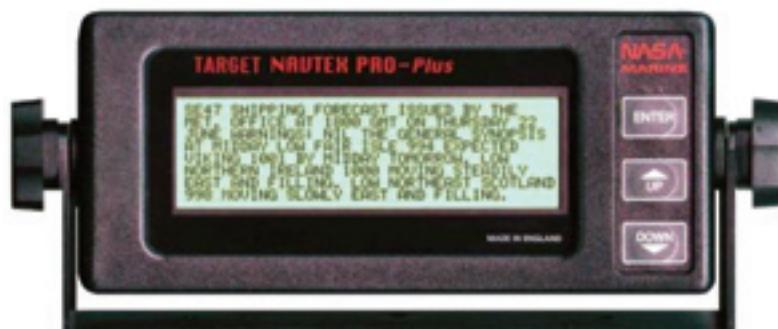
weather conditions →

visibility →

b) Vocabulary review on safety communications and meteorological conditions (SMCP A1/3.1). Circle the correct alternative of the words/phrases in blue.

1. Gale warning *in effect/in execution/in operation*.
2. A wind with a force 6 on the Beaufort scale is described as strong *breeze/storm/air*.
3. The meteorological chart depicts a hot *forepart/forehead/front* in the Mediterranean.
4. What wind is *expected/awaited/anticipated* in position?
5. Ice warning. Iceberg *spotted/reported/noticed* in area around lightship P9.
6. What is sea state in your position? *Violent/rogue/rough* sea – *heavy/big/strong* swell in my position.
7. Area around Eurobuoy No1 temporarily *closed/shut/sealed* to navigation.
8. Message received on NAVTEX:

SHIPPING FORECAST ANNOUNCED/ISSUED/PUBLISHED BY THE MET OFFICE AT 1800 ON 22 JUNE. WARNINGS: *NULL/NOTHING/NIL*.
THE GENERAL *SUMMARY/SYNOPSIS/STATUS* AT MIDDAY: ...



glacier

a mass of snow and ice continuously moving from higher to lower ground or, if afloat, continuously spreading

Use the following titles for the pictures below: (write the correct letter in each box)

- a) Lead
- b) Open ice
- c) Pancake ice

- d) Bergy bit with very open ice
- e) Close ice
- f) Fast ice (with ice shelf cliffs in the background)

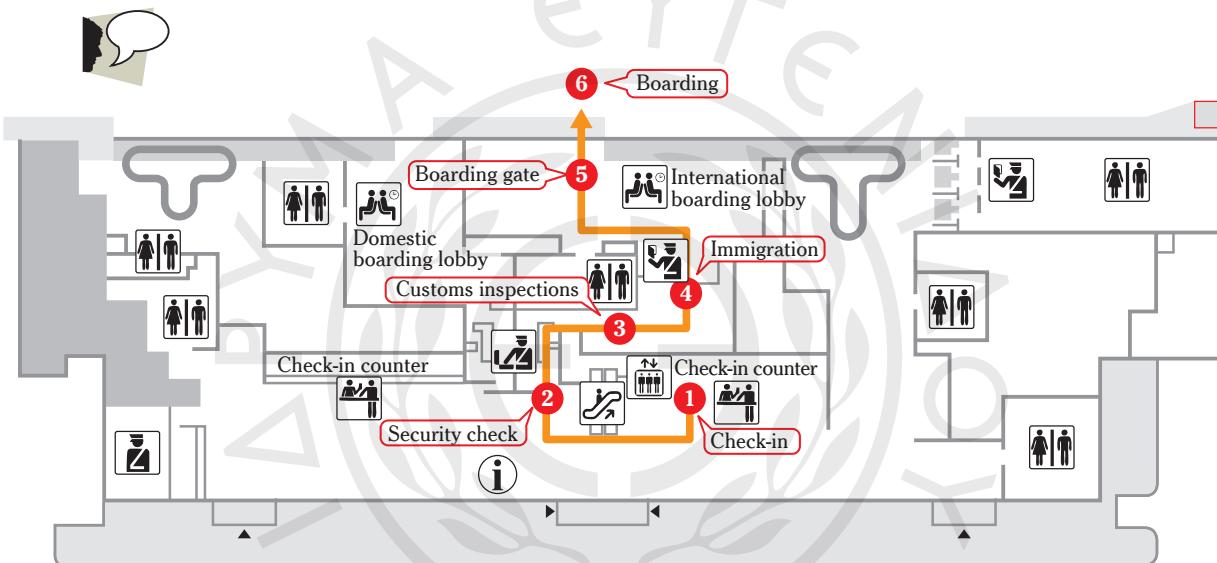




A *baggage carousel* is a *conveyor belt* in an airport that delivers checked luggage to passengers at the baggage claim area.



- L. Use the following diagram to give instructions step by step to somebody on how to board their flight through an international airport³.



Round-up

- A. Tick the goals you think you have achieved. The goals of this unit are for you to be able to ...



- understand/make travel arrangements and itineraries for joining ship
- understand/describe procedures at international airports

B. Class Project.



- What is the **MLC 2006**? What are the main areas in which it facilitates seafarers' occupation? Also, what are the "**Ship's Articles**"? Find out more and make a class presentation.

3. Diagram from International boarding procedures guide, Ibaraki airport, Japan.



Glossary

_____	the contract which details the conditions and circumstances under which the insured will be financially compensated
_____	the amount of money to be charged for insurance coverage
_____	to promise to compensate somebody if they suffer any damage or loss;
_____	secure someone against legal responsibility for their actions
_____	a legal demand for compensation/a demand for payment in accordance with an insurance policy or other formal arrangement
_____	legally accountable, responsible (answerable) for something
_____	money awarded to someone in recognition of loss, injury, etc.
_____	an amount of money lost by a business or organization

b) What do the following terms mean, in a nutshell? Draw arrows.

policy
premium
liable
claim

money
demand
responsible by law
contract



Claim (*noun*)

- An **insurance claim** is the notification to an insurance company that payment of an amount is due under the terms of the policy.
- Liability for **Maritime Claims** specifies limits for two types of claim - those for *loss of life or personal injury* and *property* claims, such as damage to ships, property or harbour works.
- Usage: we say *make a claim against*, *bring a claim to court*, *file a claim for compensation*.

The following text contains some interesting facts about the history and development of marine insurance, as well as key terms related to the subject that need to be understood:



Modern marine insurance and Lloyd's

In the late 1680s, Edward Lloyd opened a coffee house on Tower Street in London. It soon became a popular meeting place for shipowners, merchants, and ships' captains, and thereby a reliable source of the latest shipping news. Lloyd's Coffee House was the first marine insurance market. It became the place where parties in the shipping industry wishing to insure cargoes and ships met those willing to underwrite such ventures. These informal beginnings led to the establishment of the insurance market Lloyd's of London and several related shipping and insurance businesses.

The establishment of insurance companies, a developing infrastructure of specialists (such as shipbrokers, admiralty lawyers, bankers, surveyors, general average adjusters) and the growth of



The Lutine Bell at Lloyd's underwriting room. Traditionally it was rung to herald important announcements – one stroke for bad news and two for good



DET NORSKE VERITAS

SAFETY MANAGEMENT CERTIFICATE

DNV Ship Id. No.:
00000
DNV Company No.:
00000
Certificate number:
D00000/021202F

Issued under the **1.** of the INTERNATIONAL CONVENTION FOR THE SAFETY OF LIFE AT SEA, 1974, as **2.**

Issued under the authority of the Government of:

Norway

by Det Norske Veritas

Name of ship:

"FELICIA"

Distinctive number or letters:

XXXX1

Port of **3.**

KRAGERØ

Type of Ship*:

Other Cargo Ship

Gross **4.**

11658

IMO Number:

00000000

Name and address of the Company:
(as per ISM Code sec. 1.1.2)

Benkestok Shipping
Rørvikveien 32
3770 Kragerø
Norway

THIS IS TO **5.** THAT the safety management system of the ship has been **6.** and that it complies with the requirements of the International Management Code for the Safe Operation of Ships and for Pollution Prevention (ISM Code), following verification that the Document of **7.** for the Company is **8.** to this type of ship.

The Safety Management Certificate is **9.** until 2007-10-14, **10.** to periodical verification and the validity of the Document of Compliance remaining valid.

Issued at: Det Norske Veritas, Høvik, Norway
Date of Issue: 2002-12-02



Sign.
Name
Head of Section

* Insert the standard IMO ship type.

Accident prevention
Create and maintain a safe working environment and promote safe behaviour through a programme of proactive accident prevention by (1)....., assessing risks and implementing necessary preventative measures, before accidents and ill-health arise.

Benefits
Provide advice to seafarers and their families on the benefits that are available to them particularly with regard to medical care, sickness benefits, unemployment benefits, old-age benefits, employment injury benefits, family benefits, maternity benefits, invalidity benefits and survivors' benefits.

Company Culture
Develop a company culture by building trust through a policy of openness, good (2)..... and empowerment such that the employee and his/her family feel valued and involved as part of the Company.

Discipline
Encourage self discipline and the adoption of a code of good conduct and effective complaints procedures.

Employment Conditions
Provide a safe and secure working environment, decent working and (3).... conditions and satisfactory terms of employment.

Fair Treatment
Take all necessary measures to ensure that seafarers are treated fairly following a maritime accident and during any (4)..... and detention by public authorities and ensure that any detention is for no longer than necessary.

Good (5).....
Ensure that the workplace and living accommodation is kept clean and tidy and free from slip, trip and fall hazards and from the inappropriate storage of harmful substances and fire sources.

Habitability
Provide adequate and comfortable accommodation, galleys, messrooms and recreational spaces, having due regard for the variations in the size, shape and gender of the seafarer, and for the various environmental stressors such as noise, heat and (6).....

Job Satisfaction
Instil a sense of fulfilment and pride in the job, through good work practices, adequate remuneration, encouraging good working relationships, status, security, recognition, responsibility and advancement.

Keeping in touch
Provide access to ship-to-shore telephone communications, and email and (7)..... facilities onboard ship to enable crew to keep in touch with their families.

Lifestyle
Ensure the seafarer has the energy, physical fitness, physical strength, stamina and a sense of wellbeing to enable him/her to do the job – through a balanced diet, good hygiene, exercise, rest and recreation, together with acceptable standards of habitability and regular medical screening, including drug and (8)..... testing.

ii. Find the following words in the text. What do they mean? Circle the correct meaning in italics (the appropriate paragraph is provided in brackets).

- (A) **implementing:** *putting into practice / offering*
- (B) **benefits:** *good things / payment made by the state to people entitled to receive it*
- (D) **good conduct:** *good organisation / good behaviour*
- (F) **detention:** *being kept in a place and prevented from leaving / punishment*
- (J) **instil:** *ask for / gradually but firmly establish an idea or attitude in a person's mind*
- (L) **stamina:** *the energy needed to do a tiring activity for a long time / patience*

C. *Imagine you are the crew training manager and your company is holding a day conference on Seafarer Wellbeing. You have been asked to give a talk on the topic circled in the "The Good Guide to Seafarer Health, Safety and Wellbeing" above. Your audience is a group of seafarers of different age groups. In your talk answer the following questions and use the poster.*



LIFESTYLE How can seafarers keep fit on board merchant ships? Why is it important?

What medical examinations must be taken? How do we monitor alcohol / drug abuse?

What does the equation “a fit seafarer = a safer ship”³ mean?
Are there any initiatives/programs oriented at improving seafarer fitness?



Making a presentation in English. Look at the main parts of a presentation. Can you think of some phrases you might use in each part?

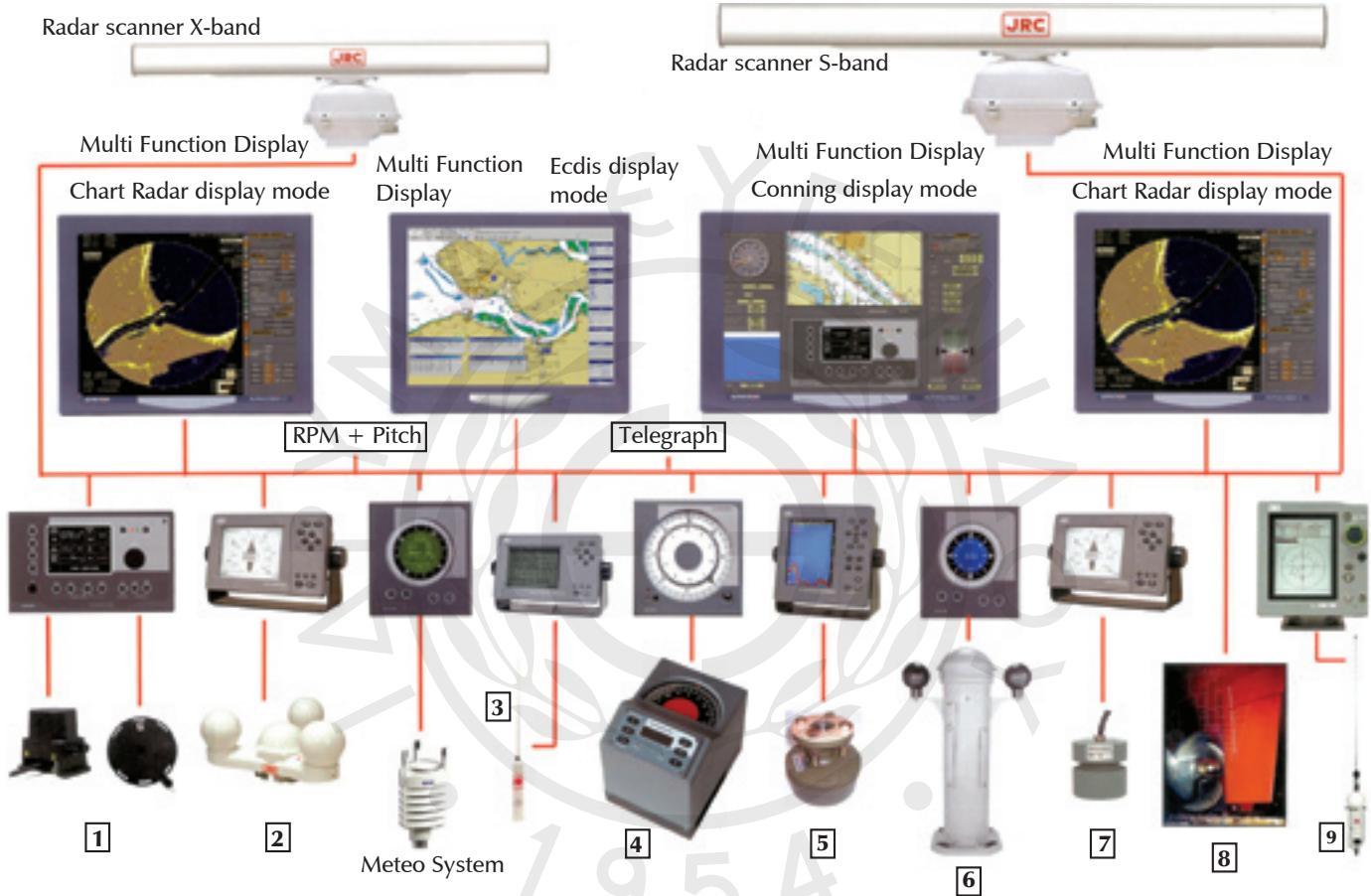
		GIVING A TALK – TIP: <i>Be short, precise and to the point</i>
Opening	1. greet your guest / thank them for coming / introduce yourself 2. introduce your topic / outline your presentation clearly and concisely	
Body	3. analyze your topic (give reasons, solutions, examples) 4. use visual aids (slides/graphs/pictures) to help you explain 5. sum up and conclude	
Questions	6. say you have reached the end of your talk / politely ask if there are any questions	

D. *Imagine you are making a presentation on piracy to a large group of people working in the same shipping company as you. Choose the alternative you feel is more appropriate and explain why.*

1. This is the way you start:
 - a) Are we all here? Good, well if you look at the first slide you'll see how piracy has risen in the past 10 years.
-
3. The poster comes from the site: www.seafarershealth.org.

A. Look at the following navigation aids. Identify the items in the picture and write up their names. The first and last letters are given for help.

- | | |
|------------------------|--------------------------------------|
| 1. A _ _ o p _ _ _ t | 6. M _ _ _ _ c c _ _ _ s |
| 2. GPS c _ _ _ _ s | 7. S _ _ d l _ g |
| 3. N _ _ _ x | 8. R _ _ _ r |
| 4. G _ _ o c _ _ _ _ s | 9. A _ _ _ _ c I _ _ _ _ n S _ _ _ m |
| 5. E _ _ o s _ _ _ _ r | |

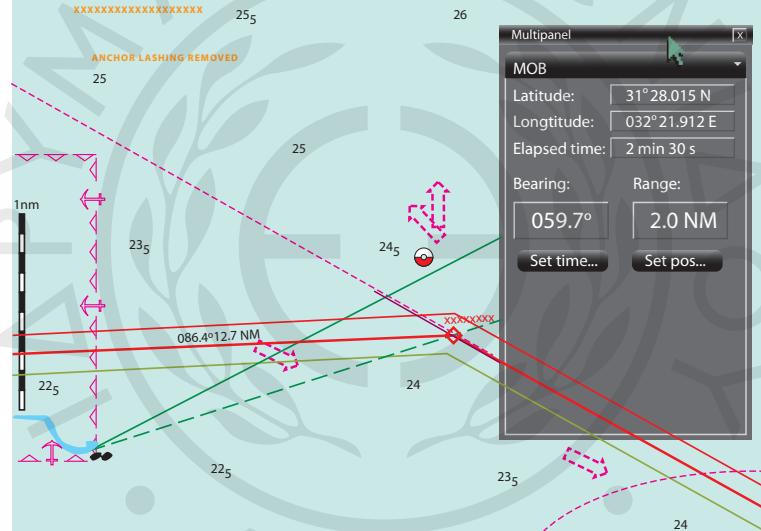


B. The First Officer is on the bridge of a cruise ship. He is giving some passengers a tour of the bridge and shows them the navigation aids. Listen and circle the words in the box you can hear. Then answer the questions.



marine radar	compass	targets	GPS	electronic charts
fin-stabilizers	rudder	echo sounder	AIS	autopilot
speed log	paper charts	speed vectors	wheel	ship's heading

- How does the cruise ship avoid rain? Why does it do that?
- What information can you see if you click on a ship on the AIS display unit?
- Why do paper charts require more space and time?
- What piece of equipment reduces rolling?
- What equipment is the GPS connected to in order to give an updated position?



Route Monitoring | Safety Alarms | Navigational Alarms

Safety frame	Safety parameters	Area alerts
Ahead: 15 min Port: 0.20 NM Starboard: 0.20 NM <input checked="" type="radio"/> Show safety frame	Shallow contour: 10 m Safety contour: 30 m Safety depth: 30 m Deep contour: 30 m	Basic Areas ● Anchor prohibited ● Areas to be avoided ● Cargo tanship ● Deepwater route ● Dumping ground ● Fairway ● Fishing prohibited ● Incineration area ● Marine Farm Culture ● Offshore prod. area
Antigrounding alarms <input checked="" type="radio"/> Nan. danger <input checked="" type="radio"/> Land danger <input checked="" type="radio"/> AIDS to navigation <input checked="" type="radio"/> Safety contour	Monitoring on: <input checked="" type="radio"/> Best scale chart <input checked="" type="radio"/> All scales	Additional Areas <input checked="" type="radio"/> Anchorage area <input checked="" type="radio"/> Caution area <input checked="" type="radio"/> Dredged area <input checked="" type="radio"/> Env. Sens. Area <input checked="" type="radio"/> Fishing ground <input checked="" type="radio"/> Ice area <input checked="" type="radio"/> Inshore traffic zone <input checked="" type="radio"/> Military area <input checked="" type="radio"/> Part. Sens. Area

No, I cannot stop spillage.

What kind of assistance is required?

I require oil **disinfectants/dispersants** and floating **barriers/booms**.

Stay in **vicinity/proximity** of pollution and co-operate with oil **cleaning/clean-up** team.

B. One of the most widely known spills is the Exxon Valdez oil spill. Read about it and answer the questions below.



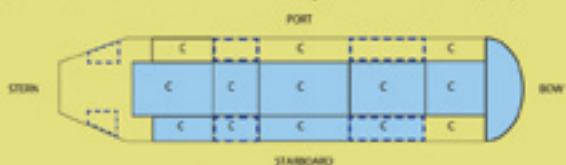
The incident

1

On the evening of 24 March 1989, the supertanker the Exxon Valdez left the Valdez oil terminal (Alaska, USA) for Long Beach (California, USA), after having loaded 180,000 tonnes of crude oil. During the night, the vessel grounded on Bligh Reef.

It gradually became apparent over a number of days that the accident had damaged several tanks and caused a spill of 38,500 tonnes of oil.

The Exxon Valdez was emptied of her cargo and then towed away and repaired at a shipyard. She was then rebaptised *Exxon Mediterranean*, then *Sea River Mediterranean* after being sold to another company.



■ Location of segregated and protected seawater ballast tanks
■ Area flooded due to grounding
c Cargo

Cause of accident	Pollutant	Quantity transported	Quantity spilled	Waste collected	Length of coastline polluted
Grounding	Crude oil	180,000 t	38,500 t	25,000 t	1,700 km



Response

2

The Governor of Alaska declared the situation an emergency and placed responsibility for clean-up in the hands of the oil group Exxon. The company acknowledged its responsibility and stated that it would take full charge of the organisation of clean-up and cover the costs.

Floating booms and skimmer barges were rapidly deployed. To prevent the whole cargo from spilling into the sea, the oil within the Exxon Valdez was rapidly transferred onto the tanker *Exxon Bishop*.

In two months, 2000 km² of drifting slicks polluted 800 km of coastline (1,200 km including all the inlets and islets). Tens of thousands of professionals and volunteers, with unprecedented means (1,400 vessels, 85 helicopters), were deployed to save seabirds and mammals and to clean up the shoreline, beach by beach.

The main response techniques used were manual and mechanical clean-up, pumping, washing (cold water low pressure washing and high pressure washing with hot water and washing agents) and bioremediation.



Reviving the cargo from the Exxon Valdez
© Photo courtesy of the EYOSIC



Cleanup by flooding with cold water
© Photo courtesy of the EYOSIC

4. are/vessels/advised/to position 45°5'20"N,128°50'51"W/to proceed/to start rescue.
.....

5. parallel track search pattern/starting at 0700 hours UTC/out/carry.
.....

6. for/sharp/keep/liferafts/look-out.
.....

7. obtain/information/survivors/try/from/to.
.....

8. was/of/total/persons/number/on board/24.
.....

9. with/you/stop/search/may/and/voyage/proceed.
.....

10. hope/is/to/more persons/there/no/rescue.
.....

F. Match the pictures to the words that describe rescue equipment.

rescue tether	rescue seat	rescue litter	rescue sling	rescue net	rescue basket
---------------	-------------	---------------	--------------	------------	---------------



a)



b)



c)



d)



e)



f)

Class 3			Class 6		
	3	Flammable liquids		6.1	Toxic substances
Class 4			Class 7		
	4.1	Flammable solids		6.2	Infectious substances
Class 5			Class 8		
	4.3	Combustible solids when in contact with water ("dangerous when wet")		II	Radioactive materials Category II (yellow)
Class 9			Class 9		
	5.1	Oxidizer		-	Corrosive materials
	5.2	Organic peroxide		-	Miscellaneous dangerous substances/articles

5. Within each of the 9 hazard classes dangerous goods are uniquely identified by two pieces of information:

- A four-digit number known as the UN Number which is preceded by the letters UN.
- The corresponding Proper Shipping Name (PSN).

For example, kerosene is identified in the IMDG Code by its UN Number UN 1223 and the PSN Kerosene. Together the UN Number and PSN uniquely identify dangerous goods to:

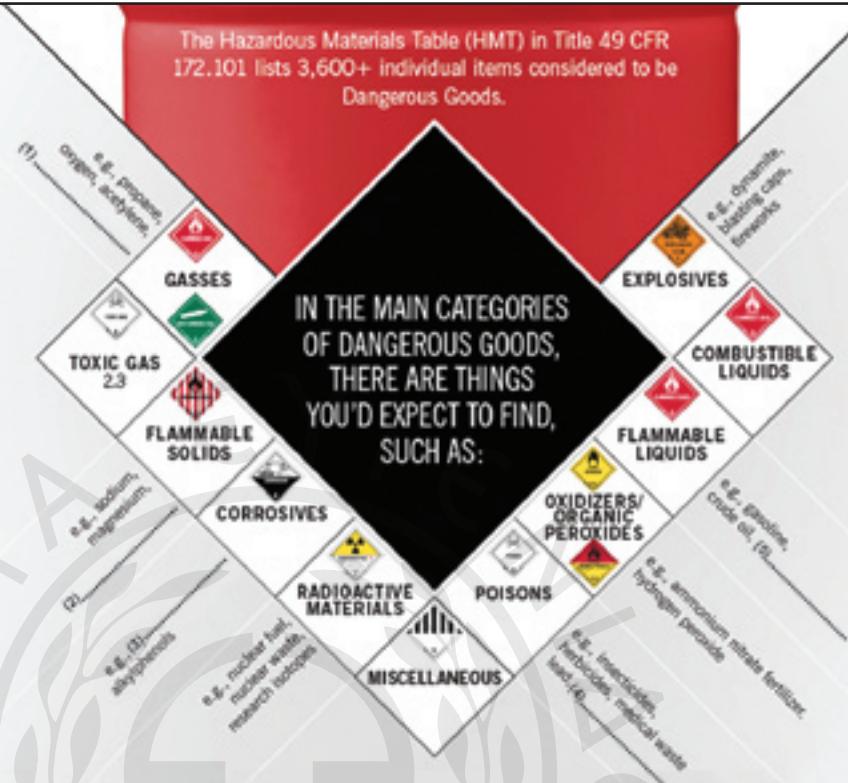
- enable rapid and precise identification during transport to ensure the correct handling, stowage, segregation etc, and
- in the event of an emergency, ensure that the correct procedures are followed.

6. The IMDG Code comprises 7 parts, presented in two volumes – Volume 1 and Volume 2. Most of the decisions on safe shipping and transport procedures stem from the use of the DGL located in Volume 2. The DGL is an index of substances

F. Which class do the following substances belong to? Five substances have been erased from the examples. Write the correct number (1-5) in the boxes.

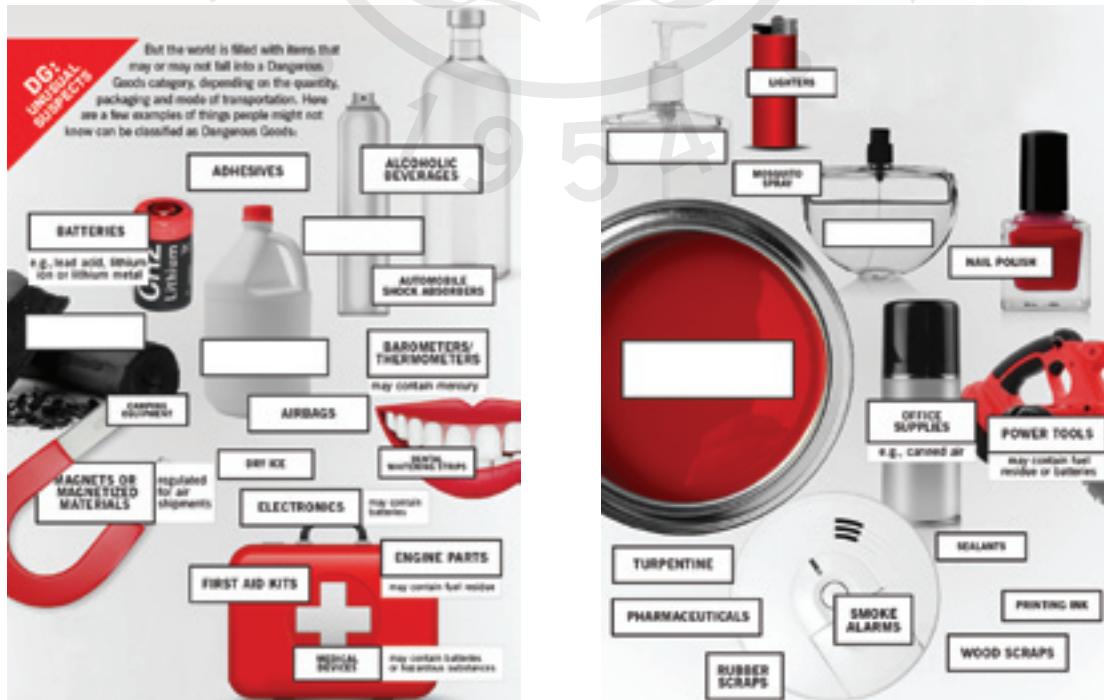
The generally accepted definition of Dangerous Goods (or hazardous materials) from the US DOT is: "Any substance which may pose an unreasonable risk to health and safety of operating or emergency personnel, the public, and/or the environment if not properly controlled during handling, storage, manufacture, processing, packaging, use, disposal, or transportation."

- 5 solvents
- gunpowder
- nitrogen
- acids
- mercury

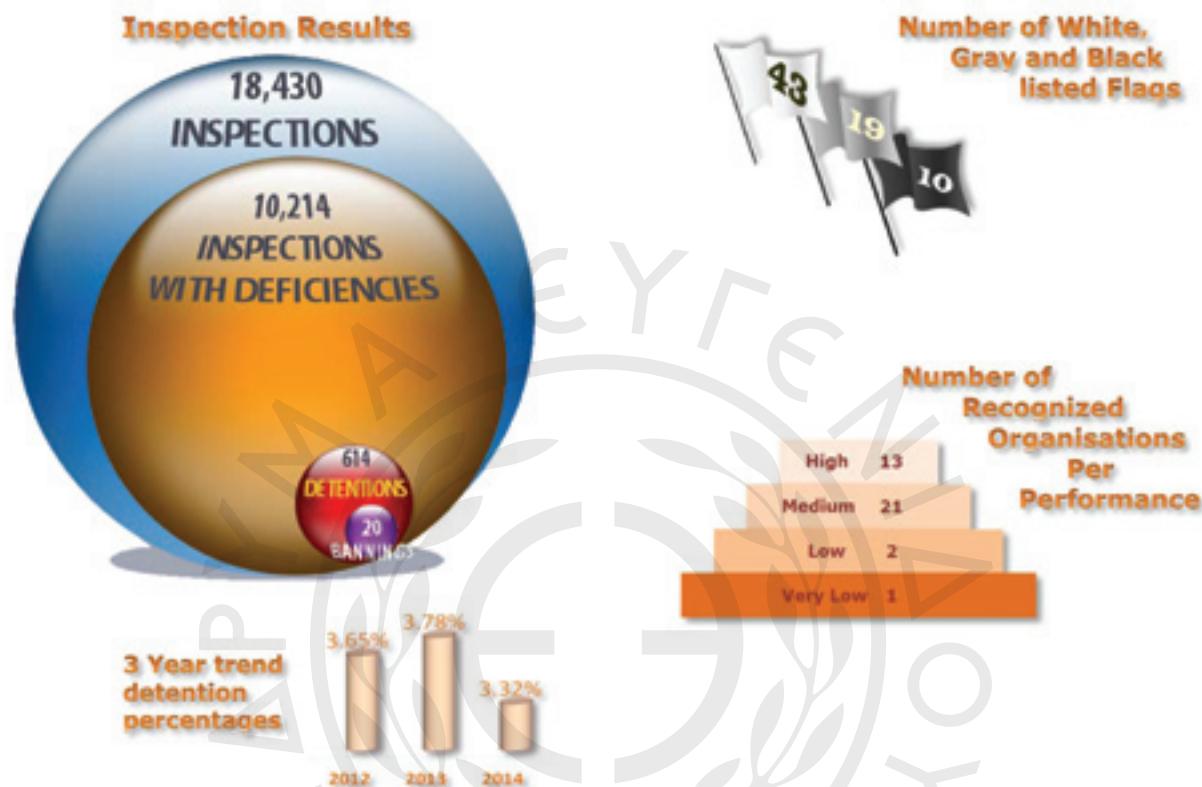


G. Write the missing name of the dangerous goods shown below.

paints & varnishes	aerosols	bleach	charcoal	perfume	hand sanitizer
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InfoGraphic Paris MoU region 2014



B. Dangerous Cargo compatibility table. Consult the table and answer the following questions.

1. You have two different types of goods in two containers, one is labelled as Class 2, oxidizing gas, and the other one is labelled as Class 6, toxic cargo. Can you store them together?
2. What is the space you must leave between Class 5.1 cargo and Class 3 cargo?
3. You have two containers labelled with Class 2, toxic gas. Can you store them together?
4. You have two containers labelled with Class 4, flammable solids. Can you store them together?

DANGEROUS GOODS & COMBUSTIBLE LIQUIDS STORAGE COMPATIBILITY CHART													
Class or Subsidiary Risk		Flammable Gas	Non-toxic Non-flammable Gas	Toxic Gas	Oxidizing Gas	Flammable Liquids	Flammable Solids	Spontaneously Combustible	Dangerous When Wet	Oxidizing Agent	Organic Peroxide	Toxic Substances	Corrosive
FLAMMABLE GASES		OK TO STORE TOGETHER	OK TO STORE TOGETHER	SEGREGATE At least 3m	SEGREGATE At least 3m	SEGREGATE At least 3m	ISOLATE	SEGREGATE At least 3m	SEGREGATE At least 3m				
NON-TOXIC NON-FLAMMABLE GASES		OK TO STORE TOGETHER	OK TO STORE TOGETHER	OK TO STORE TOGETHER	OK TO STORE TOGETHER	SEGREGATE At least 3m	SEGREGATE At least 3m	SEGREGATE At least 3m	SEGREGATE At least 3m	SEGREGATE At least 3m	ISOLATE	SEGREGATE At least 3m	SEGREGATE At least 3m
TOXIC GAS		SEGREGATE At least 3m	OK TO STORE TOGETHER	SEGREGATE At least 3m	OK TO STORE TOGETHER	SEGREGATE At least 3m	SEGREGATE At least 3m	SEGREGATE At least 3m	SEGREGATE At least 3m	SEGREGATE At least 3m	ISOLATE	SEGREGATE At least 3m	SEGREGATE At least 3m
OXIDIZING GAS		SEGREGATE At least 3m	OK TO STORE TOGETHER	SEGREGATE At least 3m	OK TO STORE TOGETHER	SEGREGATE At least 3m	SEGREGATE At least 3m	SEGREGATE At least 3m	SEGREGATE At least 3m	SEGREGATE At least 3m	ISOLATE	SEGREGATE At least 3m	SEGREGATE At least 3m
FLAMMABLE LIQUIDS + COMBUSTIBLE LIQUIDS		SEGREGATE At least 3m	SEGREGATE At least 3m	SEGREGATE At least 3m	SEGREGATE At least 3m	OK TO STORE TOGETHER	SEGREGATE At least 3m	SEGREGATE At least 3m	SEGREGATE At least 3m	SEGREGATE At least 3m	ISOLATE	SEGREGATE At least 3m	SEGREGATE At least 3m
FLAMMABLE SOLID		SEGREGATE At least 3m	SEGREGATE At least 3m	SEGREGATE At least 3m	SEGREGATE At least 3m	SEGREGATE At least 3m	OK TO STORE TOGETHER	SEGREGATE At least 3m	SEGREGATE At least 3m	SEGREGATE At least 3m	ISOLATE	SEGREGATE At least 3m	NOT COMPATIBLE CHECK NOTES AND NOTES
SPONTANEOUSLY COMBUSTIBLE		SEGREGATE At least 3m	SEGREGATE At least 3m	SEGREGATE At least 3m	SEGREGATE At least 3m	SEGREGATE At least 3m	OK TO STORE TOGETHER	SEGREGATE At least 3m	SEGREGATE At least 3m	SEGREGATE At least 3m	ISOLATE	SEGREGATE At least 3m	SEGREGATE At least 3m
DANGEROUS WHEN WET		SEGREGATE At least 3m	SEGREGATE At least 3m	SEGREGATE At least 3m	SEGREGATE At least 3m	SEGREGATE At least 3m	SEGREGATE At least 3m	SEGREGATE At least 3m	OK TO STORE TOGETHER	SEGREGATE At least 3m	ISOLATE	SEGREGATE At least 3m	SEGREGATE At least 3m
OXIDIZING AGENT		SEGREGATE At least 3m	SEGREGATE At least 3m	SEGREGATE At least 3m	SEGREGATE At least 3m	SEGREGATE At least 3m	KEEP APART	SEGREGATE At least 3m	SEGREGATE At least 3m	NOT COMPATIBLE CHECK NOTES AND NOTES	ISOLATE	SEGREGATE At least 3m	SEGREGATE At least 3m
ORGANIC PEROXIDE		ISOLATE	ISOLATE	ISOLATE	ISOLATE	ISOLATE	ISOLATE	ISOLATE	ISOLATE	OK TO STORE TOGETHER	ISOLATE	SEGREGATE At least 3m	
TOXIC SUBSTANCES		SEGREGATE At least 3m	SEGREGATE At least 3m	SEGREGATE At least 3m	SEGREGATE At least 3m	SEGREGATE At least 3m	SEGREGATE At least 3m	SEGREGATE At least 3m	SEGREGATE At least 3m	OK TO STORE TOGETHER	ISOLATE	OK TO STORE TOGETHER	
CORROSIVE		SEGREGATE At least 3m	SEGREGATE At least 3m	SEGREGATE At least 3m	SEGREGATE At least 3m	SEGREGATE At least 3m	SEGREGATE At least 3m	SEGREGATE At least 3m	SEGREGATE At least 3m	SEGREGATE At least 3m	ISOLATE	SEGREGATE At least 3m	NOT COMPATIBLE CHECK NOTES AND NOTES

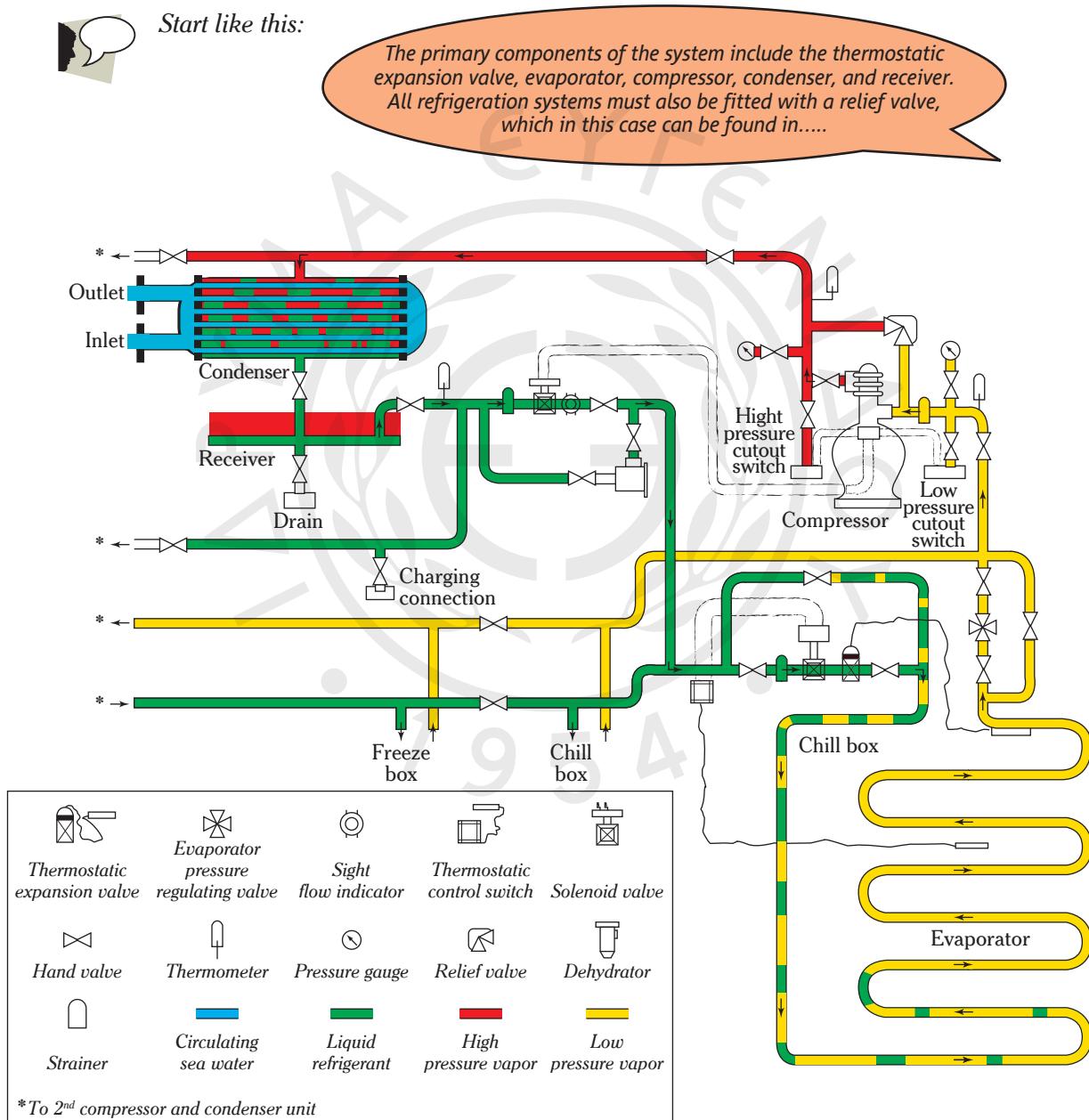
C. Write the correct derivative of the words in capital letters.

What should you do if your vessel causes an oil spill?

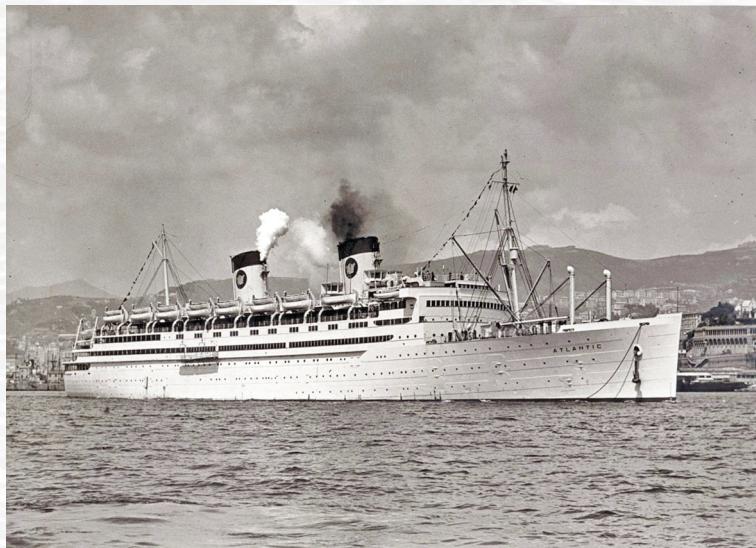
1. If the authorities decide to conduct a criminal _____ [INVESTIGATE], seek advice from lawyers before responding to any questions. Make it clear to the authorities that you require a lawyer to be in _____ [ATTEND] during any interviews.
2. When pollution occurs, there should be full _____ [CO-OPERATE] with all contractors combating the spill.
3. Chemical _____ [DISPERSE] must not be used following an oil spill, unless and until there is _____ [APPROVE] by the local authorities.
4. If the spill was caused by damage to the vessel's structure, all relevant blueprints from the vessel plans should be readily available. An officer from the vessel should be assigned to the task of providing _____ [ASSIST] when necessary in interpreting them.
5. Keep a record of the approximate amount spilled, the _____ [PREVAIL] weather conditions and the operation during which pollution occurred, e.g. bunkering or cargo transfer.

The refrigerant starts as a gas and is (1) _____ in the compressor, which increases its temperature dramatically. Thereafter, the condenser (2) _____ the hot high pressure refrigerant and this way the refrigerant (3) _____ a liquid. Next, the evaporator boils the refrigerant back to a gas, at a very low temperature. The change from liquid to gas (4) _____ the heat from the evaporator, which in turn removes the heat from the insulated refrigeration box, thereby lowering its temperature. Hereafter, the refrigerant is (5) _____ back to the compressor and the refrigeration cycle (6) _____ again.

D. The main parts of a refrigeration system are shown in the diagram below². Use the diagram to orally explain how the system works. Also, identify the relief valve.



2. From "Refrigeration systems", hawsepipe.net, merchant marine training, <http://www.hawsepipe.net/chiefhelp/AC&R/Refrigeration.htm>.



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