

Olena Tyron

**TECHNICAL ENGLISH
FOR SHIP ENGINEERS**

STUDENT'S BOOK
Part 1



KYIV
2020

УДК 802:656.61(075ю8)

Т44

*Рекомендовано до друку кафедрою іноземних мов за професійним спрямуванням
Державного університету інфраструктури та технологій
Протокол №11 від 21.06.2017*

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Т44 Technical English for ship engineers. Student's book.
Part 1: навчальний посібник, видання друге, доповнене /
О.М.Тирон. Київ: Видавництво Ліра-К, 2020. 98 с.

ISBN 978-617-7507-60-3

Посібник «Technical English for ship engineers. Student's book, Part 1» забезпечує вивчення курсу технічної англійської мови професійного спрямування для судномеханіків. Мета посібника – сформулювати іншомовну професійну компетентність.

Посібник може використовуватися на практичних заняттях з англійської мови у навчальних закладах для спеціальності 271 «Річковий та морський транспорт» освітньої програми «Експлуатація технічних систем на водному транспорті».

Посібник також може використовуватися індивідуально для вивчення технічної англійської мови та підготовки до професійної діяльності на міжнародних судах.

Посібник корисний для підготовки до співбесід у кріюінгових компаніях на офіцерські посади у машинному відділенні.

ISBN 978-617-7507-60-3

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UNIT 1. GAUGES AND MEASURING INSTRUMENTS

Word study

Gauge (also US English **gage**) //geɪdʒ//

1. noun (often in compounds) – an instrument for measuring the amount or level of something *a fuel/petrol/temperature, etc. gauge*
2. (verb) to calculate an amount, especially by using a measuring device: Use a thermometer to gauge the temperature. I tried to gauge the weight of the box. (<http://dictionary.cambridge.org/dictionary/english/gauge>)

Translate these words: gauges, tools, instruments, devices, appliances.

1. Are these words synonyms?
2. What is the difference in their use?



Read the text and answer the questions:

1. How the nautical engineers can reduce the cost of machinery operations?
2. What are measuring instruments used for?
3. What do engineering parameters describe?

Machinery onboard ships require regular care and maintenance. Nautical engineers do their best to increase machinery's working life and efficiency. They reduce the cost of operation, which includes unnecessary breakdowns and spares. For different types of machinery and systems, different measuring tools, instruments and gauges are used on ship.

Measuring instruments and gauges are used to measure various parameters engineering parameters which describe the condition of the working machinery.

➤ Grammar Review

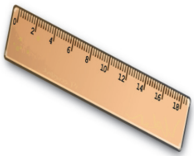


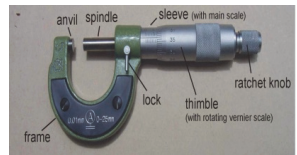

Task 1. Fill in a) who, b) which, c) that, d) whom, e) where or f) whose.




1. What was the name of the woman designed that building?
2. The man answered the phone told you were there.
3. What happened to the lap-top I bought not long ago?
4. I don't know the name of the woman toI spoke on the phone.
5. My office I'm using at the moment is very small.
6. I met Alex..... ambition is to be Chief Engineer.
7. My uncle lives in London, is a scientist.
8. Willy worked for a company made vacuum cleaners.
9. What's the name of the city you were born?

Task 2. Underline the correct word from the brackets:

1. (What/ How) do you call that piece of machinery in English?
2. Did you take (one /any) medicine yesterday?
3. (Whose/ Who's) things are (this/ these)?
4. My uniform and (her/ hers) are quite similar.
5. (What/ How) a wonderful day this is!
6. I don't drink coffee (also/ either/too).
7. (What/How) do you control this machine?
8. We have written a letter to him (yet/ already).

❖ **Read, learn, retell**

	Gauge and instrument	Description
1.		Ruler and scales: They are used to measure lengths and other geometrical parameters. They can be single steel plate or flexible tape type tool.
2.		Callipers: They are normally of two types- an inside and an outside calliper. They are used to measure internal and external size (e.g. diameter) of an object. It requires external scale to compare the measured value. Some callipers are provided with measuring scale. Other types are odd leg and divider callipers.
3.		Vernier calliper: It is a precision tool used to measure a small distance with high accuracy. It has got two different jaws to measure outside and inside dimension of an object. It can be a scale, dial or digital type.
4.		Micrometer: It is a fine precision tool which is used to measure small distances and is more accurate than the vernier calliper. Another type is a large micrometer calliper which is used to measure large outside diameter or distance.
5.		Feeler gauge: A feeler gauge is a tool used to measure gap widths. Feeler gauges are mostly used in engineering to measure the clearance between two parts.

6.		Telescopic feeler gauge: It is also known as tongue gauge and it consists of long feeler gauge inside a cover with tongue or curved edge. The long feeler strips protrude out of the cover so that it can be inserted in to remote places where feeler gauge access is not possible.
7.		Bayonet gauge. It is an instrument to measure the level of oil.
8.		Dipstick. It is an instrument to measure the level of fuel. Sounding (ullage) stick (syn.).

➤ **Grammar Point**

Infinitive or Gerund

..... is used to V

.....is used for Ving

1. What are callipers used for?

2. What are feeler gauges used for?

These verbs take an infinitive with to:

Decide, want, offer, promise, hope, agree, seem, manage, refuse, expect, learn, remember, forget, ask, etc.

These verbs take a gerund:

mind, enjoy, miss, finish, give up, avoid, practice, like, hate, love, stop, etc.

Task 1. Complete the sentences, putting the verbs into the correct form: infinitive or gerund.

I want to get (get) a position of an Engine Cadet.

I enjoy speaking (speak) English.

1. My friend has given up _____ (smoke).

2. When did you decide _____ (join) the crew?

3. I don't mind _____ (lend) you some money.

4. Why has nobody offered _____ (measure) the clearance?

5. If we leave now, we will miss _____ (see) the Chief Engineer.

6. I promised _____ (write) my parents on Viber every day.

7. I expected _____ (be) promoted but I wasn't.

8. We need _____ (practice) more before having an exam.

9. How did you avoid _____ (get) in the storm?

10. He seems _____ (have) some problems with studying.

11. The Cadet refused _____ (take off) the jacket.

12. They have finished _____ (discuss) the repair.
13. How did you manage _____ (fix) your bike?
14. They have agreed _____ (pay) for repair.
15. I hope _____ (pass) an exam.

➤ **Grammar Review**

Task 1. Choose the correct variant

1. Does he (yet, still) work for the same shipowner?
2. We stayed in the port (for, since) a week.
3. I've (taking, taken) the test twice already.
4. Is that your book or (my, mine)?
5. We ate (some, any) ice cream for dessert.
6. The captain gave (me, to me) the money yesterday.
7. (This, These) are very reliable bearings.
8. He's (knowing, known) that (in, for) a long time.
9. Has John (returned, returning) from the commercial centre (yet, still)?

Task 2. Fill in the articles a, an or the

1. I have ...sister and two brothers. My sister lives in...Netherlands.
2. I met ... Algerian man yesterday. He is ...doctor.
3. Would you like to come to ...cinema with us? We're going to see ...film.
4. Vessels must not discharge oil into...sea. Pollution is ... serious threat to...environment.
5. Driving speed is restricted to 60 miles...hour-on highways in...USA.
6. ...2nd Officer, was talking to...Coastguard about weather conditions in...North Sea.
7. This isn't...very big town but it has...cinema,...opera house and several parks.
8. There is...cold wind blowing in from...Atlantic. You'll need to wear... jacket if you go outside.
9. Ever since he was...child, he has had...ambition to become...Master of ...ocean-going vessel.
10. Learning...second language is ... best thing I have ever done.

Task 3. Fill in the words and expressions into the text.

*formula based calculations; by means of; gauging instruments;
essential parameters;*

Calculations

In ship's engine room, a number of display various important parameters such as level, pressure, temperature etc. But there are

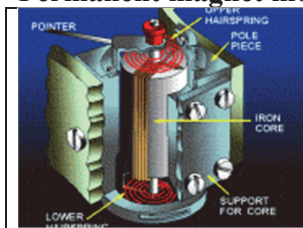
some which cannot be read directly through any instrument as they depend on a number of dynamic factors.

This demands the marine engineer working onboard ships to do some by considering all those factors and with possible available inputs.

To make all necessary calculations the engineers get information different electrical measuring instruments. Here you see the most popular of them.

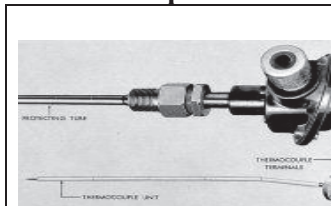
❖ **Read, learn, retell**

Permanent magnet moving coil



For measuring several electrical parameters to analyze and keep machineries in proper running condition, a permanent magnet moving coil (PMMC) instrument is used onboard.

Thermocouple



Thermocouple is a device which is widely used as a pyrometer onboard ship for continuous measurement of temperature

Voltmeter



A specific voltage testing device is called a voltmeter. This test instrument must be connected in parallel across the load. Voltmeters have very high internal resistance to ensure accurate readings. Voltmeters measure Voltage.

Ammeter



A specific current testing device is called a ammeter. Ammeters measure the current that pass through them (current flow). • This test instrument must be connected in series with the circuit. Ammeters have very low internal resistance to ensure false readings aren't given.

Wattmeter



A specific power testing device is called a wattmeter. Wattmeters measure the current and voltage that pass through them and display (apparent) power in watts.

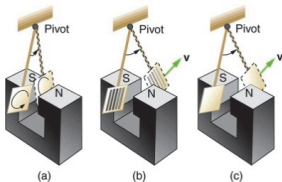
Ohmmeter



Ohmmeters measure impedance (Z) also known as resistance. A specific impedance testing device is called a ohmmeter. Impedance is defined as the total opposition to the flow of alternating current at a specific frequency.

Additional reading

Text 1. Dampers



A **damper** is a valve or plate that stops or regulates the (1) flow of air inside a (2) duct, (3) chimney, (4) VAV box(variable air box), (5) air handler, or other air-handling equipment. A damper may be used to cut off central (6) air conditioning (heating or cooling) to an unused room, or to regulate it for room-by-room (7) temperature and (8) climate control. Its operation can be manual or automatic. Manual dampers are turned by a handle on the outside of a duct. Automatic dampers are used to regulate airflow constantly and are operated by (9) electric or (10) pneumatic motors, in turn controlled by a (11) thermostat or (12) building automation system. Automatic or motorized dampers may also be controlled by a (13) solenoid, and the degree of air-flow calibrated, perhaps according to signals from the thermostat going to the actuator of the damper in order to modulate the flow of air-conditioned air in order to effect climate control.

A zone damper (also known as a **Volume Control Damper** or **VCD**) is a specific type of damper used to control the flow of air in an (14) HVAC heating or cooling system. In order to improve efficiency and occupant comfort, HVAC systems are commonly divided up into multiple zones. For example, in a house, the main floor may be served by one heating zone while the upstairs bedrooms are served by another. In this way, the heat can be directed principally to the main